APPENDIX C
Biological Resources

C-1. Biological Resources Technical Report

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Biological Resources Technical Report

McCoy Solar Energy Project
Riverside County, CA

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EXECUTIVE SUMMARY

McCoy Solar, LLC (McCoy Solar) is proposing to develop the McCoy Solar Energy Project (MSEP or Project), a photovoltaic (PV) solar power plant, in Riverside County, California (Figure 1). The MSEP is an up to 750 megawatt PV solar power plant that will provide renewable energy to the California electrical grid through an interconnection at Southern California Edison's proposed Colorado River Substation. To comply with federal, state, and local laws, natural resources must be evaluated at the Project. As part of evaluating the Project's potential effects on species persistence and/or recovery, the presence of federally listed, state-listed, and other special-status plants and animals must be identified and their distribution and approximate abundance determined. To meet these objectives, comprehensive surveys for biological resources were conducted during Spring 2011 of the proposed Solar Plant Site and Linear Corridor. This document describes the methods and results of those surveys. Environmental review for the MSEP will consist of a joint National Environmental Policy Act/ California Environmental Quality Act (NEPA/CEQA) process. The Bureau of Land Management (BLM) will be the lead NEPA agency; Riverside County will be the CEQA lead.

Vegetation

Vegetation communities in the Project Area include upland vegetation, characterized by associations (i.e., subsets) of the Creosote Bush-White Burr Sage (*Larrea tridentata-Ambrosia dumosa*) Scrub Alliance and large expanses of desert pavement on the Solar Plant Site, and agricultural areas, intermittent, loose, shallow sand sheets and dunes, and small, exposed basins along the Linear Corridor. Upland vegetation is largely confined to drainages on the Project Area, probably because most of the available water is in the drainages due to the low regional rainfall and substrate and soil quality. An occasional palo verde *(Parkinsonia florida* [=*Cercidium floridum*]) or ironwood (*Olneya tesota*), or patches of a few individuals, can also be found in some swales or in the more well-developed parts of some runnels.

Special-status Species

The federally and state-threatened desert tortoise was observed within the Project Area in Spring 2010, as well as the state-threatened Swainson's hawk (migrant). Other special-status species observed within the Project Area include the Mojave fringe-toed lizard (*Uma scoparia*), burrowing owl (*Athene cunicularia*), Brewer's sparrow (*Spizella breweri)*, Le Conte's thrasher (*Toxostoma lecontei*), loggerhead shrike (*Lanius ludovicianus*), northern harrier (*Circus cyaneus*), priairie falcon (*Falco mexicanus*), American badger (*Taxidea taxus,* digs only). Two golden eagles (*Aquila chrysaetos*) were observed flying near the Project Area; however, no active golden eagle nests or territories were found in or near the Project Area. Also observed within the Project Area was a hide of the burro deer (*Odocoileus hemionus eremicus*; a managed game species), wild burro scat (*Equus asinus;* managed by BLM*);* and desert kit fox (*Vulpus macrotis;* protected by California Department of Fish and Game code) natal dens.

Six California Native Plant Society-ranked plants were observed within the Project Area: Harwood's phlox (*Eriastrum harwoodii*), Harwood's milkvetch (*Astragalus insularis* var. *harwoodii*), Las Animas colubrina (*Colubrina californica*), Utah cynanchum (*Funastrum utahense*), ribbed cryptantha (*Cryptantha costata*), and desert unicorn plant (*Proboscidea althaeifolia*).

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TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

APPENDICES

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1.0 INTRODUCTION

McCoy Solar, LLC (McCoy Solar) is proposing to develop the McCoy Solar Energy Project (MSEP or Project), a photovoltaic (PV) solar power plant, in Riverside County, California (Figure 1). The MSEP is an up to 750 megawatt (MW) PV solar power plant that will provide renewable energy to the California electrical grid through an interconnection at Southern California Edison's proposed Colorado River Substation. To comply with federal, state, and local laws, natural resources must be evaluated at the Project. As part of evaluating the Project's potential effects on species persistence and/or recovery, the presence of federally listed, state-listed, and other special-status plants and animals must be identified and their distribution and approximate abundance determined. To meet these objectives, comprehensive surveys for biological resources were conducted during Spring 2011 of the proposed Solar Plant Site and Linear Corridor. This document describes the methods and results of those surveys. In addition, because desert tortoise were expected to occur on the Solar Plant Site, a potential tortoise translocation area to the west was surveyed in Spring 2011. This area may serve as the recipient site for tortoises translocated from the Solar Plant Site during Project construction.

Environmental review for the MSEP will consist of a joint National Environmental Policy Act/California Environmental Quality Act (NEPA/CEQA) process. The Bureau of Land Management (BLM) will be the lead NEPA agency; Riverside County will be the CEQA lead.

1.1 Project Description and Terminology

For the purposes of this document, the following terminology applies:

- "Project" refers to the MSEP.
- "Project Area" is the footprint of all Project components, which includes the Solar Plant Site and Linear Facilities.
- "Solar Plant Site" is the area that includes the solar fields, substation, perimeter road, fencing, drainage, operations and maintenance (O&M) facilities.
- "Solar Plant Site ROW Application Boundary" is the approximately 7,700-acre area included in the ROW grant requested from the BLM for the solar plant site.
- "Linear Facilities" includes the generation-tie (gen-tie) line, access road, primary and secondary telecommunication lines, distribution line, and switchyard. With the exception of the switchyard and a portion of the access road, the Linear Facilities will be mostly co-located inside the Linear Right-of-Way (ROW). The switchyard will lie at the southern terminus of the Linear ROW; a portion of the access road north of Interstate 10 (I-10) will be shared with Solar Millennium's Blythe Solar Power Project (BSPP).
- "Linear Corridor" is the area surveyed in 2011 within which all the Linear Facilities ultimately will be sited. The survey area was substantially wider than the ultimate area that will be included in the ROW.
- "Linear ROW" is the legal designation of the area that BLM would define in the final ROW grant for the Linear Facilities; this is likely to be around 100 feet wide.
- "Survey Area" is the total area that was surveyed in Spring 2011 (Figures 5A, 5B). This area was larger than the Project Area.
- "Project Vicinity" is intended to be a general term to describe the broader, surrounding area.

The MSEP will consist of the Solar Plant Site and Linear Facilities and will be up to 750 MW. The majority of the MSEP is on BLM land and McCoy Solar will request a BLM ROW grant to build the facility on public land. There are also three privately-owned parcels within unincorporated Riverside County that are within the current Solar Plant Site. The currently requested BLM ROW encompasses approximately 7,700 acres. The Solar Plant Site is 5,363 acres (approximately 4,893 acres of BLM land and approximately 470 acres of private land) (Figure 2). Acreage devoted to Linear Facilities is expected to be less than 200 acres.

Project water use during operation is anticipated to be only 60 acre-feet per year to support potable supply and periodic cleaning of the PV panels. Water use during construction is expected to be between 650 to 750 acre-feet over about a three-year construction period. The Project will obtain its water supply from groundwater underlying the site using a minimum of two water supply wells located within the eastern half of the Solar Plant Site.

1.2 Construction Schedule

Construction of the Project will occur in sequential phases. The first phase, which is anticipated to be completed in August 2014, will include the first 250 MWs, the access road, water treatment system, initial gen-tie (consisting of the support towers and first circuit), O&M building, and parking area. Construction of the second phase will provide the additional, approximately 500 MW to reach the maximum 750 MW total. It is anticipated that construction on this phase will begin following initiation of commercial operation for the first unit, and will be completed by December 2016.

2.0 PROJECT SETTING

2.1 Project Location

The proposed Project is located in Riverside County, CA, approximately 13 miles northwest of the City of Blythe, California (Figures 1, 2). The MSEP is located immediately north of Solar Millennium's recently-permitted thermal solar BSPP. Surrounding mountain ranges include the McCoy Mountains to the west, the Little Maria Mountains to the north, and the Big Maria Mountains to the northeast. McCoy Wash is located immediately east of the Solar Plant Site, and I-10 is located approximately 5.5 miles south of the Solar Plant Site.

2.2 Environmental Setting

The Project Area lies along the bajada sloping out of the eastern side of the McCoy Mountains. McCoy Wash, a broad wash system flowing into Palo Verde Valley, lies immediately east of the Project Area. Elevations range from 390 to 735 feet above mean sea level.

Vegetation communities are often used as a surrogate to describe habitat. However, habitat is much more than vegetation alone, especially the upper story vegetation typically used as a descriptor of desert habitats. When discussed in the context of wildlife and plants, habitat is best described by vegetation (structure, dominants, common [important] species, cover), topography, substrates (coarse particle size, density and evenness), soils (texture and consistence), and drainage type. A more fine-grained approach to evaluating wildlife values can be achieved by assessing the mosaic of habitats on a site, including both habitat within the drainages as well as in the interstices.

Solar Plant Site and Proposed Translocation Area

The western portion of the Solar Plant Site is dominated by gently undulating terrain with broad patches of largely unvegetated, well-developed, highly oxidized gravel desert pavement (Figure 3, Appendix A). Widely spaced washes, generally less than approx. 10 feet deep, flow through the pavement plain; associated small runnels flow into these washes. The exception to this is in the southwestern corner of the Solar Plant Site, where there are several 20-25 feet deep drainages. As the bajada flattens to the east, drainages become shallow, braided runnels with a few swales (especially along Black Creek Road). There are patches of sheet flow near McCoy Wash. Consistent with the hydrology and distance from the mountains, substrates become finer toward the eastern portion of the Solar Plant Site, becoming only scattered fine and very fine gravels over soft to slightly hard sandy loam along the eastern side. There are scattered patches of fine gravel- and coarse gravel-desert pavement throughout the eastern, and especially the southeastern, portion of the Solar Plant Site.

The proposed desert tortoise translocation area west of the Solar Plant Site has similar habitat to the western Solar Plant Site, except near the McCoy Mountains. Substrates there are cobbly and bouldery, with rills and outflows of these larger particles flowing out from the mountain canyons. There are several major arroyos, incised to approx. 30 feet, exiting the mountains along northwestern and southwestern borders of the proposed translocation area.

Vegetation on the Solar Plant Site and in the proposed translocation area is described in this report using alliances developed by Sawyer, Keeler-Wolf and Evens (2009) and used by the California Natural Diversity Data Base (California Department of Fish and Game [CDFG] 2010). Upland vegetation is characterized by associations (i.e., subsets) of the Creosote Bush-White Burr Sage (*Larrea tridentata-Ambrosia dumosa*) Scrub Alliance. However, even typical upland vegetation is largely confined to drainages on the Project Area, probably because most of the available water is in the drainages due to the low regional rainfall and substrate and soil quality. On the desert pavement plains in the west, there are essentially no shrubs outside of water courses. In the eastern approximately half of the site, the interstices have moderately low vegetation cover of mostly creosote bush – approximately 7-8 percent cover, but lower in several broad patches. This low cover and the small stature of the plants again points to low available water. Where sheet flow predominates, shrub cover is a little higher (<10 percent), and co-dominants include white burr sage, brittlebush (*Encelia farinosa*), and white rhatany (*Krameria grayii*).

Runnels and very small washes on the Solar Plant Site, including over most of the eastern Solar Plant Site, are dominated by creosote bush, white burr sage, brittlebush, and white rhatany; galleta grass *(Pleuraphis rigida)* is patchily common to co-dominant. An occasional palo verde *(Parkinsonia florida* [= *Cercidium floridum*]) or ironwood (*Olneya tesota*), or patches of a few individuals, can also be found in some swales or in the more well-developed parts of some runnels where water volume is probably higher or water is more consistently available. In the more well-developed washes in the western portion of the site, the vegetation is characterized by the Desert Lavender (*Hyptis emoryi*) Scrub and Catclaw Acacia (*Senegalia* (= *Acacia greggii*) Thorn Scrub Alliances. Desert lavender, Anderson boxthorn (*Lycium andersonii*), catclaw acacia, creosote bush, white burr sage, brittlebush, chuckwalla bush (*Bebbia juncea*), and white rhatany and/or little-leaf rhatany (*Krameria erecta*; mostly upslope) are typical dominants; galleta grass is intermittently co-dominant.

In some of these washes, there are occasional, generally relatively short (mostly under approximately 15 feet in height) palo verde and ironwood. There are rare patches of a few of these moderately sized trees that may also have a couple of larger trees. There are also a couple, several hundred foot stretches where palo verde is common, although many of the trees are only saplings. The most well-developed of these is an approximately 3,000-foot segment of one wash in the western half of the Solar Plant Site. It is dominated by relatively large palo verde, along with the common wash-shrub species and could be considered a Palo Verde-Ironwood Woodland Alliance. In total, while important to wildlife because of their elevated structure, trees are neither a common feature of the Solar Plant Site's washes nor, with a few exceptions, attain the mature, robust size of individuals found in drainages with higher flow volumes, such as McCoy Wash.

McCoy Wash is a broad wash system east of the Solar Plant Site, the main channel of which is approximately a mile from the Solar Plant Site border. A small distributary lies just east of the Solar Plant Site border. This wash system is characterized by multiple broad, sandy arboreal washes as well as numerous smaller washes and runnels. Large, robust ironwood is the aspect-dominant species; palo verde is a common subdominant tree. Dominant shrubs include creosote bush and white burr sage; white rhatany, big galleta, and Anderson boxthorn are common.

Linear Corridor

The Linear Corridor exits the southeastern corner of the Solar Plant Site onto a barren, densely fine-gravelly, flat plain with little vegetation. As the corridor turns south, it travels through a relatively flat lower bajada with numerous small swales. Soils are generally fine, soft to consolidated loams lightly covered by fine to very fine gravels or none. The shrub cover is dominated by an approximately 10 percent cover of creosote bush and white burr sage; galleta grass is common in the swales, along with occasional ironwood trees. Much of this northern portion of the Linear Corridor runs along or over the edge of a distinctive alluvial deposit of rounded riverine gravel on a long, low ballena. This south-tending pebble terrace, standing 30-75 feet above the surrounding bajadas, is the result of one or more aggradational events when the ancestral Colorado River flowed across the area (Stone 2006). Aeolian sand is deposited in many small patches along this western edge of the pebble terrace.

A well-developed, large-arboreal wash resulting from the coalescence of several small washes meets and crosses the Linear Corridor just south of the pebble terrace. There, it becomes re-routed against a long east-west agricultural berm, where it forms a long swale of dense palo verde and ironwood infested with dense Russian thistle (*Salsola tragus*) and Sahara mustard (*Brassica tournefortii*). The Linear Corridor and adjacent area north and south of this swale is cleared for agriculture (currently not in crops), except in the northwestern half, where native creosote bush and white burr sage habitat, with brittlebush-white burr sage-galleta grass runnels, remains. An actively farmed citrus orchard lies at the eastern end of this portion of the Linear Corridor.

As the Linear Corridor travels west out of the agriculturally developed area, it continues across a flat bajada with habitat similar to that in the southeastern Solar Plant Site. Desert pavement patches and a second pebble terrace intersect the Linear Corridor as it nears the mountains and the substrates generally become more gravelly. Heavy sheeting and well-developed arboreal washes begin to cross the Linear Corridor southwest of the pebble terrace, with numerous arboreal washes where the Linear Corridor travels over the toeslopes of the McCoy Mountains. Vegetation in the interfluves is generally very sparse creosote bush-white burr sage scrub. Near the freeway, the Linear Corridor crosses a low depression adjacent to a mesa. Both this depression and a nearby borrow pit on the Linear Corridor that was developed during freeway construction have been very disturbed in the past by grading and stockpiling dirt, gravel and concrete. Soils are fine and hard and there is potential for pockets of standing water. The borrow pit hosts a dense honey mesquite-palo verde bosque-ironwood bosque. (Note: Because of the artificial development of this bosque, it does not fall into the Sawyer, Keeler-Wolf and

Evens' [2009] Mesquite Woodland Alliance; the latter is located where groundwater is naturally available and hosts a suite of different species, in addition to honey mesquite.)

South of I-10, the Linear Corridor traverses a flat bajada of low plant diversity (creosote bush and white burr sage) and cover (8 percent). West of the First Solar/ NRG Blythe solar facility, intermittent, loose, shallow sand sheets and dunes and small, exposed basins intersect the Linear Corridor, and ponding water is a potential in some of the basins. Well-developed, low dunes enter the route at the bend and remain characteristic of the ROW through and including most of the switchyard. This habitat contains widely spaced perennial shrubs (2-5 percent cover), with the dominant species including creosote bush, white burr sage, and galleta grass. Several sand-associates and other annuals are also abundant (e.g., sand verbena [*Abronia villosa*], birdcage primrose [*Oenothera deltoides*], desert marigold [*Baileya pauciradiata*], and narrow-leaved forget-me-not [*Cryptantha angustifolia*]). Although there are no coarse particles in the substrate of the dunes, small areas between the dunes that contain more shrubs are partially stabilized by a light gravel layer. In the southern portion of the switchyard and south, the soil remains finely sandy, but fine gravel lightly covers the soil; creosote bush is dominant with white burr sage. Drainage is via sheet flow, small swales and runnels.

Existing Anthropogenic Impacts

The Solar Plant Site and surrounding area show evidence of military training activities in the mid-1900s and old mining activities. Tank tracks are common throughout and especially visible on the desert pavement. There are several old roads to the mountains that were graded for access to mines, but all are at least partially degraded. Otherwise, there is negligible current use of the site. Recreational activity appears to be negligible.

I-10 crosses the Linear Corridor, and there is a borrow pit and extensive adjacent grading adjacent to the freeway, probably associated with freeway construction. South of I-10, the Linear Corridor passes by a new solar facility (First Solar/NRG Blythe); the switchyard is adjacent to the Devers-Palo Verde I 500 kilovolt transmission line.

In addition to these hardscape features, the noxious exotic weeds in some portions of the Linear Corridor are a result of human activity. South of I-10 on the Linear Corridor, Sahara mustard is abundant, and grows under most creosote bushes, probably due to the proximity of the town of Mesa Verde and agricultural development to the east and south of the town. Sahara mustard and, often, Russian thistle is also dense throughout much of the sand dunes south of I-10. This is on the Linear Corridor north of I-10 and on the Solar Plant Site, Sahara mustard is generally intermittently and sparsely present and confined to washes and runnels. The major exception is the agricultural operation, where both Sahara mustard and Russian thistle are dense in the swales, and common along both the field edges and in tilled fields.

3.0 REGULATORY SETTING

3.1 Federal Laws and Regulations

National Environmental Policy Act (NEPA)

This act requires the analysis of the environmental effects of any federal action. BLM is the administering agency. The BLM follows the NEPA (40 Code of Federal Regulations [CFR] Parts 1500 – 1508), the Federal Land Policy and Management Act of 1976, and the Energy Policy Act of 2005. Additionally, BLM follows guidance in the BLM NEPA Handbook H-1790-1, which was updated in January 2008, and the BLM Land Use Planning Handbook H-17601-1: *Guidance for Preparing NEPA Documents Associated with Land Us Plans and Resource Management Plans*.

Endangered Species Act

The Endangered Species Act (ESA) of 1973 (16 United States Code [USC] 1531 *et seq.*; 50 CFR 17.1 *et seq.*) designates and provides for protection of threatened and endangered plant and animal species, and their critical habitat. Section 9 of the ESA prohibits "take" of threatened Under Section 7 of the ESA, any federal agency, including the BLM, must consult with the United States Fish and Wildlife Service (FWS) regarding a proposed action that may adversely affect listed terrestrial and avian species. Formal consultation is requested via a biological assessment, and once the FWS has engaged in consultation with the federal agency taking the proposed action, the FWS may issue a biological opinion (BO) that includes an incidental take statement.

Migratory Bird Treaty Act

The Migratory Bird Treaty Act (MBTA) of 1918, as amended, prohibits "take" of migratory birds (16 USC 703-712). Under the MBTA it is unlawful to pursue, hunt, take, capture or kill; attempt to take, capture or kill; possess, offer to or sell, barter, purchase, deliver or cause to be shipped, exported, imported, transported, carried or received any migratory bird, part, nest, egg or product. All birds that are native to the United States and belong to a family, group or species covered by at least one of the four migratory bird conventions to which the United States is party are covered under the MBTA. There is currently no permitting framework (i.e., incidental take permits) that allow liability protection for project developers. The administering agency is FWS.

FWS's Division of Migratory Bird Management also maintains a list of Birds of Conservation Concern, which identifies species, subspecies, and populations of migratory and non-migratory birds that may be in need of additional conservation actions. This action was an outcome of a 1988 amendment to the Fish and Wildlife Conservation Act, which mandates the FWS to identify species, subspecies, and populations of all migratory nongame birds that, without additional conservation actions, are likely to become candidates for listing under the ESA.

Bald and Golden Eagle Protection Act

The Bald and Golden Eagle Protection Act (BGEPA) prohibits the take of any bald or golden eagle, alive or dead, including any part, nest, or egg. "Take" is defined as "pursue, shoot, shoot at, poison, wound, kill, capture, trap, collect, molest or disturb" a bald or golden eagle. "Disturb" means to agitate or bother an eagle to a degree that causes, or is likely to cause (1) injury to an eagle; (2) a decrease in its productivity, by substantially interfering with normal breeding, feeding, or sheltering behavior; or (3) nest abandonment, by substantially interfering with normal breeding, feeding, or sheltering behavior. The administering agency is FWS.

Wild Free-Roaming Horse and Burro Act (Public Law 92-195)

Wild horses and burros are protected from capture, branding, harassment and death, and managed with the intent to achieve and preserve the natural ecological balance on public lands. BLM is the administering agency.

Clean Water Act

Section 404 of the Clean Water Act (CWA) (33 U.S.C. 1344) regulates all discharge of dredged and fill material into waters of the United States, including wetlands. The US Army Corps of

Engineers (USACE) and US Environmental Protection Agency (USEPA) share responsibility for administering and enforcing Section 404 including jurisdictional delineations, permitting decisions, and development of policy and guidance. Waters of the United States and wetlands are those defined by the USACE/USEPA in CWA regulations (33CFR 328.3). Field surveys to delineate jurisdictional waters were conducted in Spring 2011 and are addressed under a separate technical report. A formal determination of non-jurisdiction has been requested from the USACE.

3.2 State Laws and Regulations

California Environmental Quality Act

CEQA requires review of any project that is undertaken, funded, or permitted by a state or local governmental agency. Typically, the state or local agency with overall project permitting authority takes the lead for CEQA compliance. The lead agency has the discretion to consider any non-listed species a *defacto* listed species by the statement that “a species not included in any listing in subsection (c) shall nevertheless be considered to be rare or endangered if the species can be shown to meet the criteria in subsection (b)” (CEQA Guidelines §15380, Subsection d). If significant project effects were identified, the lead agency would have the option of requiring mitigation for effects through changes in the project or deciding that overriding considerations make mitigation infeasible (CEQA Sec. 21002). Riverside County (County) is the lead state agency for CEQA review for the MSEP.

California Endangered Species Act

The California Endangered Species Act of 1984 (CESA, CDFG Code Sections 2050 *et seq.*) protects California’s rare, threatened, and endangered species. CDFG Code Sections 1900 *et seq.* designate rare, threatened and endangered plants under the Native Plant Protection Act of 1977. The BLM must consult with CDFG regarding the possibility of “take” under CESA, similar to the federal consultation, above. The CDFG can choose to find the federal BO consistent with state law (a 2080.1 consistency determination), or choose to require a separate state “take” permit (a 2081 permit) if species listed by CESA could be harmed or killed during construction or operation of the project. CDFG is the administering agency.

Title 14, California Code of Regulations, Sections 670.2 and 670.5

Under this code, animals are designated as threatened or endangered in California. California species of special concern is a category conferred by CDFG on those species that are indicators of regional habitat changes or are considered potential future protected species. These species do not have any special legal status, but this designation is used by CDFG as a management tool for consideration when land use decisions are made.

Native Plant Protection Act (NPPA); CDFG Code Sections 1900 et seq.

The NPPA includes measures to preserve, protect, and enhance rare and endangered native plant species. Definitions for “rare and endangered” are different from those contained in CESA, although CESA-listed threatened and endangered species are included in the list of species protected under the NPPA.

CDFG Code Sections 3503 and 3503.5

These codes state that it is unlawful to take, possess, or needlessly destroy the nest or eggs of any bird, including birds of prey, or take, possess, or destroy birds of prey, except as otherwise provided by this code or any regulation made pursuant thereto.

CDFG Code Sections 3511, 4700, 5050, and 5515

These state laws classify and prohibit the take of "fully protected" birds, mammal, amphibian/reptile, and fish species in California.

CDFG Code Section 3513

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

CDFG Code Section 4150

This state law makes it unlawful to take or possess any non-game mammal or parts thereof except as provided in the Fish and Game Code or in accordance with regulations adopted by the commission. However, Title 14 Section 460 prohibits the taking of desert kit foxes.

California Desert Native Plants Act

Pursuant to the California Food and Agriculture Code §§ 80001-80006, the California Desert Native Plants Act (CDNPA) allows the harvest of certain species of non-listed native plants under permits issued by the County Agricultural Commissioner or Sheriff. The purpose of the CDNPA is to prevent the unlawful harvesting of native desert trees and cacti, either for wood, landscaping, or other purposes. Where feasible and practicable, individual plants can be salvaged and used for the Project revegetation program or salvaged by an approved nursery, landscaper, or other group to indirectly reduce unlawful harvesting elsewhere. Species in the MSEP vicinity that are subject to permitting include desert tree species, ocotillo, and cacti.

CDFG Streambed Alteration Agreement; Fish and Game Code Section 1600-1616

Waters of the state of California are subject to the jurisdiction of the CDFG. The CDFG monitors streambed alteration to conserve, protect, and manage California's fish, wildlife, and native plant resources. California Fish and Game Code Section 1602 requires any person, state or local governmental agency, or public utility to notify the CDFG before beginning an activity that will substantially divert, obstruct, or change the natural flow of the bed, channel, or bank (including associated riparian vegetation) of a river, stream, or lake; or use material from a streambed prior to commencement of the activity. If CDFG determines that the action could have an adverse affect on existing fish and wildlife resources, a Lake or Streambed Alteration Agreement is required. Jurisdictional waters were surveyed separately and are addressed under a separate report. McCoy Solar has initiated discussions with CDFG regarding state-jurisdictional waters; a final determination is pending.

3.3 Relevant Management Plans

Northern and Eastern Colorado Desert Coordinated Management (NECO) Plan

In 1976, Congress designated the 25-million-acre California Desert Conservation Area (CDCA). BLM developed a management plan for the CDCA in 1980, but conditions relative to species status, conservation programs, wilderness and national park designations, and other land uses have changed since the original plan was developed. BLM has completed a series of regional plan amendments, among them the NECO Plan (BLM and CDFG 2002), which encompasses 5.5 million acres in the southeastern California Desert and the entire Project footprint.

The NECO Plan identifies the following issues that underlie the plan's conservation and management program:

- Adopt standards and guidelines for public land health
- Recover two threatened species: the desert tortoise (*Gopherus agassizii*) and Coachella Valley milkvetch (*Astragalus lentiginosus coachellae*)
- Conserve approximately 60 special-status animals and plants and natural communities
- Resolve management issues of wild horses and burros along the Colorado River
- Designate recreational routes of travel
- Resolve issues of land ownership pattern
- Resolve issues of resource access and regulatory burden
- Incorporate changes created by the 1994 California Desert Plant Act

In addition to a number of specific objectives and actions to meet the goals of the above issues, the NECO Plan provides for conservation and management of several special-status species, in large part through a system of broad management areas such as Desert Wildlife Management Areas (DWMAs) for desert tortoises and Wildlife Habitat Management Areas (WHMAs) for other special-status species and natural communities. In both types of management areas, habitat improvements are prescribed to enhance the species of concern. Cumulative disturbance within DWMAs is limited to one percent of the surface area. The MSEP is not within a designated desert tortoise DWMA. The closest DWMA, the Chuckwalla DWMA, is south of I-10, more than eight miles southwest of the Solar Plant Site and more than four miles west of the switchyard (Figure 4).

At the closest point, the Solar Plant Site is located approximately one-half mile from the boundary of a bighorn sheep WHMA (Figure 4). The proposed Linear Corridor does not overlap any special management areas, except at the interconnection to the switchyard, where it overlaps the Mule Mountains Multiple-species WHMA. The switchyard is located entirely within the Mule Mountains Multiple-species WHMA (Figure 4).

Desert Tortoise Recovery Plan

In June 1994, the final Desert Tortoise (Mojave Population) Recovery Plan was released (FWS 1994a). A Draft Revised Recovery Plan was published in 2008 (FWS 2008). The 1994 Recovery Plan identified six evolutionarily significant units of the desert tortoise in the Mojave region, based on differences in tortoise behavior, morphology and genetics, vegetation and climate. The Draft revised plan revised these to five recovery units based on newer data on genetic, ecological, and physiological distinctions. Within the recovery units, suggested DWMAs act as reserves in which recovery actions are implemented. The Project is not in a designated desert tortoise DWMA (see above).

The recovery plan works in concert with Critical Habitat, designated for the desert tortoise in 1994 (FWS 1994b) by prescribing management actions to aid recovery, with Critical Habitat providing legal protection. The Project is not within designated desert tortoise Critical Habitat. The closest Critical Habitat Unit to the Solar Plant Site is near I-10, more than six miles southwest of the Solar Plant Site (Figure 4). This Critical Habitat Unit is also over two miles west of the switchyard and other Linear Facilities.

4.0 SURVEY METHODS

4.1 Literature Review

Several species known to occur on or in the vicinity of the Project are accorded “special-status” by federal and state agencies because of their recognized rarity or potential vulnerability to extinction. These species typically have a limited geographic range and/or limited habitat and are referred to collectively as “special-status” species. Prior to field surveys, a target list of special-status species that might be affected by the Project was developed (Table 1) based on review of available literature and databases (e.g., California Native Plant Society, California Natural Diversity Data Base [CNDDB], see Figures in Appendix B), and consulting with the agencies (O’Rourke 2007, Massar 2007, Massar pers. comm. 2011, Englehard, pers. comm., 2011a, 2011b, Rodriguez, pers. comm., 2011), and local experts. Additional target species were added according to the NECO Plan (BLM and CDFG 2002) for which surveys must be completed where a project intersects the species’ ranges, as mapped in the NECO Plan. Managed game species, burros (protected by the Wild, Free-Roaming Horse and Burro Act), and desert kit fox (*Vulpes macrotis*), a protected furbearer (CDFG Code 4000), were also included in the target list.

Table 1. Plant and Wildlife Species Observed and Potentially Occurring within the McCoy Solar Energy Project Vicinity.

Species	Status[1]				Habitat	Likelihood of Occurrence on the Project Area[4]
	Federal	State	CNDDB Rank[2]	CNPS[3]/ Other		
Plants						
Abrams's Spurge (*Chamaesyce abramsiana*)	---	---	G4/S1.2	2	Sandy sites in Mojavean and Sonoran Desert scrubs in eastern California; 0 to 3,000 feet	Possible; pending fall surveys[4]
Algodones Dunes Sunflower (*Helianthus niveus tephrodes*)	---	E	G4T2/S1.2	1B	Desert dunes, especially Algodones Dunes	Unlikely; not observed
Angel Trumpets (*Acleisanthes longiflora*)	---	---	G5/S1	2	Sonoran Desert Scrub (limestone); mountains or base of mountains, 0-8,202 feet	Highly unlikely due to lack of limestone and rocky habitat in Project Area; not observed
Darlington's Blazing Star (*Mentzelia puberula*)	---	---	G4/S2	2.2	Rocky, generally mountainous sites from the Ord Mts. to northern Baja California	Highly unlikely due to lack of habitat; not observed
Arizona Cottontop (*Digitaria californica*)	---	---	G5/S1.3	2	Rocky Sonoran and Mojavean Desert Scrubs; three consortium records in California; 950 to 4,900 feet	Unlikely due to rocky association; not observed
Arizona Spurge (*Chamaesyce arizonica*)	---	---	G5/S1.3	2	Sandy flats in Sonoran Desert Scrub, below ~1,000 feet	Possible; pending fall surveys[4]
Ayenia (*Ayenia compacta*)	---	---	G4/S3?	2	Sandy and gravelly washes and canyons in desert scrubs, 450 to 6,000 feet	Possible; not observed
Bitter Hymenoxys (*Hymenoxys odorata*)	---	---	G5/S2	2	Riparian scrub and Sonoran Desert Scrub, sandy flats near Colorado River, known only from the Colorado River alluvial plain, 150- 495 feet	Unlikely because of species association with the Colorado River floodplain; not observed
California Ditaxis (*Ditaxis serrata* var. *californica*)	---	---	G5T2T3/S2	3	Sonoran Creosote Bush Scrub from 100 to 3,000 feet	Possible; not observed
California Satintail (*Imperata brevifolia*)	---	---	G2/S2.1	2	Wet springs, meadows, and flood plains in Chaparral, Coastal Scrub, Mojavean Desert Scrub; 0 – 1,650 feet	Highly unlikely due to lack of habitat; not observed
Chaparral Sand Verbena (*Abronia villosa* var.*aurita*)	---	---	G5T3T4/S2	1B	Loose to aeolian sands; chaparral and coastal sage scrub; below 2,000 feet	Highly unlikely; not observed
Cove's Cassia (*Senna covesii*)	---	---	G5?/S1	2	Dry washes and slopes in Sonoran Desert Scrub, 1,600 to 1,900 feet	Not present; not observed
Crown of Thorns (*Koeberlinia spinosa tenuispina*)	---	---	G4T4/S2.2	2	Creosote Bush Scrub in Sonoran Desert; 500 to 1,700 feet	Not present; not observed
Crucifixion Thorn (*Castela emoryi*)	---	---	G2G3/S2S3	2	Mojavean and Sonoran Desert Scrubs; typically associated with drainages	Not present; not observed
Desert Portulaca (*Portulaca halimoides*)	---	---	G5/S3	4	Sandy areas and flats in Joshua tree woodland and desert mountains; 3,280-3,937 feet	Highly unlikely due to lack of habitat and elevational constraints; not observed
Desert Sand-parsley (*Ammoselinum giganteum*)	---	---	G2G3/SH	2	Sonoran Desert Scrub; known from one site near Hayfield Dry Lake at 1,200 feet	Highly unlikely; not observed
Desert Spike Moss (*Selaginella eremophila*)	---	---	G4/S2.2?	2	Shaded rocky habitats in the Sonoran Desert, to Arizona and northern Mexico; below 3,600 feet	Unlikely due to lack of habitat; not observed

Species	Status[1]				Habitat	Likelihood of Occurrence on the Project Area[4]
	Federal	State	CNDDB Rank[2]	CNPS[3]/ Other		
Desert Unicorn Plant (*Proboscidea althaeifolia*)	---	---	G5/S3.3	4	Sandy areas in Sonoran Desert Scrub throughout southeastern California, below 3,300 feet.	Observed Fall 2010 and Spring 2011
Dwarf Germander *(Teucrium cubense depressum)*	---	---	G4G5T3T4/ S2	2	Sandy soils, washes, fields; below 1,300 feet	Possible; not observed
Flat-seeded Spurge (*Chamaesyce platysperma*)	BLM Sensitive	---	G3/S1.2?	1B	Sandy flats and dunes in Sonoran Desert Scrub; below 350 feet	Possible; not observed
Foxtail Cactus (*Coryphantha alversonii*)	---	---	G3/S3.2	4	Primarily rocky substrates between 250 and 4,000 feet in Creosote Bush Scrub	Unlikely; not observed
Glandular Ditaxis (*Ditaxis claryana*)	---	---	G4G5/S1	2	Sandy flats in Mojavean and Sonoran Creosote Bush Scrubs in Imperial, San Bernardino, and Riverside counties; below 1,500 feet	Possible; not observed
Graham's fishhook cactus (*Mammillaria grahamii* var. *grahamii*)	---	---	G4T4/S2	2	Sandy or rocky canyons, washes in creosote bush scrub; 1,000-2,970 feet	Possible; not observed
Harwood's Milkvetch (*Astragalus insularis* var. *harwoodii*)	---	---	G5T3/S2.2?	2	Dunes and windblown sands below 1,200 feet, east and south of approximately Desert Center	Observed Spring 2011
Harwood's Phlox (*Eriastrum harwoodii*)	---	---	G2/S2	1B	Desert dunes below 7,000 feet., eastern Riverside, San Bernardino and San Diego Counties	Observed Spring 2011
Jackass Clover *(Wislizenia refracta* var. *refracta)*	—	—	G5T5?/S1.2?	2	Sandy washes, roadsides, flats; 1,900 to 2,700 feet	Possible; not observed
Las Animas Colubrina (*Colubrina californica*)	---	---	G4/S2S3.3	2	Sonoran Desert Creosote Bush Scrub, < 3,300 feet	Observed Fall 2010 and Spring 2011
Lobed Ground Cherry *(Physalis lobata)*	---	---	G5/S1.3?	2	Mojave Desert Scrub, playas, granitic soils, 1,640-2,625 feet	Unlikely. All known locations well to north of Project and at higher elevations. Not observed.
Mesquite Nest Straw (*Stylocline sonorensis*)	---	---	G3G5/SX	1A	Open sandy drainages; known from one site near Hayfields Dry Lake	Highly unlikely; not observed
Mojave Fishhook Cactus *(Sclerocactus polyancistrus*)	---	---	G4/S3.2	4	Mojavean Desert Scrub (Creosote Bush Scrub and Pinyon-Juniper Woodland, and Great Basin Scrub. Kern, San Bernardino, and Inyo Counties to Nevada; 2,100 to 7,650 feet	Unlikely; not observed
Newberry's Velvet-mallow *(Horsfordia newberryi*)	---	---	G4/S3.3	4	Mostly rocky canyons and toeslopes in Sonoran Desert Scrub; 10 – 2,650 feet	Possible; not observed
Orocopia Sage (*Saliva greatae*)	BLM Sensitive	---	G2/S2	1B	Mojavean and Sonoran Desert Scrubs; gravelly/ rocky bajadas, mostly near washes; below 3,000 feet	Not present; not observed
Palmer's Jackass Clover (*Wislizenia refracta palmeri*)	---	---	G5T2T4/S2?	2	Sandy washes and dunes in Sonoran Desert Scrub, to northwestern Mexico; potentially Mojave Desert (unverified); <430 feet	Possible; not observed
Parish's Club Cholla (*Grusonia parishii*)	---	---	G3G4/S2	2	Joshua Tree Woodland in Mojavean and Sonoran Desert Scrubs; 1,000 -5,000 feet	Not present; not observed
Parry's Spurge (*Chamaesyce parryi)*	---	---	G5/S1.3	2	Dunes an Aeolian soils in Mojavean Desert Scrub; in California, known only from Kelso; 1,300-2,400 feet	Unlikely due to limited range; not observed

Species	Status[1]				Habitat	Likelihood of Occurrence on the Project Area[4]
	Federal	State	CNDDB Rank[2]	CNPS[3]/ Other		
Pink Fairy Duster (*Calliandra eriophylla*)	---	---	G5/S2S3	2	Sonoran Desert Scrub; washes; 393-4,920 feet	Not present; not observed
Pink Velvet Mallow *(Horsfordia alata)*	---	---	G4/S3.3	4	Rocky areas in Sonoran Desert Scrub, 328-1,640 feet	Possible; not observed
Pointed Dodder (*Cuscuta californica* var. *apiculata*)	---	---	G5T3?/S2S3	3	Sonoran and Mojavean Desert Scrubs in San Bernardino County (one record in western Riverside County), to Nevada and Baja, California; 0 – 1,650 feet	Possible; not observed
Ribbed Cryptantha (*Cryptantha costata*)	---	---	G4G5/S3.3	4	Dunes in Mojavean and Sonoran Desert Scrub, 197-1,640 feet	Observed Spring 2011
Sand Evening Primrose (*Camissonia arenaria*)	---	---	G4?/S2	2	Sandy washes and rocky slopes below 1,300 feet	Possible; not observed
Slender Woolly-heads (*Nemacaulis denudata* var. *gracilis*)	---	---	G3G4T3?/S2	2	Dunes in coastal and Sonoran Desert Scrubs, primarily in the Coachella Valley; below 1,500 feet	Possible; not observed
Spearleaf (*Matelea parvifolia*)	—	—	G5?/S2.2	2	Rocky ledges and slopes, 1,000 to 6,000 feet, in Mojave and Sonoran Desert Scrubs	Unlikely due to lack of habitat and elevational constraints; not observed
Spiny Abrojo (*Condalia globosa* var. *pubescens*)	---	---	G5T3T4/S3.2	4	Sonoran Creosote Bush Scrub; 500 to 3,300 feet	Not present; not observed
Thorny Milkwort (*Polygala acanthoclada*)	---	---	G4/S1	2	Pinyon-Juniper and Joshua Tree Woodlands, Chenopod Scrub; 2,500-7,550 feet	Not present; not observed
Utah Cynanchum (*Funastrum utahense*)	---	---	G4/S3.2	4	Sandy and gravelly areas in Mojavean and Sonoran Creosote Bush Scrub; 490 – 4,700 feet	Observed Spring 2011
Winged Cryptantha (*Cryptantha holoptera*)	--	--	G3G4/S3?	4	330-5,500 feet in Mojave and Sonoran Desert Scrubs; often sandy habitats	Possible; not observed
Amphibians						
Couch's Spadefoot (*Scaphiopus couchii*)	BLM Sensitive	SSC	G5/S2S3	_	Various arid communities in extreme southeastern California and east, south	Possible;.potential breeding habitat was observed Spring 2011
Reptiles						
Colorado Desert Fringe-toed Lizard (*Uma notata*)	BLM Sensitive	SSC	G3/S2?	_	Restricted to aeolian sandy habitats in the southeastern Sonoran Desert	Unlikely due to geographic range; not observed
Desert Rosy Boa (*Charina trivirgata gracia*)	---	---	G4G5/ S3S4	---	Rocky uplands and canyons; often near stream courses	Unlikely due to lack of habitat; not observed
Mojave Fringe-toed Lizard (*Uma scoparia*)	BLM Sensitive	SSC	G3G4/ S3S4	---	Restricted to aeolian sandy habitats in the Mojave and northern Sonoran deserts	Observed during Spring 2011 surveys
Desert Tortoise (*Gopherus agassizii*)	T	T	G4/S2	---	Most desert habitats below approximately 5,000 feet in elevation	Carcass fragments and potential burrows observed Fall 2010 in ROW; burrow and carcass fragments observed on Linear Corridor. Tortoises and other sign observed Spring 2011.

Species	Status[1]				Habitat	Likelihood of Occurrence on the Project Area[4]
	Federal	State	CNDDB Rank[2]	CNPS[3]/ Other		
Invertebrates						
California McCoy Snail *(Eremarionta rowelli mccoiana)*	---	---	G1/T1/S1	---	Talus slope; potentially endemic to McCoy Mts	Unlikely; possible in McCoy Mts outside of the Project Area
Riverside Cuckoo Wasp *(Hedychridium argenteum)*	---	---	G1/?S1?	---	Dunes; one CNDDB record 18 mi west of Blythe along I-10; no other distribution information available, although may be endemic to Colorado Desert	Possible; not observed
Bradley's Cuckoo Wasp *(Ceratochrysis bradleyi)*	---	---	G1/S1	---	Dunes; one CNDDB record 6 mi north of Blythe, although may be endemic to Colorado Desert	Possible; not observed
Birds						
American Peregrine Falcon *(Falco peregrinus anatum)*	Delisted BCC	Delisted Fully Protected	G4T3/S2	---	Dry, open country, including arid woodlands; nests in cliffs	Possible forager on site may nest in adjacent mountains. Observed off-site Spring 2011.
Bendire's Thrasher *(Toxostoma bendirei)*	BCC BLM Sensitive	SSC	G4G5/S3	---	Arid to semi-arid brushy habitats, usually with yuccas, cholla, and trees	Unlikely; not observed
Brewer's Sparrow *(Spizella breweri)*	BCC	-- (nesting)	G5/S3	---	Open meadows and flats	Observed Spring 2011
Burrowing Owl *(Athene cunicularia)*	BCC BLM Sensitive	SSC	G4/S2	---	Open, arid habitats	Observed Spring 2011
Crissal Thrasher *(Toxostoma crissale)*	BCC	SSC	G5/S3	---	Dense mesquite and willows along desert streams and washes	Highly unlikely due to lack of habitat; not observed
Ferruginous Hawk *(Buteo regalis)*	BCC	(wintering)	G4/S3S4	---	Arid, open country	Possible; not observed
Gila Woodpecker *(Melanerpes uropygialis)*	BCC	E	G5/S1S2	---	Requires woodlands containing large trees or columnar cactus for nesting	Unlikely nester/possible transient; not observed
Gilded Flicker *(Colaptes chrysoides)*	BCC	E	G5/S1	—	Large cactus forests of southwestern deserts. Requires woodlands containing large trees or columnar cactus for nesting.	Unlikely nester/possible transient; not observed
Golden Eagle *(Aquila chrysaetos)*	BCC	Fully Protected	G5/S3	---	Open country; nests in large trees in open areas or cliffs	Unlikely nester on site, possible forager on site. Inactive nests in McCoy Mountains.and individuals observed Spring 2011
Le Conte's Thrasher *(Toxostoma lecontei)*	BCC	---	G3S3	---	Open desert with scattered shrubs	Observed Spring 2011
Loggerhead Shrike *(Lanius ludovicianus)*	BCC	SSC (nesting)	G4/S4	---	Arid habitats with perches	Observed Fall 2010 and Spring 2011
Mountain Plover *(Charadrius montanus)*	BCC BLM Sensitive	SSC (wintering)	G2/S2?	---	Dry upland habitats, plains, bare fields	Highly unlikely; not observed

Species	Status[1]				Habitat	Likelihood of Occurrence on the Project Area[4]
	Federal	State	CNDDB Rank[2]	CNPS[3]/ Other		
Northern Harrier (*Circus cyaneus*)	---	SSC (nesting)	G5/S3	---	Open habitats; nests in shrubby pen land and marshes	Observed Spring 2011
Prairie Falcon (*Falco mexicanus*)	BCC	(nesting)	G5/S3	---	Dry, open country, including arid woodlands; nests in cliffs	Observed Spring 2011
Short-eared Owl (*Asio flammeus*)	---	SSC (nesting)	G5/S3	---	Open habitats: marshes, fields; nests on ground and roosts on ground, low poles	Possible; not observed
Swainson's Hawk (*Buteo swainsoni*)	BCC	T	G5/S2	---	Forages in open stands of grass-dominated vegetation, sparse shrublands, and small, open woodlands	Unlikely nester, possible migrant. Observed Spring 2011
Yellow-breasted Chat (*Icteria virens*)	---	SSC (nesting)	G5/S3	---	Dense streamside thickets, willows; brushy hillsides and canyons	Highly unlikely due to lack of habitat, but possible transient; not observed
Mammals						
American Badger (*Taxidea taxus*)	---	SSC	G5/S4	---	Many habitats	Possible; observed outside of Project Area Spring 2011; digs observed within Solar Plant Site
Arizona Myotis (*Myotis occultus*)	---	SSC	G3G4/S2S3	WBWG:M	Lowlands of the Colorado River and adjacent mountain ranges, up to ponderosa pine habitat; mines, buildings, bridges, riparian woodlands, often near water	Unlikely; not observed[5]
Big Free-tailed Bat (*Nyctinomops macrotis*)	---	SSC	G5/S2	WBWG:M	Cliffs and rugged rocky habitats in arid, country, also riparian woodlands	Possible forager on site, especially near mountains; not observed[5]
Burro (*Equus asinus*)	---	---	---	Protected	Various habitats near water	Possible; tracks observed 2007 in western ROW and scat observed Fall 2010 and Spring 2011
Burro Deer (*Odocoileus hemionus eremicus*)	---	Game Species	---	---	Arboreal and densely vegetated drainages	Possible; hide observed in Spring 2011; no scat or deer observed
California Leaf-nosed Bat (*Macrotus californicus*)	BLM Sensitive	SSC	G4/S2S3	WBWG:MH	Lowland desert associate, found in caves, mines, tunnels and old buildings	Possible forager on site; not observed[5]
Colorado Valley Woodrat (*Neotoma albigula venusta*)	---	---	---	---	Under mesquite in Creosote Bush Scrub; southeastern California	Possible; not observed or captured during trapping
Desert Kit Fox (*Vulpes macrotis*)	---	Protected furbearer	---	---	In open desert scrub and dunes	Sign observed Fall 2010 and Spring 2011; foxes observed off site
Mountain Lion (*Felis concolor browni*)	---	SSC	G5T1T2Q S1	---	Colorado River bottomlands	Unlikely; possible forager on site; scat observed off-site near McCoy Mts Spring 2011
Nelson's Bighorn Sheep (*Ovis canadensis nelsoni*)	BLM Sensitive	---	---	---	In mountains and adjacent valleys in desert scrub	Unlikely; possible in McCoy Mountains; may forage at base of mountains
Pallid Bat (*Antrozous pallidus*)	BLM Sensitive	SSC	G5/S3	WBWG:H	Several desert habitats	Possible; not observed[5]
Pocketed Free-tailed Bat (*Nyctinomops femorosaccus*)	---	SSC	G4/S2S3	WBWG:M	Variety of arid areas in pinyon-juniper woodland, desert scrubs, palm oases, drainages, rocky areas	Unlikely; Possible in the McCoy Mountains; not observed[5]

Species	Status[1] Federal	State	CNDDB Rank[2]	CNPS[3]/ Other	Habitat	Likelihood of Occurrence on the Project Area[4]
Southwestern Cave Myotis (*Myotis velifer brevis*)	BLM Sensitive	SSC	G5/S1	WBWG:M	Caves, mines and buildings in lower desert scrub habitats; also near streams and in woodlands, old ag fields	Unlikely; not observed[5]
Spotted Bat (*Euderma maculatum*)	BLM Sensitive	SSC	G4 /S2S3	WBWG:H	Arid scrub and grasslands, to coniferous forests, roosts in cliffs, Forages along waterways	Unlikely; not observed[5]
Townsend's Big-eared Bat (*Corynorhinus townsendii*)	BLM Sensitive	SSC	G4/S2S3	WBWG:H	Broad habitat associations. Roosts in caves and manmade structures; feeds in trees	Possible; not observed[5]
Western Mastiff Bat (*Eumops perotis californicus*)	BLM Sensitive	SSC	G5T4/S3?	WBWG:H	Cliffs, trees, tunnels, buildings in desert scrub	Possible; not observed[5]
Yuma Myotis (*Myotis yumanensis yumanensis*)	BLM Sensitive	---	G5/S4?	WBWG:LM	Several habitat associations, but typically near open water; often roosts in manmade structures	Unlikely; not observed[5]

Sources: Unless noted, information is from *The Jepson Manual* (Baldwin et al. 2002), California Native Plant Society (CNPS) Online Inventory (CNPS 2011), and Jepson Flora Project (http://ucjeps.berkeley.edu/)

[1] CDFG and Habitat Data Analysis Branch, Biogeographic Data Branch 2009, http://www.dfg.ca.gov/biogeodata/cnddb/pdfs/SPAnimals.pdf

E Endangered
T Threatened
BCC FWS Bird of Conservation Concern
State SSC CDFG Species of Special Concern (species that appear to be vulnerable to extinction)
Fully Protected Species that cannot be taken without authorization from the Fish and Game Commission
Status in parentheses (e.g., nesting, wintering) CNDDB tracks only the identified (e.g.,nesting, wintering) locations of these species
BLM Sensitive Species under review, rare, with limited geographic range or habitat associations, or declining. BLM policy is to provide the same level of protection as FWS candidate species
WBWG = Western Bat Working Group (http://wbwg.org)
H – High Priority – These species should be considered the highest priority for funding, planning, and conservation actions.
M – Medium Priority – These species warrant closer evaluation, more research, and conservation actions of both the species and the threats
L – Low Priority – Most of the existing data support stable populations of the species and that the potential for major changes in status is unlikely

[2] CNDDB 2011: CDFG, CNDDB, Special Animals, January 2011 (www.dfg.ca.gov/biogeodata/cnddb/pdfs/spanimals.pdf) and CDFG Special Vascular Plants, Bryophytes, and Lichens List, January 2011 (www.dfg.ca.gov/biogeodata/cnddb/pdfs/SPPlants.pdf).

Global Rank	State Rank	Subspecies or Variety Rank and Other Symbols
G1 = Critically Imperiled	S1 = Critically Imperiled	T1-T5: same definition as global and state ranks, except that rank only applies to the particular variety or subspecies.
G2 = Imperiled	S2 = Imperiled	X: species is considered extirpated
G3 = Vulnerable	S3 = Vulnerable	
G4 = Apparently Secure	S4 = Apparently Secure	
G5 = Secure	S5 = Secure	
	SX= All California sites are extirpated	

[3] CNPS. 2011:
List 1A - Plants presumed extinct in California
List 1B - Plants rare and endangered in California and elsewhere
List 2 - Plants rare and endangered in California but more common elsewhere
List 3 - Plants about which CNPS needs more information
List 4 - Plants of limited distribution (Watch List)
(Note: CNPS lists 1 and 2 require CEQA consideration. List 4 plants that must be surveyed per the Northern and Eastern Colorado Desert Management Plan (BLM and CDFG 2002) were also included for surveying)
Threat Ranks: 0.1-Seriously threatened in California (high degree/immediacy of threat)
0.2-Fairly threatened in California (moderate degree/immediacy of threat)
0.3-Not very threatened in California (low degree/immediacy of threats or no current threats known)

[4] Species that are woody or large and were not observed during any surveys are noted as "Not Present"; others that are unlikely or were not observed but are herbaceous and may not have germinated or had aboveground growth, were noted as "Not Observed", but were not excluded from possibly being on the site. Summer annuals (a.k.a "fall-blooming annuals") are not annotated as they have yet to be surveyed during a period of adequate rainfall.

[5] Not observed; however, no nocturnal surveys were conducted.

4.2 Field Surveys

4.2.1 Preliminary Surveys

Two preliminary surveys were conducted prior to the focused, comprehensive surveys completed in Spring 2011. In December 2007, preliminary reconnaissance surveys were conducted of the MSEP to identify and map vegetation communities as well as refine the species that might be present, subsequently establishing the appropriate search methods for focused surveys. In October 2010, McCoy Solar intended to conduct rare plant surveys for late summer and fall blooming annual plant species (i.e., late-season annual plants) according to protocols that were approved by the BLM, CDFG, and the FWS prior to field surveys (Tetra Tech EC and Karl 2010a). However, due to lack of rainfall, a reconnaissance-level survey of areas where fall-blooming rare plants would be most likely to occur revealed there was no germination of late-season annual plants, which precluded conducting a complete fall annual plant surveys. Instead, the surveys were conducted of the 7,700 acre requested ROW to map vegetation communities and land forms to determine development constraints. During the survey, observations of special-status species were documented, although this was not a comprehensive survey for special-status species because the site was sampled, not completely censused. The comprehensive surveys conducted in Spring 2011 supersede the Fall 2010 survey results.

4.2.2 Rare Plant and Vegetation Surveys, Spring 2011

4.2.2.1 Special-status Plant Species

Special-status plant surveys were conducted in the entire Project Area according to protocols that were approved by the BLM, CDFG, and the FWS prior to field surveys (Tetra Tech EC and Karl 2010a). These protocols were consistent with the CDFG Protocols for Surveying and Evaluating Impacts to Special Status Native Plant Populations and Natural Communities (CDFG 2009) and BLM's Survey Protocols Required for NEPA and ESA Compliance for BLM Special Status Plant Species (BLM 2009). Surveys were consistent with BLM (2009) guidelines for an intuitive controlled survey, wherein a full survey is completed (i.e., 100 percent visual examination) in habitats with the highest potential for rare plants, with sampling in the remaining areas. To this end, surveys focused on swales, washes, runnels, rocky outcrops, and dunes because of the affinity of the herbaceous species in Table 1 for those habitats and because areas where rainfall collects have the greatest potential for germination of most species. To achieve this focus, the Project Area was divided into three survey categories:

- Full coverage (transects spaced no farther than 10 meters apart, covering 100 percent of the possible habitat) in the areas where the interdigitating mosaic of washes and runnels was too complex to survey at <100 percent. This comprised approximately three-fifths of the Solar Plant Site and 100 percent of the Linear Corridor.
- Full coverage in all vegetated drainages, from small runnels to larger washes. This occurred in the broad desert pavement plain in the west.
- Sampling in broad interfluve spaces.

The Project Area was divided into smaller sampling units (Cells and Segments) to optimize sampling (see Appendix C).

A highly qualified botanical team (Appendix D) conducted the botany surveys separately from the wildlife surveys to maximize results of both surveys. Surveys for spring-blooming and perennial special-status plants were conducted when plants were in optimum condition for identification (generally with blooms, fruits, and leaves). For the species in Table 1, surveys are necessary in early spring or late summer and/or fall when herbaceous species are blooming. (Woody and succulent perennials in Table 1 are easily identified when not blooming.) Prior to starting the surveys, the biological lead examined plant phenology almost weekly in the Project Area to optimize the survey timing. Because Spring 2011 was unusually cool, flowering was a little delayed, so plant surveys were similarly delayed, and began on 22 March. Surveys were then further chronologically prioritized to insure that the areas/habitats that could host special-status plants were surveyed at the appropriate phenological time, when those species were available for identification. Only one species, angel trumpets (*Acleisanthes longiflora*) blooms at another time – May. However, no limestone habitat to which it is restricted was identified during the spring surveys and therefore focused surveys in May were not necessary.

The Project Area received average to below-average precipitation in the months preceding spring, especially in the previous October and November, resulting in below-average germination and lower biomass of annual forbs (Table 2). Although the Project Vicinity received above-average precipitation for December 2010 and February 2011, precipitation in March was negligible, contributing to below-average plant germination and growth. However, despite the reduced germination and growth, many species were present. Perennials responded well to the above-average winter precipitation.

Table 2. 2008, 2009, 2010, 2011 Monthly Precipitation Data (in inches), Blythe, CA Airport

YEAR	Jan	Feb	Mar	Apr	May	June	Jul	Aug	Sept	Oct	Nov	Dec	Annual
2008	0.77	0.02	0.00	0.00	0.18	0.00	0.27	0.15	0.06	0.00	0.24	0.65	2.34
2009	0.02	0.43	0.00	0.00	0.03	0.01	0.07	0.02	0.03	0.00	0.00	0.85	1.46
2010	2.12	0.90	0.67	0.01	0.00	0.00	0.00	0.03	0.00	0.26	0.00	0.54	4.53
2011	0.00	1.17	0.06	0.00	0.00	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD
Average 1948-2010	0.49	0.44	0.36	0.15	0.02	0.02	0.23	0.62	0.35	0.26	0.19	0.41	3.54

Source: Western Regional Climate Center (WRCC) (2011); J. Ashby, pers. comm. (2011)

TBD: To Be Determined – Data not currently available for these months

Prior to conducting surveys, surveyors reviewed the target species (descriptions, photographs of live or herbarium specimens, microhabitat associations) and inventory of all species observed on the site in previous surveys. Reference populations of target species were visited, where practical, to enhance search images of plants and microhabitats, as well as identify current phenology and plant vigor. Because of the high level of experience in the botany crew, different sites were visited by individual botanists to maximize the opportunity to observe more reference populations. Reference populations of shrubs that were visited by this same crew the previous fall were not visited again, as all surveyors were confident of their ability to identify these species.

Although plant surveys were conducted separately from wildlife surveys, the biologists also noted special-status plant species observed during the wildlife surveys. However, since the site is elevationally low, many annual plants had already bloomed by the time the wildlife surveys were conducted. Nevertheless, a plant inventory was made during the general biological survey.

Some special-status plant species, referred to as summer annuals, grow only in late summer or early fall, in response to summer rains. At least one fall-blooming species (Abram's spurge) has fairly high potential to occur on the MSEP, and several others are possible. Accordingly, a second attempt to conduct rare plant surveys is planned for 2011 at the appropriate time in the late summer or early fall to detect these and other summer annuals. Surveys will be conducted according to protocol previously approved by the BLM, FWS, and CDFG for MSEP fall plant surveys (Tetra Tech and Karl 2010a).

4.2.2.2 Species Protected by the California Desert Native Plants Act

Certain desert plant species are protected under the CDNPA. The purpose of the CDNPA is to prevent the unlawful harvesting of native desert trees and cacti. Regulated species include: trees, cacti, ocotillo (*Fouquieria splendens*) and yucca, as well as fan palms (*Washingtonia filifera*). On MSEP, only several cacti species, ironwood, palo verde, honey mesquite, smoke tree, ocotillo, and catclaw acacia were present. All individuals of all species were counted, except in the catclaw-dense washes. There, two, 100-meter-long samples were taken in small washes and two in large washes, and the totals were extrapolated to the total length of both washes in each survey cell.

4.2.2.3 Vegetation Communities and Habitats

Surveyors described and mapped vegetation communities throughout the Survey Area. Vegetation communities were described based on biotic and abiotic features, including but not limited to species composition, species density and dominance, shrub cover percent, shrub height, common understory species, soils, substrates, hydrology, and topography. Mapping included communities determined by the BLM to be sensitive (e.g., Desert Dry Wash Woodland, Sand Dunes) or otherwise special, such as groundwater dependent vegetation.

4.2.2.4 Non-native Plants

Surveyors inventoried all invasive plant species and recorded the location of concentrations. Special attention was given to the highly invasive and noxious Sahara mustard, Russian thistle, and Tamarisk (*Tamarix* sp.). The nearly ubiquitous exotic annual, Mediterranean grass (*Schismus arabicus*), was identified but not evaluated for concentrations.

Invasive plants are defined as any non-native plant species that are injurious to the public health, agriculture, recreation, wildlife habitat, or the biodiversity of native habitats. The California Invasive Plant Council (Cal-IPC) categorizes invasive plants as high, moderate, or limited according to the severity of their ecological impact (Cal-IPC 2006). Invasive plants classified as high consist of species that have severe ecological impacts on physical processes, plant and animal communities, and vegetation structure, and have a moderate to high rate of dispersal and establishment. Those classified as moderate consist of species that have substantial and apparent (but not severe) ecological impacts, and have a moderate to high rate of dispersal and establishment; however, establishment is generally dependent upon a disturbance regime such as soil disruption or fire. Those classified as limited consist of species that are invasive, but whose ecological impacts are minor on a state-wide level. Dispersal and establishment of species classified as limited are generally low to moderate.

4.2.3 Wildlife Surveys, Spring 2011

Based on the results of the literature review, results of the field surveys conducted to-date, and agency letters, surveys were completed for the species in Table 1 in the entire Project Area and buffer. Survey methods were reviewed and approved by BLM, FWS, and CDFG prior to commencing field work (Tetra Tech and Karl 2011) and were conducted in accordance with standardized protocols for all relevant species for which there are protocols, and used biologically sound approaches for the remaining species. Surveys incorporated the NECO Plan requirements. The NECO Plan has specifically identified situations for which surveys must be completed for projects in the NECO planning area. Those that are relevant to MSEP include the following:

- Special-status plants – Survey in all mapped ranges
- Special-status wildlife – Survey at all known locations
- Bats – Identify all significant roosts within one mile
- Prairie falcon and golden eagle - Identify all eyries within 0.25 miles
- Burrowing owl – Identify presence and locations
- Crissal thrasher - Identify presence
- Couch's spadefoot – Identify all ephemeral impoundment areas
- Natural and artificial water sources – Identify presence within 0.25 miles

Due to the Project's sparse vegetation, relatively flat topography, and highly experienced field crew, surveyors searched for burrowing owl, Mojave fringe-toed lizard, and other special-status species listed in Table 1 concurrently with desert tortoise surveys, unless species-specific survey methods are otherwise outlined below. Rare plants were surveyed separately from the wildlife survey (see Section 4.2.2.1 Special-status Plant Species, above). Survey methods for each taxon or taxa group are described below.

4.2.3.1 Desert Tortoise

Qualified Biologists (Appendix D) conducted presence-absence desert tortoise surveys from April 7 through April 21, 2011. Biologists followed the timing and temperature requirements in the FWS (2010) survey protocols. The protocol requires that surveys be conducted during the tortoise's most active period, typically April through May, and September through October when air temperatures are below 40 degrees Celsius (104 degrees F).

Surveys were conducted according to direction provided by FWS for surveying projects in California that was applied to the MSEP (T. Engelhard pers. comm. to Tetra Tech 2011), and were designed to ensure that adequate desert tortoise surveys were conducted for the entire Project "Action Area [1]." This included surveying the Solar Plant Site using 30-foot-wide, contiguous transects to achieve 100 percent visual coverage. In addition, a single, 30-foot-wide buffer transect was walked at 655 feet (200 meters), 1,310 feet (400 meters), and 1,970 feet (600 meters) from the Solar Plant Site boundary, except south into Solar Millennium's BSPP (where protocol surveys have already been completed and construction is already underway in some areas) and west into the potential tortoise translocation area (which was surveyed at 100 percent coverage, see below) (Figures 5A and 5B). (Note: the transect at 655 feet was replaced by the burrowing owl transect at 500 feet; see Section 4.2.3.4 Burrowing Owl, below.) Transects were pre-programmed into Global Positioning System (GPS) units to ensure accurate and complete site coverage. Survey teams were generally limited to three people, including an experienced navigator who could simultaneously look for special species, to minimize the searching and focus inefficiencies that are common with larger teams.

[1] "Action Area" is a term used by FWS to denote all areas in which a listed species may be directly and indirectly affected by project activities.

The Linear Corridor was surveyed to achieve 100 percent coverage. Although the final Linear ROW width will be approximately 100 feet, surveys covered at least a 240-foot-wide corridor to allow for flexibility in siting the Linear Facilities. Biologists walked transects spaced approximately 30 feet apart within this corridor. In addition, biologists walked a single 30-foot-wide buffer transect at 655 feet (200 meters), 1,310 feet (400 meters), and 1,970 feet (600 meters)parallel to the boundary of the 240-foot-wide Linear Corridor. (Note: the transect at 655 feet was replaced by the burrowing owl transect at 500 feet; see Section 4.2.3.4 Burrowing Owl, below.)

The potential tortoise translocation area also was surveyed in Spring 2011 (Figure 5A) to determine tortoise habitat and density and to evaluate the suitability of this area for translocation. Surveys were conducted at 30-foot intervals throughout the 1,733–acre area, except in densely vegetated washes, where they were narrowed. In the highly marginal habitat along the talus slopes at the potential translocation area's outer, western edge, the most likely habitats (drainages) were all searched for tortoise sign, and the surrounding area was sampled.

On all transects, including buffer transects for burrowing owls, all tortoise sign (tortoises, burrows, shells, scat, tracks, drinking depressions) observed was measured, mapped, and described relative to condition, age (using a key to sign classes [Appendix E]) and, if possible, gender; coversite locations were additionally described relative to location and associated sign. No tortoises were touched. Tortoises were photographed only if it could be achieved without touching or otherwise harassing the tortoise. Tortoise location (e.g., aboveground, visible in burrow, not visible in burrow) was recorded. Shells and shell parts were evaluated relative to the cause of death, if possible. Current and recent weather conditions were recorded and the topography, drainage patterns, soils, substrates, plant cover, and aspect-dominant, common and occasional plant species described and mapped. All incidental sightings of common ravens, other known tortoise predators, and other site features (e.g., anthropogenic influences) that could assist in the analysis of tortoise population impacts were recorded and mapped. Mapping was achieved using a GPS unit. All transect data was recorded on specially-designed data forms (Appendix C) and representative areas photographed.

4.2.3.2 Mojave Fringe-toed Lizard

There are no formal survey protocols for Mojave fringe-toed lizards; therefore, surveys were conducted concurrently with desert tortoise surveys from April 7 through April 21, 2011. Desert tortoise surveys achieved 100 percent visual coverage (approx. 30 foot transects) of the ground surface of the Solar Plant Site and Linear Corridor; therefore, this survey intensity was sufficient to determine presence or absence of Mojave fringe-toed lizards, as well as mapping the boundaries of Mojave fringe-toed lizard habitat. Surveys were conducted when temperatures were sufficiently warm that lizards were active (many fringe-toed lizards were observed).

4.2.3.3 Couch's Spadefoot

During desert tortoise and wildlife surveys, including buffer transects (see desert tortoise survey methods, above), biologists recorded and mapped any artificial or temporary water catchments that could serve as potential breeding pools for Couch's spadefoot, based on evidence of ponding, vegetation, soil composition, and evidence of inundation. In order to be considered breeding habitat, pools must be present for at least eight days. Therefore, any potential breeding habitat detected during spring surveys will be revisited in Summer 2011 during monsoons to verify if toads are present. If toads are present during summer monsoons, biologists will collect data according to the protocol previously approved by the BLM and CDFG for the MSEP (Tetra Tech and Karl 2010a). Surveys were attempted in Fall 2010 but were not completed due to lack of rainfall.

4.2.3.4 Burrowing Owl

The burrowing owl is a California Species of Special Concern and although it is not listed by the federal or state ESA, its potentially compromised status prompted a previous proposal for state listing. Even though the listing proposal was rejected, the burrowing owl remains a high-profile species with the resource agencies. It is also legally protected under other the MBTA and CDFG Codes 3503, 3513.

CDFG generally requires protocol surveys for burrowing owls that are consistent with the California Burrowing Owl Consortium (CBOC) Guidelines (CBOC 1993). The guidelines project a set of consecutive surveys, each following the previous based on the latter's results:

- Phase I: Habitat Assessment – This "first step in the survey process is to assess the presence of burrowing owl habitat on the project site including a 150-meter (approx. 500 feet) buffer zone around the project boundary..."

  "The Phase II burrow survey is required if burrowing owl habitat occurs on the site. If burrowing owl habitat is not present on the project site and buffer zone, the Phase II burrow survey is not necessary."

- Phase II: Burrow Survey – "A survey for burrows and owls should be conducted by walking through suitable habitat over the entire project site and in areas within 150 meters (approx. 500 feet) of the project impact zone. This 150-meter buffer zone is included to account for adjacent burrows and foraging habitat outside the project area and impacts from factors such as noise and vibration due to heavy equipment which could impact resources outside the project area."

- Phase III: Owl Presence – "If the project site contains burrows that could be used by burrowing owls, then...surveys in the breeding season are required to describe if, when, and how the site is used by burrowing owls. If no owls are observed using the site during the breeding season, a winter survey is required." The survey methodology requires four site visits, each on a separate day. Birds are observed from two hours before sunset to one hour after sunset, or from one hour before sunrise to two hours after sunrise. The four visits are initially conducted during the nesting season, February 1 to August 31, although it is preferable to survey at the height of the breeding season, between April 15 and July 15. If no owls are observed during the nesting season, then "winter surveys should be conducted between December 1 and January 31... (to) count and map all owl sightings, occupied burrows, and burrows with owl sign."

The Phase I survey was completed in December 2007 during the reconnaissance field visit. Burrowing owl habitat is present throughout the Project Area. Phase II surveys were completed from April 7 through April 21, 2011 during the desert tortoise protocol surveys. Additionally, per CBOC Phase II survey guidelines, surveys were conducted within 500 feet of the Project boundary with transects spaced every 100 feet – i.e., surveyors walked a buffer transect 100, 200, 300, 400, and 500 feet from the Project Area boundary. During these buffer transects, all observations and sign of all special-status animals, in addition to burrowing owls, were recorded.

Because burrowing owl sign was found during the Phase II burrow surveys, biologists conducted Phase III nesting-season surveys. Phase III surveys were conducted in two parts, the first in April and the second in June to allow for owls to move into the area. From April 18 through April 21, biologists surveyed the areas where burrowing owls or their sign were found during the Phase II surveys. A biologist visited and monitored these areas at least twice, generally once during three hours around sunset (two hours before and one hour after) and once during sunrise hours (one hour before and three after). Additionally, biologists conducted walking and driving surveys of suitable burrowing owl habitat during sunrise and sunset hours to detect burrowing owl activity in other areas of the Project Area. Two biologists returned on June 14 through June 16 to complete the remaining two visits. They re-visited the locations where active or recent owl burrows had been identified in April, then walked and drove other locations on the Project Area that had not been surveyed during Phase III surveys in April.

4.2.3.5 Golden Eagle

During Spring 2010, Wildlife Research Institute (WRI) conducted helicopter surveys to detect golden eagle nesting activity, in accordance with the FWS Interim Golden Eagle Inventory and Monitoring Protocols (Pagel et al. 2010). The 2010 helicopter survey was a collaborative effort among three solar developers for four proposed projects located north of I-10 between the town of Desert Center and Blythe, CA. The survey coverage included an approximate 10-mile survey buffer from each project's ROW boundary. One of the projects was Solar Millennium's BSPP directly south of the MSEP, and therefore, surveys also covered the entire MSEP and portions of its 10-mile buffer (Figure 6).

At the request of the FWS and to provide a second consecutive year of golden eagle nest data within 10 mi of the Solar Plant Site ROW Application Boundary, aerial surveys were conducted on March 23 and 24 (Phase 1), and May 5, 6, and 7, 2011 (Phase 2) of the MSEP. These survey periods coincided with the most appropriate time to observe nesting activity and productivity, and focused on areas containing suitable nesting habitat within the search area. WRI conducted the surveys following the FWS protocols (Pagel et al. 2010), and covered approximately 314 square miles.

WRI considered a nest inactive if they did not find evidence of an adult at or in close proximity of a nest or the nest did not contain eggs, young, or fresh nesting material. Assigning an inactive stick nest to a species is challenging because a nest might be used by different species in each year and the characteristics of nests overlap for some species. However, golden eagle nests can often be distinguished from hawk, falcon, and raven nests by size and placement. Golden eagle nests are constructed of sticks and the bowl of the nest can be lined with a wide variety of vegetation types, including shredded yucca (*Yucca* spp.), grasses, dry yucca leaves (Slevin 1929, Dixon 1937), strips of inner bark, dead and green leaves, soft mosses, and lichens (Gabrielson and Lincoln 1959). Golden eagle nests are large, and the adults often add material to the nest prior to use each year. Thus, inactive nests were conservatively considered golden eagle nests based on the nest characteristics, the experience of the lead observer, and nest placement on the landscape.

Golden eagles often have more than one nest in a territory, and two or three alternative nests sites is most common (Kochert et al. 2002). The spacing between nests within a territory varies with terrain features and the proximity to other eagle pairs and can range from <3.3 feet (1 meter) to >3.1 miles (5 kilometers) (McGahan 1968, Boeker and Ray 1971). Pairs may investigate multiple nests before choosing a nest for laying, with some pairs using the same nest every year and some switching nests sites between years, regardless of reproductive success the previous year (Boeker and Ray 1971). Therefore, the total number of nests should not be construed as representative of the number of locally breeding golden eagles because (1) there is no simple correlation between the number of alternative nests and eagle pairs; (2) the tally of nests was conservative and may have included nests of other species; and (3) eagle nests can last for decades. However, WRI categorized the nests into territories based on the proximity of the nests to each other and the arrangement of the nests within the landscape. The number of territories is equivalent to the number of breeding eagle pairs that could be active within the 10-mi survey area and should be considered an estimate.

In addition to the helicopter surveys, biologists conducted modified Avian Point Count (APC) surveys to gain an understanding of golden eagle and other raptor use of the site. The APC Plots (see Section 4.2.3.6, Avian Point Count Surveys, below) were modified once weekly during spring point count surveys, specifically to examine raptor behavior (e.g., foraging, migrating) over the Project Area, particularly by golden eagles. At each plot on the Solar Plant Site and Linear Corridor, one of the points was randomly chosen for a 10-minute-long survey during midday, when raptors are foraging following thermal lift and prey are still active (i.e., before temperatures are too high for diminished activity). Each point count had an unlimited distance in all directions, which allowed for tracking the movements of large birds such as golden eagles over a large area. In addition to surveying for foraging golden eagles for 120 minutes each week during early spring, an additional set of surveys was completed midday on June 15 and 16. Thirty-minute surveys, with unlimited distance, were conducted at APC Plot (12 locations) on the Solar Plant Site and the Linear Corridor.

4.2.3.6 Other Avian Surveys

Avian Point Count Surveys

To inventory avian species and identify use of the site by special-status bird species, biologists conducted APC surveys of the Solar Plant Site and Linear Corridor on April 12-13, 16-17, 23-24, 30, and May 1. APC surveys were conducted one day per week per plot for four consecutive weeks. A minimum of two point count plots were conducted per habitat type for a total of 12 plots covering the Project Area (Figure 7, Table 3). There were five plots within the Solar Plant Site, one per 2 square miles (5.2 square kilometers) and seven plots along the Linear Corridor, one per two linear miles (3.2 kilometers). Specific locations within each of these 12 areas were chosen randomly, but within each location, sampling was refined to focus on areas where the highest abundance of birds was likely to occur (e.g., drainages, trees). Each plot consisted of at least four points spaced 660 feet (200 meters) apart. Each point count had a 660 foot (200 meter) radius for non-raptors and an unlimited radius for raptors and common ravens. Point counts were 10 minutes long (i.e., 40 minutes per plot) and were conducted between sunrise and four hours after sunrise, with an extension to approximately 1100 h when temperatures did not preclude bird activity.

Table 3. Habitat Types of Avian Point Count Plots[1]

Point Count Plot	Habitat Type
1	Desert Pavement Plain; 3-10 meters Incised Washes
2	Desert Pavement Plain; 3-10 meters Incised Washes
3	Well-Developed Desert Pavement/Desert Pavement Plain; 3-10 meters Incised Washes
4	Well-Developed Desert Pavement
5	McCoy Wash/Well-Developed Desert Pavement
6	Well-Developed Desert Pavement/Pebble Plain
7	Well-Developed Desert Pavement/Agriculture
8	Well-Developed Desert Pavement/Pebble Plain
9	McCoy Mountains Toeslopes and Mid-Bajada; Arboreal Washes
10	Lower Bajada; Few Drainages and Intermittent Low Sand Dunes and Swales
11	Sand Dunes
12	Lower Sand Dunes and Sandy Lower Bajada; Sheet Flow, Swales, and Percolation

[1] See Figure 7 for Project Area habitats and locations of APC plots.

The APC survey results were analyzed by dividing birds into species groups and calculating mean use and frequency. Avian mean use was derived by calculating the average number of birds observed per 10-minute survey at each plot. In addition, the number of observations is presented, where an observation can be either an individual bird or a discrete flock of birds. This information helps evaluate whether or not high mean use is driven by a single event (e.g. flock of birds). Because individual birds are not uniquely marked and identified, actual population size or abundance cannot be determined. One individual may be counted multiple times during a survey period or across survey periods. Therefore, avian use does not directly equate to abundance; nor does it reveal information on bird behavior.

Gila Woodpecker and Gilded Flicker Surveys

Focused surveys for Gila woodpecker and gilded flicker were conducted in any possible, even marginal, habitat identified during surveys within the Survey Area. The closest potentially suitable habitat near the Project is within McCoy Wash to the east of the Solar Plant Site. Therefore, a biologist monitored 7-10 locations, separated by 1,650 to 2,475 feet, in McCoy Wash on April 11 and April 15 between 9:00 am and 2:30 pm. All sightings of woodpeckers and their sign, as well as behavior if birds were observed, were recorded. All other birds detected were tallied as well. At each sampling point, the nearest 10 trees were identified to species and visually measured for height and crown width; diameter at breast height was attempted but abandoned because of the multistemmed growth habit of palo verde and ironwood. The quality of potentially suitable habitat was evaluated.

4.2.3.7 Bats

NECO requires surveys to locate significant bat roosts within one mile of the Project to identify potential impacts from loss of foraging habitat to core population units. However, the MSEP is proposed for flat areas of the desert with few trees, minimal relief, and no nearby reliable water sources, and whereas the Project Area may serve as a foraging area for some species of bats, no bats are known to roost or hibernate in the sparse creosote bush scrub that typifies this area. Some species may; however, roost in trees or rock crevices. Although the amount of area to be dedicated to the Project may permanently reduce bat foraging opportunities, no surveys are required to come to this conclusion, and bat surveys in nearby mountains and McCoy Wash woodland would not contribute to an understanding of the impact of the Project on sensitive bat species. Therefore, no focused bat surveys were conducted. However, during desert tortoise surveys, including buffer transects (see desert tortoise survey protocol, above), biologists searched for and recorded any potential bat roosts and hibernacula such as abandoned mines and caves. If a significant bat roost were identified on the site, then a bat expert would be contacted to identify the species and potential impacts of the Project on the species. If significant roosts or hibernacula were confirmed, additional focused bat survey requirements would be discussed and approved with the agencies.

4.2.3.8 Other Special-status Wildlife

Other special-status wildlife surveys and wildlife inventories were conducted concurrently with desert tortoise surveys. All incidental observations of special-status wildlife species listed in Table 1, or their sign (e.g., scat, tracks, bones, feathers) or habitats (including water sources and apparent trails), were included when compiling and mapping survey results. All deer and desert bighorn sheep scat were collected for later analysis to determine species. Although desert kit fox is not a special-status species, no take is permitted by CDFG. Therefore, in addition to recording foxes, surveyors recorded and mapped all kit fox natal dens or other burrow complexes. All sign of all special-status species was qualified relative to age, size, and other factors that could illuminate the potential use of the site by the species.

4.2.3.9 Small Mammals

Biologists conducted trapping for small mammals on six trap-nights (100 traps per night) to inventory nocturnal rodents for determining the burrowing owl prey base and to determine if Colorado Valley woodrat is present. Two locations representative of the two major habitats on the plant site were trapped (Figure 5A). Trapping was split into two sessions, April 16-18 and June 19-23, to observe reproductive output. Each site was trapped for 300 trap-nights using 100, 15-inch Sherman live-traps, set in a 4 by 25 configuration (four lines of 25 traps each), with lines spaced 25 meters apart and traps spaced at 15 meters. Lines were set across the slope to capture the mosaic of the habitat and interfluve habitats. Traps were opened approximately one hour before dark and baited with a mixture of crimped oats, rolled oats, bird seed, and peanut butter. Traps were checked near dawn the following morning. Data gathered included: species, age, gender, reproductive condition, mass, if a recapture (pelage clipping), the number of sprung traps, weather (ambient temperature, wind speed, cloud cover) and moon phase the previous night, and presence of ants.

4.2.3.10 Invertebrates

The three invertebrates in Table 1 are not state or federally listed; nor have they been identified by the resource agencies as special-status; therefore, surveys were not specifically conducted for them. Dr. David Faulkner (Forensic Entomology Services and the San Diego Natural History Museum, San Diego, CA) reviewed available literature to determine if any pollinators might be specific to the Project Area or to plants in the area, but was unable to find any special associations.

5.0 SURVEY RESULTS AND DISCUSSION

This section describes the results of the Spring 2011 surveys and focuses on special-status species observations. A complete inventory of plants and wildlife observed during surveys can be found in Appendix F.

5.1 Rare Plants and Vegetation

5.1.1 Special-status Plant Species

Botanists did not find any federally or state-threatened, endangered, or candidate plant species during surveys. However, botanists did observe six CNPS-ranked plants within the Project Area: Harwood's phlox, Las Animas colubrina, Harwood's milkvetch, Utah cynanchum, ribbed cryptantha, and desert unicorn plant (Figure 8A and 8B). Each is described below. Detailed results are in Appendix G.

Photo: Tim Thomas

Harwood's phlox growing on the MSEP Linear Corridor.

Harwood's Phlox (CNPS 1B; Rank S2/G2)

This member of the Polemoniaceae family is an annual herb native to California dunes and sand sheets, at elevations ranging between 630 and 3000 feet (CNPS 2011). The species pale yellow flowers, which appear from March to June, conspicuous woolliness, location in creosote bush scrub, and loose-sand association distinguish it from other *Eriastrum* spp. (Gowen 2008). Prior to 2009, it was only known from the eastern Mojave Desert in San

Bernardino and far northern Riverside County, and two locations in the far western Coachella Valley and northeastern San Diego County (CNPS 2009). Surveys for several solar projects in 2009 and 2010 established range extensions into the I-10 corridor (CNPS 2011). Harwood's phlox was found on Solar Millennium's BSPP (AECOM 2010a) and Palen Solar Power Project (PSPP: AECOM 2010b), and a single, likely plant (past flowering) was found on a Genesis Solar Power Project buffer transect. On MSEP, Harwood's phlox is distributed in the sand dunes and sheets of the switchyard and Linear Corridor. The total population size in the Survey Area was approximately 386+ individuals.

Las Animas Colubrina (CNPS 2; Rank S2S3/G4)

This 6-10-foot-tall, deciduous shrub in the family Rhamnaceae is native to southeastern California, Arizona, Baja California and northern Sonora, Mexico (CNPS 2011). It is commonly found in the drainages and runoff areas of rocks in the creosote bush scrub plant community of the Sonoran Desert at elevations below 3,300 feet (Baldwin et al 2002). The species usually blooms in April and May, depending on the timing of winter storms (Sawyer 1993, CalFlora 2011); the fruit is a dry capsule. The species is common in the drainages of the western portion of the Solar Plant Site, although never abundant. The total approximate population size is 267+ individuals.

Photo: http://www.worldbotanical.com/colubrina.htm

Las Animas colubrina

Harwood's Milkvetch (CNPS 2; Rank S2.2?/G5T3)

This annual herb in the Fabaceae family grows in sand-based soils of the Sonoran creosote bush scrub community, at elevations of 300 to 1,200 feet (Munz and Keck 1968, Baldwin et al. 2002). Blooming occurs from February to May, depending on ambient temperatures and rainfall. In most years, the species is present within its range in low numbers, often in graded areas such as otherwise denuded road shoulders, probably a response to scarification of the seed coat by machinery. In high rainfall years, it is very abundant, especially in old road berms (A. Karl, personal observation). It is easily distinguished from the generally more common and widespread, sympatric *Astragalus aridus* by its nearly glabrous, spreading to reflexed, inflated pods; more subtle differences include leaflet separation and shape.

Photo: E. Mix

Harwood's milkvetch seed pod and bud.

Photo: Alice Karl

Abundant Harwood's milkvetch growing in a dirt road in Spring 2005, following a high-rainfall winter.

Harwood's milkvetch was previously known in California from a few scattered locations in Blythe and west. Surveys for several energy-related projects have expanded the known locations substantially to the west through Desert Center and north, to the Anza Borrego Desert and near the Salton Sea, and to Yuma (CNPS 2011). Harwood's milkvetch was present in relatively low numbers on the Genesis and Solar Millennium I-10 projects and the Devers-Palo Verde II corridor surveys (Karl and Tetra Tech EC 2005).

Harwood's milkvetch was found on MSEP in swales of the eastern portion of the Solar Plant Site, and scattered on the Linear Corridor and switchyard. The population size in the entire Survey Area is estimated to be 465+ individuals.

Utah cynanchum (CNPS 4; Rank S3.2/G4)

This perennial herb in the milkweed family (Asclepiadaceae) is found mostly on dry, sandy or gravelly desert areas, at elevations below 3300 feet (Baldwin et al. 2002). It was previously considered uncommon in California (Baldwin et al. 2002, CNPS 2011), and known only from the Mojave Desert, extending to Utah and Arizona (Hoffman 1993, CalFlora 2011). The Consortium of California Herbaria (Consortium) has California records only in San Bernardino County (Consortium 2011). The large energy-related surveys in the I-10 corridor in 2009 through 2010 documented a far more common species. Utah cynanchum was found on both the of the Solar Millennium projects. On the MSEP, it is common to patchily abundant in many drainages, including small runnels. Plants most frequently grew through other plants, using the latter for structure, but also grew independently on the ground. Population size within the Survey Area is estimated at 5180 + plants.

Photo: Alice Karl

Utah cynanchum vining onto big galleta grass for support.

Photo: Rachel Woodard

Utah cynanchum in flower and bud.

Ribbed Cryptantha (CNPS 4; Rank S3.3/G4G5)

This annual herbaceous species in the Boraginaceae is found in sandy locations below 1500 feet in the eastern Mojave and Sonoran Deserts to Arizona and Baja California (Baldwin et al. 2002). The blooming period is February to May (Calflora 2011). Like many other species, surveys for the large solar projects in the I-10 corridor in 2009 and 2010 documented several additional populations of the species. Both the Genesis and Palen Solar Energy Projects found tens of thousands of individuals; BSPP found fewer (Tetra Tech and Karl 2010b; AECOM 2010a). On the Genesis Solar Energy Project most sand sheets were found to host ribbed cryptantha. Similarly, on the MSEP 2011 survey, this species was found on the sand sheets of the Linear Corridor south of I-10. Populations were scattered but large; the total number of plants was estimated at 1715+.

Photo: T. Thomas

Ribbed Cryptantha

Desert Unicorn Plant (CNPS 4; Rank S3.3/G5)

This perennial herb grows on deep, alluvial sands in Sonoran Desert Scrub habitat (Reiser 1994), at elevations below 3,300 feet. While thought to be uncommon in California (Baldwin et al. 2002), we found it to be quite common on the MSEP Solar Plant Site, primarily in swales that held water for a short time. This is consistent with observations on the Genesis Solar Energy Project in 2008 and 2009.

Desert unicorn plant has a fleshy root system that can remain dormant in dry years. It typically grows and flowers between July and September after substantial summer rains. However, some individuals have aboveground growth in spring, and fruits (seed pods) from the previous year are large and moderately visible, so presence of this species is fairly easily established.

Desert unicorn plant in flower

This species is distributed throughout the central part of the Solar Plant Site and in portions of the Linear Corridor. We observed locations for 55+ plants within the Survey Area, mostly based on seed pods.

5.1.2 CDNPA Species

Biologist observed and tallied 11 species protected by the CDNPA during Spring 2011 surveys (Table 4). The most numerous cactus species in the Project Area was silver cholla (*Cylindropuntia echinocarpa*) and the most numerous small tree was catclaw acacia.

Table 4. CDNPA Species found during Spring 2011 Surveys within the Project Area

Species	Solar Plant Site[1]	Linear Corridor	Switchyard	Total
Palo verde (*Cercidium floridum*)	778 294		0	1072
Ironwood (*Olneya tesota*)	20	807	0	827
Honey mesquite (*Prosopis glandulosa*)	0	21	0	21
Catclaw acacia *(Senegalia [Acacia] greggii)*	Abundant[2] 0		0	Abundant
Silver cholla *(Cylindropuntia echinocarpa)*	3828	150	0	3978
Pencil cholla (*Cylindropuntia ramosissima*)	1000	7	0	1007
Fish-hook cactus (*Mammillaria tetrancistra*)	63	1	0	64
Cottontop cactus (*Echinocactus polycephalus*)	99	4	0	103
Beavertail cactus (*Opuntia basilaris*)	65 0		0	65
Barrel cactus (*Ferocactus cylindraceus*)	75 0		0	75
Ocotillo (*Fouquieria splendens*)	17 0		0	17

[1] Number of individuals is estimated due to the reduction of the Solar Plant Site after surveys were complete.
[2] Catclaw acacia was generally abundant (approx. 200 – 500 plants) to very abundant (> 500 plants) in the washes and runnels in the western half of the Solar Plant Site.

5.1.3 Sensitive Plant Communities

No BLM Sensitive plant communities occur within Solar Plant Site. A Palo Verde-Ironwood Woodland Alliance (equivalent in this location to NECO's Desert Dry Wash Woodland) characterizes McCoy Wash, east of the Project Area but is not present within the Project Area. South of I-10, well-developed, low sand dunes (equivalent to NECO's Stabilized and Partially Stabilized Sand Dunes) are characteristic of the Linear Corridor along the east-west leg and in most of the switchyard.

An artificially created honey mesquite-palo verde bosque-ironwood bosque grows in a borrow pit north of I-10 (Figure 3). Generally, mesquite is considered a phreatophyte, one of a group of plants that obtain at least some of their water from shallow groundwater (Cooper et al. 2006). But the borrow pit is a periodically flooded basin that holds water for varying amounts of time (depending upon frequency and intensity of rainfall). The plants that grow in this basin are probably primarily dependent upon this periodic flooding rather than near-surface groundwater. Surveyors did not observe any other locations in which groundwater-dependent plants grew, with the exception of two introduced tamarisk in a small swale along the southwestern border of the Solar Plant Site.

5.1.4 Non-Native Plants

Surveyors detected 10 non-native species during Spring 2011 surveys: Sahara mustard, tamarisk, Russian thistle, London rocket (*Sisymbrium irio*), puncture vine (*Tribulus terrestris*), blue panicgrass (*Panicum antidotale*), cheeseweed (*Malva parviflora*), pigweed (*Chenopodium album*), goosefoot (*C. murale*), and Mediterranean grass. Most were rare. Sahara mustard and, often, Russian thistle are dense throughout much of the sand dunes south of I-10. Elsewhere south of I-10 on the Linear Corridor, Sahara mustard is abundant, and grows under most creosote bushes. On the Linear Corridor north of I-10 and on the Solar Plant Site, Sahara mustard is generally intermittently and sparsely present and confined to washes and runnels. The major exception is the agricultural operation east of the Project Area, where both Sahara mustard and Russian thistle are dense in the swales, and common along both the field edges and in tilled fields. Surveyors recorded 20 tamarisk along an unnatural swale north of and paralleling I-10 and two in the southwestern corner of the Solar Plant Site.

5.2 Wildlife

5.2.1 Listed Species

5.2.1.1 Desert Tortoise (FWS: *Threatened*; CDFG: *Threatened*)

Solar Plant Site

One tortoise, an adult male, was observed on the Solar Plant Site, in the northwestern corner (Figure 9A, Table 5). All of the observed scat and freshly used burrows were also in the vicinity of that tortoise, and the few other burrows (which had not been used since winter) were almost exclusively located in the northwestern corner of the Solar Plant Site, continuing west into the proposed translocation area. Current tortoise usage of the remainder of the Solar Plant Site, which would be indicated by burrows, scat, and tortoises, was almost negligible and probably transient. There were no concentrations of sign or well-used burrows that would suggest continued use. However two relatively recent burrows found in the eastern half of the Solar Plant Site support the observation of minor transient use across portions of the site. Although the entire Solar Plant Site could be considered tortoise habitat, few tortoises would be expected in most of the site because of the poor cover both in and out of the washes and the suggestion from such low species richness and stature that the forage base may be similarly depauperate. Instead, tortoises are associated with incised drainages and/or sheet flow, which offer cover via the relatively dense shrub and grass vegetation, as well as natural cavities in the banks. Forage potential is also somewhat higher here than in the flatter portions of the site because of water flow. The drainages, then, are the best habitat that this site has to offer tortoises, but are not high quality habitat in and of themselves. Coversites are prone to flooding and forage, while higher there than in the interfluves, is still limited.

Although tortoises are associated with the more richly vegetated, incised drainages in the west, there is ample similar habitat elsewhere on the Solar Plant Site that is not occupied (i.e., no scat, burrows, or tortoises) (Figures 3 and 9A) supporting the observation that tortoise densities are simply very low on the Solar Plant Site and in the immediately adjacent area and not all suitable habitat is occupied. Two methods are used to estimate density on the Solar Plant Site. The first is from the FWS (2010) protocols. This method calculates density using live tortoises observed as the metric for that estimate. Table 3 of the protocols provides a spreadsheet wherein visible tortoises seen per transect and the number of kilometers of transects walked are used to calculate a point estimate for density and 95 percent confidence interval. The following variables are also taken into account:

P_a – The probability that a tortoise will be aboveground is based on precipitation levels the previous October through March. If total precipitation equals or exceeds 40 mm (approx. 1.5 in), FWS has determined that the P_a =0.8. For Blythe, the rainfall from October 2010 through March 2011 was 2.03 in (Table 2).

Action Area – The Action Area is that area within which a project will affect the listed species. This generally extends beyond a project footprint and includes all indirect impacts. For MSEP, the final footprint is unknown, but will be less than the Solar Plant Site surveyed in Spring 2011. Furthermore, FWS specifically directed us to survey the current Solar Plant Site footprint at 100 percent coverage, with three buffer transects (T. Engelhard, Carlsbad Field Office, pers. comm. to Tetra Tech 2011). FWS (2010) protocols require identical coverage throughout the Action Area, not 100 percent in some parts and sampling in others. By default, then, the Carlsbad Field Office designated the MSEP Solar Plant Site footprint as the Action Area. The surveyed MSEP Solar Plant Site was 5,738 acres.

Transect Length and Number – Sixty, 30-foot-wide, 0.5 mile-long transects were completed in each survey cell. There were approximately 54 survey cells in the surveyed Solar Plant Site. (This is a conservative estimate, because the survey cells were rectangular and the Solar Plant Site edges were angled. Also, the southern edge of the Solar Plant Site did not extend quite to the edge of the survey cells along that border.) So, there were 3,240, half-mile long transects walked in the Solar Plant Site.

Using the above values, the FWS method calculates that 1.8 adult tortoises (range: 0.33-9.65) occupy the Solar Plant Site. This translates into a point density estimate of 0.2 adult tortoises per square mile.

An alternative method for estimating density uses the type and distribution of sign, plus home range sizes. Recent tortoise sign (scat and burrows) on the site is grouped into two areas of relatively low concentrations in the northwestern portion of the Solar Plant Site. One group is obviously associated with the observed tortoise; the second concentration, which consists of adult-sized burrows, may be this tortoise's as well or a second adult tortoise's. If a 1,980-foot (600-meter) home range radius[2] is assumed, then one of the tortoises observed in the proposed translocation area might also occupy the Solar Plant Site. Assuming two tortoises in the Solar Plant Site yields an estimated density of approximately 0.2 adult tortoises per square mile.

These very low densities and uneven use of the Solar Plant Site, with nearly all use concentrated in the western portion of the Solar Plant Site and west to the mountains, are consistent with the results from the Blythe Solar Power Project surveys in 2009 and 2010 (AECOM 2010a). Those surveys found only three adult tortoises in one year of surveys and four in the next year. Tortoise sign indicating use (i.e., burrows, scat, tortoises) was all in the western portion of the project and further west to the McCoy Mountains. This western strip between the

[2] Using Minimum Convex Polygon techniques, home ranges were calculated as 43.5 acres (range: 4.7 to 143.3 acres) for adult females and 111.6 acres (range: 10.4 to 487.8 acres) for males, in a 3-year study when tortoises were recaptured at least 50 times per year (TRW 1999). Home ranges were substantially smaller in studies with sample sizes of <21 tortoises and/or short study length (Burge 1977; Barrett 1990; O'Connor et al. 1994, Duda et al. 1999). Using the longer-term study as a conservative estimate, the mean radius of a male's home range would be 1980 feet.

projects' western borders and the McCoy Mountains comprises a continuous corridor of occupied habitat linking tortoises north of MSEP to those south of BSPP.

Table 5. Summary of Desert Tortoise Sign Observed Spring 2011

Tortoise Sign Type	Number of Observations				
	Solar Plant Site	Linear Corridor	Within 600 Meters of Plant Site and Linear Corridor	Potential Translocation Area	Total
Individual 1		1	0	3	5
Burrow	8	2	0	13	23
Potential Burrow	14	0	1	5	20
Scat (not associated with burrow)	7	0	0	9	16
Carcass <4 years old	4	0	1	5	10
Carcass >4 years old	26		0*	14*	40
Shell Fragment < 4 years old	4	1	0	0	5
Shell Fragment > 4 years old	170 2		11	8	191
Permineralized Shell Fragment	36 7		7	0	50

*Three carcasses in the potential translocation area are within 600 m of the Solar Plant Site.

Although the many shell fragments found on the Solar Plant Site certainly indicate that tortoises inhabit(ed) the area, they do not suggest a prior density nor indicate that tortoises lived where the fragments currently are. Predators move carcasses and shells disarticulate into over 35 small bones, which can subsequently (or prior to disarticulation) be broken. The small, disarticulated fragments are easily transported by monsoonal water flows. A total of 36 permineralized shell fragments also were observed on the Solar Plant Site (Table 5, Figure 6). Similar fragments were found on the Genesis Solar Energy Project, west of the McCoy Mountains, in 2009 and 2010 (Tetra Tech EC and Karl 2009, 2010b) and are estimated to be between 3,000 and 5,000 years old (William Orr, pers. comm.). They show evidence of permineralization, a process in which minerals are deposited into cells of organisms, usually by way of water. These fragments can be easily distinguished from the recent bone fragments because they are heavier, more solid, and most have a slight orange/brown color as opposed to the younger fragments, which are whiter and light.

Carcasses are sometimes used to evaluate past tortoise density, although this is very difficult for shells that are over about 4 years in age. It is simply too difficult to age those shells accurately, and many have disarticulated to the point that an accurate count of dead tortoises is not possible. Even more recent shells may be accompanied by factors that render a recent mortality rate difficult. For the MSEP survey, for example, we called a group of shell fragments a carcass (i.e., equivalent to one tortoise) based on the presence of at least approximately 20 to 30 percent of the shell or a large proportion of the plastron and/or carapace. Gender, size, condition and age of the bones was further compared to nearby partial carcasses and shell fragment groups to help refine the actual number of dead tortoises. Even so, this conservative approach probably overestimated the number of dead tortoises on the MSEP. Without actually collecting all carcass parts across the site and comparing them, it is impossible to know how many actually represented separate tortoises. Furthermore, many shells could come from or be taken off the site by predators. Although tortoise mortality was not the objective of the MSEP survey, we nonetheless present these data, with the caveat that mortality rate cannot be calculated accurately.

On the Solar Plant Site, four tortoise carcasses represented tortoises dying within the last four years (Table 5). All were adults and one was identifiable as a male. None was sufficiently intact to evaluate a cause of death. Of the 26 carcasses representing tortoises that died at least four years ago, at least 20 were adults, with at least nine males and two females. Two were relatively intact (Map Nos. 96 and 279; see Appendix H), but there was no obvious cause of death in either. One adult male along the southwestern border (No. 343, see Appendix H) may have been depredated by a large carnivore (mountain lion or coyote), based on the shell breakage.

Linear Corridor

Little tortoise sign was observed on the Linear Corridor (Table 5). Burrows were found in one small group, with a tortoise, at the southern end of the McCoy Mountains (Figure 9A). Although the occupied burrow was on an open hillside, the habitat in this area is consistent with the values found elsewhere where tortoises are present in the MSEP – i.e., undulating topographical relief and incised washes (conducive for burrowing), and higher volumes of flow in the washes, which translate into cover and forage. There were also a few shell fragments elsewhere on the Linear Corridor north of I-10, especially near the pebble plain. BSPP surveys had similar results, relative to type of sign found and location. They also found a few fragments, mostly near the pebble plain, and a tortoise with burrows at the south end of the McCoy Mountains (AECOM 2010a).

Most of the remainder of the Linear Corridor north of I-10 has habitat similar to that in the eastern Solar Plant Site, so tortoises are possible, but not expected. There is also a low possibility that tortoises may be associated with the agricultural berm because of the adjoined habitat, but the berm offers very poor, degraded habitat that is choked with Russian thistle.

South of I-10, there is poor habitat near the freeway, but it gradually diminishes to non-habitat as the Linear Corridor travels south to and through the dunes. The switchyard is poor habitat as well. Intersecting washes offer low-quality habitat near the freeway and in the bend west of the First Solar-NRG Blythe solar facility. Only six shell fragments, three in the Linear Corridor and switchyard and three on buffer transects, were observed south of the freeway during MSEP surveys (Figure 9A). Surveys for BSPP found similar results south of I-10 - a few, mostly permineralized shell fragments were found near the freeway (AECOM 2010a).

Estimating tortoise density on a linear facility may not be particularly meaningful relative to tortoise protection. This is because a linear facility is a narrow strip that travels a long distance, often through a variety of habitat types and therefore likely a variety of tortoise densities. Therefore, a single tortoise density estimated for an entire linear facility does not illuminate strategies for conservation planning. By contrast, determining which stretches of line may have better habitat and higher relative tortoise numbers will assist in determining impacts and planning construction monitoring, translocation and other protection measures.

Because project activities, impacts, and species protection measures are different on linear portions of a solar facility than on the plant site of a solar project, tortoise density on the MSEP Linear Corridor was calculated separately from the Solar Plant Site. It was then calculated together with the Solar Plant Site because both are part of the same project and a single take estimate will be requested from and permitted from FWS and CDFG. The FWS (2010) method was used to calculate density, based on the following values:

Area – The Linear Corridor was approximately 14.7 mi long, from the edge of the Solar Plant Site through the switchyard. The width was a minimum of 240 feet, but it varied throughout its length (Figures 5A and 5B). Because of this variability, a conservative width of 240 feet was used to estimate acreage within the surveyed route.

Transect Length and Number – Transects were 30 feet wide, so there was a minimum of eight transects in the 240-foot Linear Corridor width.

P_a remains the same as for the Solar Plant Site, so the final FWS estimate for the surveyed Linear Corridor alone would be 1.8 adult tortoises (range: 0.34 – 9.90). For the combined Solar Plant Site and Linear Corridor, it would be 3.6 tortoises (range: 0.4 - 31.36).

<u>Potential Translocation Area</u>

Three adult tortoises, eight fresh and five recent (<1 year old) burrows, and nine scat were found in the potential translocation area (Table 4, Appendix H). Although sign was found throughout the area, the greatest amount was in the northern half (Figure 9A). This makes sense because much of the southern area and base of the mountains was dominated by a dense boulder field that would constrict tortoise mobility (Figure 3).

While tortoise sign was found in the entire potential translocation area, the habitat in the boulder field (Figure 3) is sufficiently poor that translocation to that area is not recommended. The area outside this field is approximately 763 acres and is where all three tortoises and most of the sign indicating occupation was observed (Figure 9A). Using that acreage, the FWS (2010) calculation would yield 5.5 adult tortoises (range: 1.68 - 17.82), a reasonable estimate in light of the sign observed. This translates into a point density of 4.95 tortoises per square mile.

In the potential translocation area, five carcasses were found that represented tortoise mortalities within the past four years. Two were juveniles found in coyote scat and the remaining three were adults (two males, one female) that had shell breakage suggestive of depredation by a large carnivore. Of the remaining 14 carcasses in the translocation area, all were adults and at least four were males and five were females.

5.2.1.2 Swainson's hawk (FWS: *Bird of Conservation Concern*; CDFG: *Threatened*)

Biologists observed four Swainson's hawks flying during APC surveys and one during raptor point count surveys. The Project Vicinity is in a known migratory route for Swainson's hawk and migrating Swainson's hawks are commonly seen in this area (P. Bloom, pers. comm.). Swainson's hawks breed throughout North America, and typically winter in South America, Central California, and parts of Florida (Dunn and Alderfer 2006). The Project Area is located outside of this species' breeding range (England 1997; Table 6), with the closest breeding range located just east of the Sierra Nevada Range (Woodbridge 1998, Bloom pers. comm.). Therefore, no focused Swainson's hawk nesting surveys were warranted. However, during golden eagle helicopter surveys conducted within a 10-mile radius of the Solar Plant Site ROW Application Boundary, Swainson's hawks were sought, but none was observed (WRI 2011).

Table 6. Seasonal Geographic Distribution (from Poole 2005) in the Project Vicinity for Bird Species Observed during Surveys

Species	Year-round Resident/Breeding	Migrant	Wintering	Other
American kestrel	x			
ash-throated flycatcher	x			
barn swallow	x			
black-headed grosbeak	x			
black-tailed gnatcatcher	x			
black-throated sparrow	x			
blue-gray gnatcatcher			x	
Brewer's blackbird			x	
Brewer's sparrow			x	
burrowing owl	x		x	
cactus wren	x			
California horned lark	x			
chipping sparrow (off site in McCoy Wash)		x		
cliff swallow	x			
common poorwill	x			
common raven	x			
Cooper's hawk	x			x (non-breeding)
Costa's hummingbird	x			
dusky flycatcher		x		
Eurasian collared dove	x			
European starling	x			
Gambel's quail	x			
golden eagle	x		x	
greater roadrunner	x			
great horned owl (off-site in McCoy Wash)	x			
great-tailed grackle	x			
house finch	x			
house sparrow	x			
ladder-backed woodpecker	x			
LeConte's thrasher	x			
lesser goldfinch	x		x	
lesser nighthawk	x (breeding)			
loggerhead shrike	x			
Lucy's warbler (off site in McCoy Wash)	x (breeding)			
mourning dove	x			
northern harrier			x	
northern mockingbird	x			
northern rough-winged swallow	x			
Osprey	x			
peregrine falcon	x			
phainopepla		x	x (breeding)	
prairie falcon	x	x		
red-tailed hawk	x			
red-winged blackbird	x			

Species	Year-round Resident/Breeding	Migrant	Wintering	Other
rock pigeon	x			
Say's phoebe	x			
Scott's oriole (off-site in McCoy Wash)		x		
Swainson's hawk	x			
tree swallow	x		x	
turkey vulture	x	x		
Vaux's swift	x			
verdin	x			
violet-green swallow	x	x		
western kingbird	x (breeding)	x		
western meadowlark	x			
western tanager		x		
white-crowned sparrow	x		x	
white-throated swift	x	x	x	
white-winged dove	x (breeding)	x		
Wilson's warbler		x		
yellow warbler	x			
yellow-rumped warbler	x		x	

(Poole 2005)

5.2.1.3 Gila Woodpecker and Gilded Flicker (FWS: *Bird of Conservation Concern*; CDFG: *Endangered*)

Biologists did not detect Gila Woodpecker or gilded flicker during Spring 2011 surveys. No nesting habitat for either species occurs on the Solar Plant Site or along most of the Linear Corridor. Potential habitat may occur in the larger trees of the arboreal washes that cross the Liner Corridor at the southern McCoy Mountains. Suitable nesting habitat occurs to the east of the Solar Plant Site in McCoy Wash. McCoy Wash contains a well-developed palo verde - ironwood woodland, with large trees suitable for nesting (Table 7). Holes made by an unknown species of woodpecker were observed in a large, old ironwood approximately one mile from the Solar Plant Site, but no woodpeckers were observed or heard. In five consecutive years from 2004 to 2008, no Gila woodpeckers or gilded flickers were observed in McCoy Wash during a focused breeding bird study by the Point Reyes Bird Observatory (PRBO) Conservation Science (McCreedy 2009).

Table 7. Average Tree Size at Twelve Locations within McCoy Wash

Sample Point within McCoy Wash[1]	Species	Average Height (ft)	Average Crown Width (ft)	Average DBH (in)
1	Palo verde	14.1	20.0	-
	Ironwood 17.7		15.1	-
2	Palo verde	17.1	20.3	-
	Ironwood 19.0		21.3	-
3	Palo verde	17.4	16.7	-
	Ironwood 26.9		28.2	-
4	Palo verde	18.4	18.4	-
	Ironwood 34.1		34.1	-
5	Palo verde	24.6	24.0	-
	Ironwood 32.5		32.8	-

Sample Point within McCoy Wash[1]	Species	Average Height (ft)	Average Crown Width (ft)	Average DBH (in)
6	Palo verde	7.9	11.8	-
	Ironwood 25.6		27.2	-
7	Palo verde	21.7	16.4	-
	Ironwood 14.4		16.4	-
8	Palo verde	-	-	-
	Ironwood 8.2		11.5	-
9	Palo verde	5.9	8.9	-
	Ironwood 10.2		13.1	-
10	Palo verde	13.1	21.7	-
	Ironwood 17.4		24.6	-
11	Palo verde	9.8	11.5	2.4
	Ironwood 14.4		15.7	6.7
12	Palo verde	17.4	17.4	2.5
	Ironwood 31.2		26.2	12.0
13	Palo verde	20.7	23.0	4.5
	Ironwood 28.9		24.0	11.5
14	Palo verde	18.4	22.6	3.3
	Ironwood 26.2		26.9	7.5
15	Palo verde	17.4	19.7	1.6
	Ironwood 28.2		31.5	17.2
16	Palo verde	21.3	22.3	4.4
	Ironwood 32.2		32.2	12.8
17	Palo verde	16.4	21.3	3.5
	Ironwood 27.9		27.2	8.6

[1] Each sample point represents 10 trees
[2] The average diameter was used for trees with more than one trunk.

5.2.2 Non-listed, Special-status Species

5.2.2.1 Reptiles and Amphibians

Biologists observed one special-status reptile species (other than desert tortoise) – Mojave fringe-toed lizard – and potential habitat for Couch's spadefoot toad during Spring 2011 surveys (Figure 10). Table 8 provides a summary of results with a discussion below.

Table 8. Summary Reptile and Amphibian Observations, Spring 2011

Species		Sign Type	Comments
Mojave fringe-toed lizard	*Uma scoparia*	Individuals	Common throughout sand sheets and dunes south of I-10 along Linear Corridor
Couch's spadefoot toad	*Scaphiopus couchii*	Potential Habitat	Nine areas where evidence of pooling indicates potential habitat: Five along Linear Corridor south of I-10 Two along Linear Corridor north of I-10 One within Solar Plant Site One east of Solar Plant Site

Mojave Fringe-toed Lizard (BLM: *Sensitive*; CDFG: *SSC*)

Biologists observed Mojave fringe-toed lizards throughout the sand dunes and sand sheets along the Linear Corridor south of I-10 during Spring 2011 surveys (Figure 10). Mojave fringe-toed lizards are loose-sand specialists, found only in aeolian sand dunes, sand fields, hummocks, and other areas with loose sand deposits, between 300 and 3,000 feet in elevation (Stebbins 2003). The sand dunes on the Linear Corridor south of I-10 are the only suitable Mojave fringe-toed lizard habitat on the Project Area; there is no suitable habitat within the Solar Plant Site.

Couch's Spadefoot (BLM: *Sensitive*; CDFG: *SSC*)

Biologists did not observe (nor expected to observe) any Couch's spadefoot toad during Spring 2011 surveys because the timing of the surveys fell outside of the species' greatest activity period (post summer monsoons). However, surveyors detected potential breeding habitat at a few localized locations along the Linear Corridor (Figure 10; Table 8), the most promising of which is the borrow pit and graded depression north of I-10. One potential breeding habitat swale was recorded in the southwestern Solar Plant Site. During sufficient rain events, these areas may collect water both from runoff from the McCoy Mountains and direct precipitation.

Habitat for the Couch's spadefoot toad consists of extremely xeric areas with sandy, well-drained soils, often associated with creosote bush and mesquite trees (Arizona-Sonora Desert Museum 2010). Friable soils are important, as adults bury themselves and dig burrows to avoid desiccation. Couch's spadefoot breed in temporary ponds that hold water for a sufficient amount of time to reproduce, typically at least eight or nine days. These ponds are created during seasonal rainstorms, especially during summer; thunder and/or very low levels of precipitation (< 0.5 mm) elicit emergence from subterranean burrows in summer (Dimmitt and Ruibal 1980).

Because breeding occurs primarily in response to summer storms, surveys have been scheduled for Summer or early Fall 2011, in association with storms of adequate intensity.

5.2.2.2 Birds

During Spring 2011, biologists surveyed for special-status birds during the desert tortoise surveys and plant surveys, both of which covered 100 percent of the Project Area. In addition to these surveys, biologists conducted focused Phase III burrowing owls surveys, APC surveys, raptor point count surveys, and contracted WRI to conduct helicopter surveys for golden eagles. Results of the surveys are summarized below.

Burrowing Owl (FWS: *Bird of Conservation Concern*; BLM: *Sensitive*; CDFG: *SSC*)

The field reconnaissance survey in December 2007 identified suitable burrowing owl habitat throughout the Solar Plant Site. During Phase II Burrow Surveys (concurrent with desert tortoise surveys) in April 2011, biologists observed two live birds and burrowing owl sign (burrows, whitewash, feathers, and pellets) at several locations within the Solar Plant Site and Linear Corridor north of I-10 (Figure 11, Table 9). Detailed Phase II results are in Appendix I.

Table 9. Phase II Burrowing Owl Survey Results within the Project Area

Species		Sign Type	Number of Sign
Burrowing owl	*Athene cunicularia*	Individuals	5
		Burrow	Active or recently used - 5
			Inactive - 5
			Unknown activity status - 8
		White wash	1

During Phase III Nesting Surveys, biologists observed owl pairs at three locations, one within the Solar Plant Site and two along the Linear Corridor, indicating that burrowing owls use the Project Area during the breeding season. Two of the pairs were likely breeding pairs with active nests; however, this could not be confirmed without disturbing the owls. In June, no new active burrows were detected. The two burrows with the probable breeding pairs were still occupied in June; however, one nest was depredated as evidenced by a pile of adult burrowing feathers and the remains of a downy chic (most likely burrowing owl) near the burrow entrance. Detailed results of the Phase III Nesting Surveys can be found in Appendix J.

Golden Eagle (FWS: *Bird of Conservation Concern, BGEPA*; CDFG: *Fully Protected*)

Two golden eagles were incidentally observed south of the Solar Plant Site on March 28, 2011; no golden eagles were observed during the raptor point count surveys or helicopter surveys. The two birds were observed soaring toward the western portion of the Solar Plant Site (Figure 11). The Project Area is within the breeding and wintering range of the golden eagle (Kochert et. al 2002, Table 6).

The Spring 2010 helicopter surveys detected two golden eagle nests (one active, one inactive) within 10 miles of the MSEP (Figure 12A). The active eagle nest was located 9.2 miles northeast of the Project, and the inactive (and nearest) nest was 2.3 miles southwest of the MSEP. WRI determined that these nests represented two distinct breeding territories (WRI 2010).

The 2011 nest survey located five golden eagle nests within the 10- mile-radius search area (Figure 12B); no golden eagles were observed during the surveys. For ease of interpretation, the nests are sequentially numbered in this report (original nest numbers assigned by WRI can be found in WRI 2011). Four of these nests were inactive and one, the golden eagle nest that was active in 2010 (Nest 4), was occupied by red-tailed hawks in 2011. The inactive golden eagle nests were observed approximately 1.7 miles west (Nest 1), 3 miles southwest (Nest 7), 5.6 miles west-northwest (Nest 3), and 8.4 miles northwest (Nest 2) of the MSEP in the McCoy Mountains (Figure 12B). An additional 11 inactive golden eagle nests were detected outside the 10-mile search radius, at distances of 10.5 – 13.5 miles from the MSEP.

Based on the distribution and evaluation of nests, WRI concluded that nests observed in 2011 comprised eight inactive golden eagle territories, four of which were within and four of which were outside of the 10 mile search radius. Based on the location of latter, WRI considered it likely that portions of the foraging areas of these peripheral territories overlapped the 10 mile search area (D. Bittner, pers. comm.). No successful breeding by golden eagles was detected within any of the territories within or outside the 10 mile search radius on either phase of the aerial survey.

Other Special-status Bird Observations

Nine other special-status bird species were observed during Spring 2011 avian surveys or during other species surveys, two of which were observed nesting in the Project Area (Le Conte's thrasher and loggerhead shrike). These special-status bird species are discussed below (Table 10) and their geographic distribution, as related to the Project Vicinity is presented in Table 6. Detailed results and corresponding figures of species detected during 100 percent coverage surveys are located in Appendix I. Species only seen incidentally to other surveys were not mapped if precise locational data were not recorded (Vaux's swift), especially for species observed off the Project Area (Lucy's warbler, peregrine falcon).

Table 10. Other Special-status Bird Species Observed during Spring 2011 Surveys

Species		Sign Type	Number of Sign
Brewer's sparrow	*Spizella breweri*	Individual	Three sightings of two to several individuals each
Le Conte's thrasher	*Toxostoma lecontei*	Individual 5	
		Nest with eggs	1
Loggerhead shrike	*Lanius ludovicianus*	Individual 39	
		Fledgling approx.	4
		Nest with eggs or young	5
Lucy's Warbler (off-site)	*Vermivora luciae*	Individual 1	
Northern Harrier	*Circus cyaneus*	Individual 1	
Peregrine falcon (off-site)	*Falco peregrinus*	Individual 4	
Prairie falcon	*Falco mexicanus*	Individual 2	
Vaux's swift	*Chaetura vauxi*	Individual >1	
Yellow warbler	*Dendroica petechia*	Individual 1	

<u>Brewer's sparrow (FWS: *Bird of Conservation Concern*)</u>

Biologists observed flocks of Brewer's sparrows on both wildlife surveys and APCs. Flocks of two to several birds were observed on three occasions during wildlife surveys. Fourteen birds were seen during APC surveys, most frequently at APC Plot 6 (Table 11). Brewer's sparrows spend much of the year in sagebrush scrub vegetation and migrate to the open desert scrub of the southwestern U.S. during the winter (Rotenberry et. al 1999). This species in a wintering resident of the Project Area and the individuals observed were migrants.

<u>Le Conte's thrasher (FWS: *Bird of Conservation Concern*)</u>

Biologists observed Le Conte's thrashers within the Project Area during Spring 2011 surveys. Le Conte's thrashers are year-round residents of the Project Vicinity (Sheppard 1996) and were observed nesting in scrub vegetation. The entire Project Area is Le Conte's thrasher habitat, providing cholla and low shrubs for cover and dense, spiny wash vegetation for nesting.

<u>Loggerhead shrike (FWS: *Bird of Conservation Concern*; CDFG: *Species of Special Concern*)</u>

Biologists observed loggerhead shrikes throughout the Project Area during Spring 2011 surveys as well as during APC surveys (observed at eight of the 12 APC Plots). Loggerhead shrikes are year-round residents of the Project Area (Yosef 1996) and were observed nesting in ironwood and palo verde trees within the Project Area. The entire Project Area is loggerhead shrike habitat because of the open and relatively low shrub vegetation that also contains taller structures that are used for nesting and as lookout posts to spot potential predators and prey.

Northern harrier (CDFG: *Species of Special Concern*)

Biologists observed one northern harrier during Spring 2011 APC surveys at Plot 6 (Figure 7); however, northern harriers are wintering occupants in the Project Vicinity and the observation was likely a migrant. Northern harriers prefer to nest in dense vegetation within upland and wetland areas, including marshes, wet meadow, old fields, upland prairies, mesic grasslands, drained marshlands, croplands, cold desert shrub-steppe, and riparian woodland (Macwhirter and Bildstein 1996). The entire Survey Area is considered wintering habitat for the northern harrier but there is no suitable nesting habitat within the Project Area. Although McCoy Wash and the adjacent agricultural fields may provide nesting habitat, this species is not known to nest in the Project Vicinity.

Prairie falcon (FWS: *Bird of Conservation Concern*)

Biologists observed two prairie falcons during wildlife surveys within the Solar Plant Site, one individual during APC surveys, and three individuals during raptor point count surveys (at Plots 5 and 8). A pair of prairie falcons was also observed nesting in the Big Maria Mountains during helicopter surveys (WRI 2011). Prairie falcons are year-round residents to the Project Vicinity. The prairie falcon is found in a variety of habitats, but is associated primarily with desert scrub and similar open habitats where it utilizes open ledges and cliffs for perching and nesting and forages over the open terrain (Steenhof 1998). Although the Project Area does not provide suitable nesting habitat, it does provide suitable foraging habitat, and is apparently sufficiently near nesting sites, since birds were seen over the Project.

Vaux's swift (CDFG: *Species of Special Concern*)

Biologists observed Vaux's swifts during Spring 2011 wildlife surveys. Vaux's swifts breed in the Pacific Northwest U.S. and winter in Mexico (Bull and Collins 2007); therefore, the individuals were likely migrating through the Project Area. The Project Area does not contain suitable nesting habitat for Vaux's swift as the swift is most frequently observed in coniferous forests where nests are built in hollow, large diameter trees.

Yellow warbler (FWS: *Bird of Conservation Concern,* CDFG: *Species of Special Concern*)

Biologists observed one yellow warbler, during APC surveys at Plot 10. Yellow warblers winter in Mexico and breed mostly in the northern U.S. and Canada, although they also breed in portions of Central Arizona, northern Baja, and the Southern California coast. Yellow warblers are most frequently observed breeding in wet, riparian areas in Arizona and California (Lowther et. al 1999). The Project Area is not within their breeding range; therefore, the observation was most likely a migrant.

Lucy's warbler (FWS: *Bird of Conservation Concern*, CDFG: *Species of Special Concern*) (off site)

A biologist observed one Lucy's warbler outside of the Project Area incidentally during Gila woodpecker surveys in McCoy Wash; none was seen on-site. Lucy's warblers breed along the Colorado River and are most frequently observed in xeroriparian thickets of mesquites, tamarisk, palo verde, and similar riparian trees and shrubs (Johnson et.al 1997). Breeding habitat within the Project Area is limited to those areas within washes, where Lucy's warblers could utilize natural cavities, such as woodpecker holes, loose bark, abandoned verdin nests, and holes in banks for nesting cavities. No nests were detected during surveys.

Peregrine falcon (FWS: *Bird of Conservation Concern*, CDFG: *Fully Protected*) (off site)

Biologists observed one peregrine falcon outside of the Project Area incidentally during Spring 2011 burrowing owl surveys (south of I-10) and three were seen in the Big Maria Mountains north the Project Area during golden eagle helicopter surveys (WRI 2011); no observations were made within the Project Area. Peregrine falcons are widely distributed throughout North and Central America and nest in a variety of habitats, including cliffs and abandoned nests of other raptor species (White et. al 2002). The Project Area is not considered peregrine falcon nesting habitat; however, they may nest in the surrounding mountain ranges.

Non-special-status Birds

During the APC surveys in Spring 2011, a total of 570 birds consisting of 45 identified and two unidentified species were recorded at the 192 points (Tables 10 and 11). The most commonly detected birds with the highest mean use were the tree swallow (*Tachycineta bicolor*, 13.2 percent of all birds observed), horned lark (*Eremophila alpestris*, 11.4 percent of all birds observed), northern rough-winged swallow (*Stelgidopteryx serripennis*, 10.5 percent of all birds observed), cliff swallow (*Hirundo pyrrhonota*, 8.9 percent of all birds observed), loggerhead shrike (6.5 percent of all birds observed), and common raven (5.3 percent of all birds observed). Each remaining species comprised five percent or less of the total number of birds observed. The horned lark was the most frequently detected bird as it was observed during 50 percent of all surveys.

The highest number of birds (133) and the greatest number of species (30) was detected at APC Plot 7 which was located on well-developed desert pavement and agricultural areas (Figure 7, Table 11). Ten species observed at this point count plot were specific to this plot (i.e., species were not seen at other APC Plots), including Brewer's blackbird, Eurasian collared-dove, greater roadrunner, great-tailed grackle, northern mockingbird, orange-crowned warbler, red-winged black bird, white-crowned sparrow, white-throated swift, and white-winged dove. The APC Plot with the second highest number of birds observed was Plot 6 (59 birds) and was located on well-developed desert pavement and pebble terrace.

Table 11a. Avian Species by Species Grouping, Observed during Spring 2011 Point Count Surveys at the McCoy Solar Project

Species Grouping	Overall Rank[1]	Number of Birds	Number of Observations	Mean Use (# birds per 10 min.)	Frequency (% of surveys detected)	Percent Composition	
						Group	Overall
Songbirds							
tree swallow	1	75	18	0.39	27.1	15.7%	13.2%
horned lark	2	65	43	0.34	50.0	13.6%	11.4%
northern rough-winged swallow	3	60	22	0.31	31.3	12.6%	10.5%
cliff swallow	4	51	16	0.27	20.8	10.7%	8.9%
loggerhead shrike	5	37	23	0.19	33.3	7.8%	6.5%
common raven	6	30	14	0.16	25.0	6.3%	5.3%
barn swallow	7	28	16	0.15	29.2	5.9%	4.9%
ash-throated flycatcher	10	20 20		0.10	22.9	4.2%	3.5%
house finch	11	15	14	0.08	27.1	3.1%	2.6%
Brewer's sparrow	12	14	6	0.07	10.4	2.9%	2.5%
cactus wren	13	13	9	0.07 8.3		2.7%	2.3%
black-throated sparrow	13	13 10		0.07	14.6	2.7%	2.3%
black-tailed gnatcatcher	15	12 11		0.06	16.7	2.5%	2.1%
yellow-rumped warbler	18	8	7	0.04	12.5	1.7%	1.4%
western kingbird	19	7	5	0.04 10.4		1.5%	1.2%
verdin 19		7	6	0.04	8.3	1.5%	1.2%
Wilson's warbler	22	5	2	0.03	4.2	1.0%	0.9%
blue-gray gnatcatcher	23	4	3	0.02	6.3	0.8%	0.7%
orange-crowned warbler	28	2	1	<0.01	2.1	0.4%	0.4%
white-crowned sparrow	30	1	1	<0.01	2.1	0.2%	0.2%
violet-green swallow	30	1	1	<0.01	2.1	0.2%	0.2%
yellow warbler	30	1	1	<0.01	2.1	0.2%	0.2%
Say's phoebe	30	1	1	<0.01	2.1	0.2%	0.2%
red-winged blackbird	30	1	1	<0.01	2.1	0.2%	0.2%
phainopepla 30		1	1	<0.01	2.1	0.2%	0.2%
northern mockingbird	30	1	1	<0.01	2.1	0.2%	0.2%
great-tailed grackle	30	1	1	<0.01	2.1	0.2%	0.2%
dusky flycatcher	30	1	1	<0.01	2.1	0.2%	0.2%
Brewer's blackbird	30	1	1	<0.01	2.1	0.2%	0.2%
black-headed grosbeak	30	1	1	<0.01	2.1	0.2%	0.2%

Table 11a (Continued). Avian Species by Species Grouping, Observed during Spring 2011 Point Count Surveys at the McCoy Solar Project

Species Grouping	Overall Rank[1]	Number of Birds	Number of Observations	Mean Use (# birds per 10 min.)	Frequency (% of surveys detected)	Percent Composition	
						Group	Overall
Raptors							
turkey vulture	8	23	16 0.12		27.1	41.1%	4.0%
red-tailed hawk	9	22	12 0.12		18.8	39.3%	3.9%
Swainson's hawk	23	4	4	0.02	6.3	7.1%	0.7%
American kestrel	23	4	4	0.02	8.3	7.1%	0.7%
unidentified falcon	30	1	1	<0.01	2.1	1.8%	0.2%
prairie falcon	30	1	1	<0.01	2.1	1.8%	0.2%
northern harrier	30	1	1	<0.01	2.1	1.8%	0.2%
Group Total		**56**	**39**	**0.29**	**47.9**		**9.8%**
Pigeons/Doves							
mourning dove	16	10	5	0.05 10.4		58.8%	1.8%
Eurasian collared-dove	21	6	3	0.03	2.1	35.3%	1.1%
white-winged dove	30	1	1	<0.01	2.1	5.9%	0.2%
Group Total		**17**	**9**	**0.9**	**10.4**		**3.0%**
Gamebirds							
Gambel's quail	17	9	9	0.05	12.5	100.0%	1.6%
Group Total		**9**	**9**	**0.05**	**12.5**		**1.6%**
Swifts/Hummingbirds							
white-throated swift	26	3	2	0.02	4.2	50.0%	0.5%
unidentified hummingbird	28 2		2	0.01	4.2	33.3%	0.4%
Costa's hummingbird	30	1	1	<0.01	2.1	16.7%	0.2%
Group Total		**6**	**5**	**0.03**	**10.4**		**1.1%**
Goatsuckers							
lesser nighthawk	26	3	3	0.02	6.3	75.0%	0.5%
common poorwill	30	1	1	<0.01	2.1	25.0%	0.2%
Group Total		**4**	**4**	**0.02**	**8.3**		**0.7%**
Other							
Greater roadrunner	30	1	1	<0.01	2.1	100.0%	0.2%
Group Total		**1**	**1**	**<0.01**	**2.1**		**0.2%**
Grand Total		**570**	**324**	**2.97**			

[1] A ranking of 1 indicates highest mean use

Table 11b. Avian Species Observed by Plot[1] during Spring 2011 Point Count Surveys at the McCoy Solar Project.

Species	Number of Birds	Number of Obs.	Plots 1	2	3	4	5	6	7	8	9	10	11	12
tree swallow	75	18	0	12	7	0	2	0	26	7	0	8	8	5
horned lark	65	43	2	11	3	8	1	11	6	10	4	1	2	6
northern rough-winged swallow	60	22	4	0	3	6	0	2	18	6	0	9	1	11
cliff swallow	51	16	0	0	5	0	12	20	4	1	2	3	0	4
loggerhead shrike	37	23	1	1	9	0	16	0	1	0	0	3	4	2
common raven	30	14	2	0	0	0	4	1	15	3	3	0	1	1
barn swallow	28	16	0	1	4	2	0	6	4	5	0	6	0	0
turkey vulture	23	16	6	0	0	0	5	2	2	5	2	0	0	1
red-tailed hawk	22	12	0	0	0	0	10	2	0	2	0	2	0	6
ash-throated flycatcher	20	20	0	0	2	1	0	4	4	2	6	1	0	0
house finch	15	14	1	1	2	0	1	0	1	1	4	2	1	1
Brewer's sparrow	14	6	1	1	0	0	0	7	4	0	0	1	0	0
cactus wren	13	9	0	0	2	0	0	0	0	0	0	11	0	0
black-throated sparrow	13	10	1	10	2	0	0	0	0	0	0	0	0	0
black-tailed gnatcatcher	12	11	0	0	3	0	2	0	4	0	3	0	0	0
mourning dove	10	5	0	0	0	0	0	0	9	0	1	0	0	0
Gambel's quail	9	9	1	2	2	0	0	2	0	0	0	2	0	0
yellow-rumped warbler	8	7	0	0	0	0	0	0	3	2	2	1	0	0
western kingbird	7	5	0	0	2	0	0	0	3	0	1	1	0	0
verdin	7	6	0	1	0	0	0	0	4	0	2	0	0	0
Eurasian collared-dove	6	3	0	0	0	0	0	0	6	0	0	0	0	0
Wilson's warbler	5	2	0	1	0	0	0	0	4	0	0	0	0	0
Swainson’s hawk	4	4	0	0	0	0	0	0	1	2	0	0	0	1
blue-gray gnatcatcher	4	3	0	0	0	0	2	0	0	1	1	0	0	0
American kestrel	4	4	0	1	0	0	1	0	1	0	0	1	0	0
white-throated swift	3	2	0	0	0	0	0	0	3	0	0	0	0	0
lesser nighthawk	3	3	1	0	0	0	0	0	1	0	0	1	0	0
unidentified hummingbird	2	2	0	0	0	0	2	0	0	0	0	0	0	0
orange-crowned warbler	2	1	0	0	0	0	0	0	2	0	0	0	0	0
white-winged dove	1	1	0	0	0	0	0	0	1	0	0	0	0	0
white-crowned sparrow	1	1	0	0	0	0	0	0	1	0	0	0	0	0
violet-green swallow	1	1	0	1	0	0	0	0	0	0	0	0	0	0
yellow warbler	1	1	0	0	0	0	0	0	0	0	0	1	0	0
unidentified falcon	1	1	0	0	0	0	0	0	0	0	1	0	0	0
Say's phoebe	1	1	0	1	0	0	0	0	0	0	0	0	0	0
red-winged blackbird	1	1	0	0	0	0	0	0	1	0	0	0	0	0
prairie falcon	1	1	0	0	0	0	0	0	0	0	1	0	0	0
phainopepla	1	1	0	0	0	0	0	1	0	0	0	0	0	0
northern mockingbird	1	1	0	0	0	0	0	0	1	0	0	0	0	0
northern harrier	1	1	0	0	0	0	0	1	0	0	0	0	0	0
great-tailed grackle	1	1	0	0	0	0	0	0	1	0	0	0	0	0
greater roadrunner	1	1	0	0	0	0	0	0	1	0	0	0	0	0
dusky flycatcher	1	1	0	1	0	0	0	0	0	0	0	0	0	0
common poorwill	1	1	0	0	0	0	0	0	0	0	1	0	0	0
Costa’s hummingbird	1	1	0	0	0	0	0	0	0	1	0	0	0	
Brewer's blackbird	1	1	0	0	0	0	0	0	1	0	0	0	0	0
black-headed grosbeak	1	1	0	0	0	0	0	0	0	0	1	0	0	0
Grand Total	570	324	20	45	46	17	58	59	133	47	36	54	17	38

[1]See Figure 7 for locations of point count plots

Four raptor species wer e observed during raptor point count surveys, including turkey vulture , red-tailed hawk, prairie falcon, and Swainson's hawk (Table 12a,b and 13 a,b). Turkey vultures were the most common species detected during raptor point count surveys, followed by the red-tailed hawk. Both of these species occur year-round in the Project Vicinity; neither have special-status.

Table 12a. Raptor Species Observed during April 2011 Raptor Surveys (10 Minute Surveys)

Species	Number of Birds	Number of Observations	Mean Use (# birds per 10 min.)	Frequency (% of surveys detected)	Percent Composition Group
turkey vulture	22	12	0.46	25.0	57.9%
red-tailed hawk	12	12	0.25	25.0	31.6%
prairie falcon	3	2	0.06	4.2	7.9%
Swainson's hawk	1	1	0.02	2.1	2.6%
Grand Total	**38**	**27**	**0.79**		

Table 12b. Raptor Species Observed during June 2011 Raptor Surveys (30 Minute Surveys)

Species	Number of Birds	Number of Observations	Mean Use (# birds per 10 min.)	Frequency (% of surveys detected)	Percent Composition Group
turkey vulture	5	4	0.42	25.0	55.6%
red-tailed hawk	4	1	0.33	8.3	44.4%
Grand Total	**9**	**5**	**0.75**		

Table 13a. Raptor Species Observed by Plot[1] during April 2011 Raptor Surveys (10 Minute Surveys)

Species	Number of Birds	Number of Obs.	Plots 1	2	3	4	5	6	7	8	9	10	11	12
turkey vulture	22	12	1	1	1	0	0	0	5	6	3	5	0	0
red-tailed hawk	12	12	1	1	1	0	0	0	1	1	1	2	1	3
prairie falcon	3	2	0	0	0	0	1	0	0	2	0	0	0	0
Swainson's hawk	1	1	0	0	0	0	0	0	1	1	0	0	0	0
Grand Total	38	27	2	2	2	0	1	0	7	9	4	7	1	3

[1] See Figure 7 for locations of point count plots.

Table 13b. Raptor Species Observed by Plot[1] during June 2011 Raptor Surveys (30 Minute Surveys)

Species	Number of Birds	Number of Obs.	Plots 1	2	3	4	5	6	7	8	9	10	11	12
turkey vulture	5	4	0	0	0	0	2	0	2	0	1	0	0	0
red-tailed hawk	4	1	0	0	0	0	0	4	0	0	0	0	0	0
Grand Total	9	5	0	0	0	0	2	4	2	0	1	0	0	0

[1] See Figure 7 for locations of point count plots.

5.2.2.3 Special-status Mammals

Five special-status mammals were detected within the Project Area and Vicinity during Spring 2011 surveys (Figure 13). Table 14 provides a summary of the observations and each species is discussed below; Appendix K provides detailed data and a corresponding figure.

Table 14. Summary of Mammal Observations within the Project Area (unless otherwise noted) during Spring 2011 Surveys

Species		Sign Type	Number of Sign
American badger	*Taxidea taxus*	Individual	1 (off site)
		Digs 6	
Bat	Unknown	Roost	1
Burro deer	*Odocoileus hemionus eremicus*	Hide 1	
Desert kit fox	*Vulpes macrotis*	Natal den	Active - 15 Inactive - 27
		Individual	Active den with pups (off site) - 1
Mountain lion	*Felis concolor*	Scat	2 (off site)
Wild burro	*Equus asinus*	Teeth 1	
		Scats	9

American Badger (*CDFG: Species of Special Concern)*

Biologists observed one American badger approximately 600 meters west of the Linear Corridor in the McCoy Mountains and six badger digs within the Solar Plant Site; one badger dig was observed south of the ring bus. The badger is a resident of a wide variety of habitats, including level, open areas in grasslands, agricultural areas, and open shrub habitats. Suitable habitat for the American badger occurs throughout the Project Area.

Bighorn Sheep (BLM: *Sensitive*; CDFG: *Managed Game Species*)

No sign or evidence of Nelson's bighorn sheep were found within the Survey Area during field surveys. NECO shows the McCoy Mountains and the Little Maria Mountains as unoccupied ranges; however, three ewes were observed more than 10 miles north of the Solar Plant Site in the Little Maria Mountains during golden eagle helicopter surveys. No bighorn sheep were observed in the McCoy Mountains during helicopter surveys. The Project Area is not within a known bighorn sheep corridor as identified in the NECO Plan.

Burro Deer (CDFG: *Managed Game Species*)

Biologists found a partial hide of a burro deer within the Solar Plant Site, indicating that burro deer are in the area. No other sign was observed. Burro deer is a subspecies of mule deer found in the in the Colorado region of the Sonoran Desert both near the Colorado River and substantially away from the river, especially associated with arboreal washes. There is marginal habitat for the burro deer on the Solar Plant Site, and suitable habitat within the larger washes that cross the Linear Corridor (north of I-10). Suitable habitat is also present to the east in McCoy Wash and near the Colorado River. Burro deer are a big game species managed by CDFG.

Desert Kit Fox (Protected by CDFG)

Desert kit fox inhabits many desert habitats, typically with less than 20 percent cover (NPS 2006). Suitable habitat for the desert kit fox occurs throughout the Project Area. Kit fox mostly inhabit the eastern half of the Solar Plant Site and the length of the Linear Corridor (Figure 13). Biologists detected 57 kit fox natal dens during Spring 2011 surveys, 34 within the Solar Plant Site and eight along the Linear Corridor; the remainder were observed outside of the Project Area. Of the 42 natal dens in the Project Area, 15 were active, 12 of which were on the Solar Plant Site (Figure 13). Desert kit fox families occupy several natal dens during any given year, changing dens frequently when puppies are being fed (McGrew 1979). The number of dens used per year is dependent on several variables, potentially including, at a minimum, prey availability, predation pressure, ectoparasite loads, and quality of denning substrates. The number of dens used by a family therefore likely varies geographically. Two projects near MSEP, the Genesis Solar Energy Project (GSEP) and the Blythe Solar Power Project (BSPP), had active natal den densities of 2.8 and 2.9 per mi^2, respectively (GSEP: unpublished data from 2011 site clearance; BSPP: AECOM 2010a: Page 98 and Table 13). These natal den densities are slightly higher than at MSEP - 1.2 active natal dens per mi^2 - so MSEP appears to host normal to slightly low kit fox densities for the area.

Mountain Lion (*CDFG: Species of Special Concern)*

Biologists found mountain lion scat to the west of the Solar Plant Site, within the potential desert tortoise translocation area. Mountain lions are found throughout the western United States in a wide range of habitats where there is adequate cover and prey. The Solar Plant Site is not mountain lion habitat; however, the McCoy Mountains and McCoy Wash provide suitable denning habitat.

Wild Burro (Managed by BLM)

Biologists found wild burro scat within the Solar Plant Site and along the Linear Corridor north of I-10. Wild burros were introduced in the 1500s and now can be found throughout the southwest deserts (Desert USA 2011). This species is managed by the BLM to maintain populations at levels that will not injure healthy native desert ecosystems. The entire Project Area is wild burro habitat, although they require standing water, so would be precluded, in most seasons, from occupying the site.

Bats

A natural cavity with a small amount of bat guano, but no current use by bats, was found within the southwest corner of the Solar Plant Site (Figure 13). Based on the small amount of guano, it would not be considered a biologically significant roost. The cave also contained a few insect parts, burrowing owl pellets, substantial whitewash (likely burrowing owl), rodent droppings, and desert tortoise scat. The cave was 2 ft wide, 4 ft tall, and 6.3 ft deep to a small ledge where a smaller hole continued for another 6 ft. There was no vegetation or obstructions at the cave entrance, which was located in a sheer rock wall in a 20-ft-deep, 50-ft-wide wash. The wash is moderately densely vegetated with shrubs, dominated by catclaw acacia and desert lavender; common species are creosote bush, white rhatany, brittle bush, and sweet bush. Wash substrates are gravels, coarse sand and cobbles.

The bat species using the cave cannot be determined; however, the two most likely species that occupied this roost, based on surrounding habitat, proximity to water, and the size and position of the roost, are the pallid bat (*Antrozous pallidus)* or the California leaf-nosed bat (*Macrotus californicus*). Pallid bats inhabit arid regions and prefer to roost in rocky substrates, and they most likely would have used this cavity as a daytime roost. They roost in groups of at least 20 bats and have daytime roosts and feeding roosts, changing roosts often (BLM 2011). Pallid bats are known to cull insect parts, although those found in and near the cavity cannot be distinguished from burrowing owl prey. California leaf-nosed bats also inhabit arid regions and will take larger insect prey back to the roost to eat. This cavity would most likely have been used as a nighttime roost, as they typically use buildings, mines, bridges, rock shelters, or other sites with overhead protection. They roost singly or in groups up to several hundred individuals, depending on the season (WBWG 2005). Pallid bats and California leaf-nosed bats are CDFG SSC and BLM Sensitive.

No other bat sign, roosts, or hibernacula were found during surveys.

5.2.2.4 Small Mammals

Five species of rodents were captured during six trap nights at two locations on the Solar Plant Site (Table 15), none of which are special-status. All species, except desert woodrat (*Neotoma lepida*), are small and can be prey for burrowing owl. No Colorado Valley woodrats were observed or captured during trapping.

Table 15. Summary of Small Mammal Trapping Results, April and June 2011

Species		Trap Line 1 N	1 R	2 N	2 R	3 N	3 R	4 N	4 R	Total New
Session 1: Solar Plant Site (South Central) April 16, 17, 18, 2011										
Merriam's Kangaroo Rat	Night 1	9	0	10	0	8	0	4	0	
(Dipodomys merriami)	Night 2	5	2	7	3	4	7	9	2	
	Night 3	10	4	8	1	5	6	5	5	
	Total	**24**	**6**	**25**	**4**	**17**	**13**	**18**	**7**	**84**
Desert Pocket Mouse	Night 1	0	0	1	0	1	0	1	0	
(Chaetodipus penicillatus)	Night 2	2	0	2	0	2	0	0	0	
	Night 3	2	0	2	1	1	1	0	0	
	Total	**4**	**0**	**5**	**1**	**4**	**1**	**1**	**0**	**14**
Long-tailed Pocket Mouse	Night 1	0	0	0	0	0	0	0	0	
(Chaetodipus formosus)	Night 2	2	0	0	0	0	0	0	0	
	Night 3	0	0	0	0	0	0	0	0	
	Total	**2**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**2**
Total		**30**	**6**	**30**	**5**	**21**	**14**	**19**	**7**	**100**
Session 2: Solar Plant Site (West) June 20, 21, 23, 2011										
Merriam's Kangaroo Rat	Night 1	3	0	4	0	0	0	0	0	
(Dipodomys merriami)	Night 2	0	3	2	3	0	0	5	0	
	Night 3	2	2	1	2	2	2	0	0	
	Total	**5**	**5**	**7**	**5**	**2**	**2**	**5**	**0**	**19**
Desert Pocket Mouse	Night 1	7	0	5	0	2	0	4	0	
(Chaetodipus penicillatus)	Night 2	2	5	2	2	1	1	4	2	
	Night 3	2	4	2	1	2	1	4	3	
	Total	**11**	**9**	**9**	**3**	**5**	**2**	**12**	**5**	**37**
Long-tailed Pocket Mouse	Night 1	0	0	1	0	1	0	2	0	
(Chaetodipus formosus)	Night 2	3	0	0	3	4	1	1	1	
	Night 3	2	1	3	1	2	1	3	1	
	Total	**5**	**1**	**4**	**4**	**7**	**2**	**6**	**2**	**22**
Spiny Pocket Mouse	Night 1	0	0	1	0	0	0	0	0	
(Chaetodipus spinatus)	Night 2	0	0	0	0	0	0	0	0	
	Night 3	0	0	0	0	0	0	0	0	
	Total	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**1**
Desert Woodrat	Night 1	1	0	0	0	0	0	0	0	
(Neotoma lepida)	Night 2	1	0	0	0	0	0	0	0	
	Night 3	0	1	0	0	0	0	0	0	
	Total	**2**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**2**
Total		**23**	**16**	**21**	**12**	**14**	**6**	**23**	**7**	**81**

[1] N=New Capture, R=Recapture
[2] Lost individuals were counted as new captures

5.2.2.5 Invertebrates

Several snail shells were found under a small rock crevice in the McCoy Mountains, at the western edge of the potential translocation area. The species was identified to the genus *Eremarionta* (R. Cerutti, paleontological specialist, San Diego Natural History Museum, pers. comm. to D. Faulkner). While the California McCoy snail is *E. rowelli mccoiana*, there are several other species of *Eremarionta* that may occur in the Blythe area (D. Faulkner, pers. comm.). The actual snail would need to be examined for other diagnostic characters to isolate it to species.

5.3 Potential for Other Special-status Species to Occur

5.3.1 Special-status Wildlife and Plant Species Not Observed, but Which May Occur on the Project Area

In addition to the special-status species observed during surveys, it is possible that some of the remaining special-status species from Table 1 could inhabit the Project Area and immediately adjacent areas. These are noted in Table 1 and include species that may not have been observed during surveys because of their rarity, behavior, season of surveys (e. g., wintering birds or summer annuals), or lack of germination or above ground growth due to reduced rainfall.

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FIGURES

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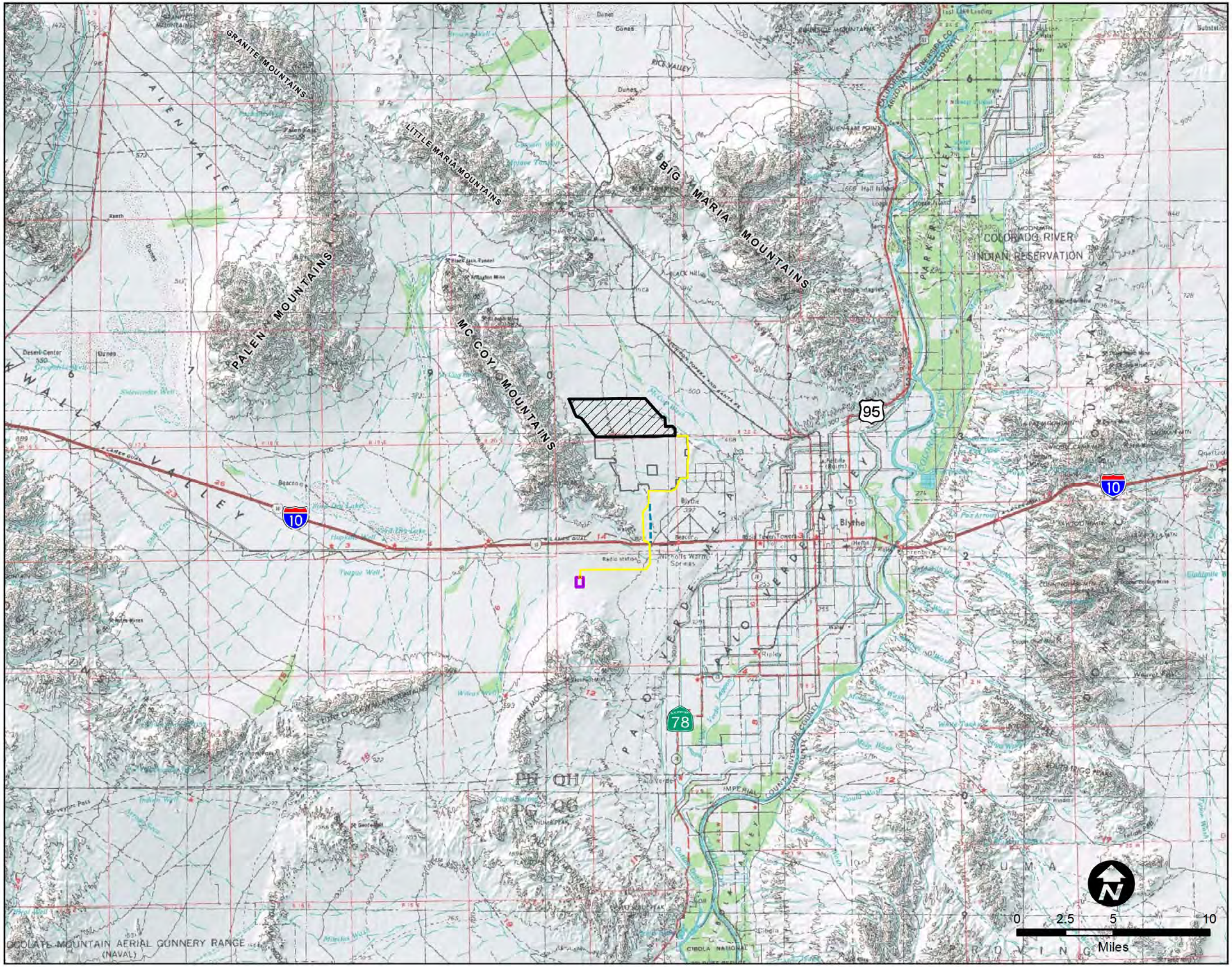

McCOY SOLAR ENERGY PROJECT RIVERSIDE COUNTY, CA

Legend

- MSEP Solar Plant Site Boundary
- Blythe Solar Power Project (BSPP)
- Linear Corridor
- Proposed Shared Access Road with BSPP
- Switchyard
- Proposed Colorado River Substation (SCE)

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

FIGURE 1
REGIONAL VICINITY MAP

TETRA TECH EC, INC.

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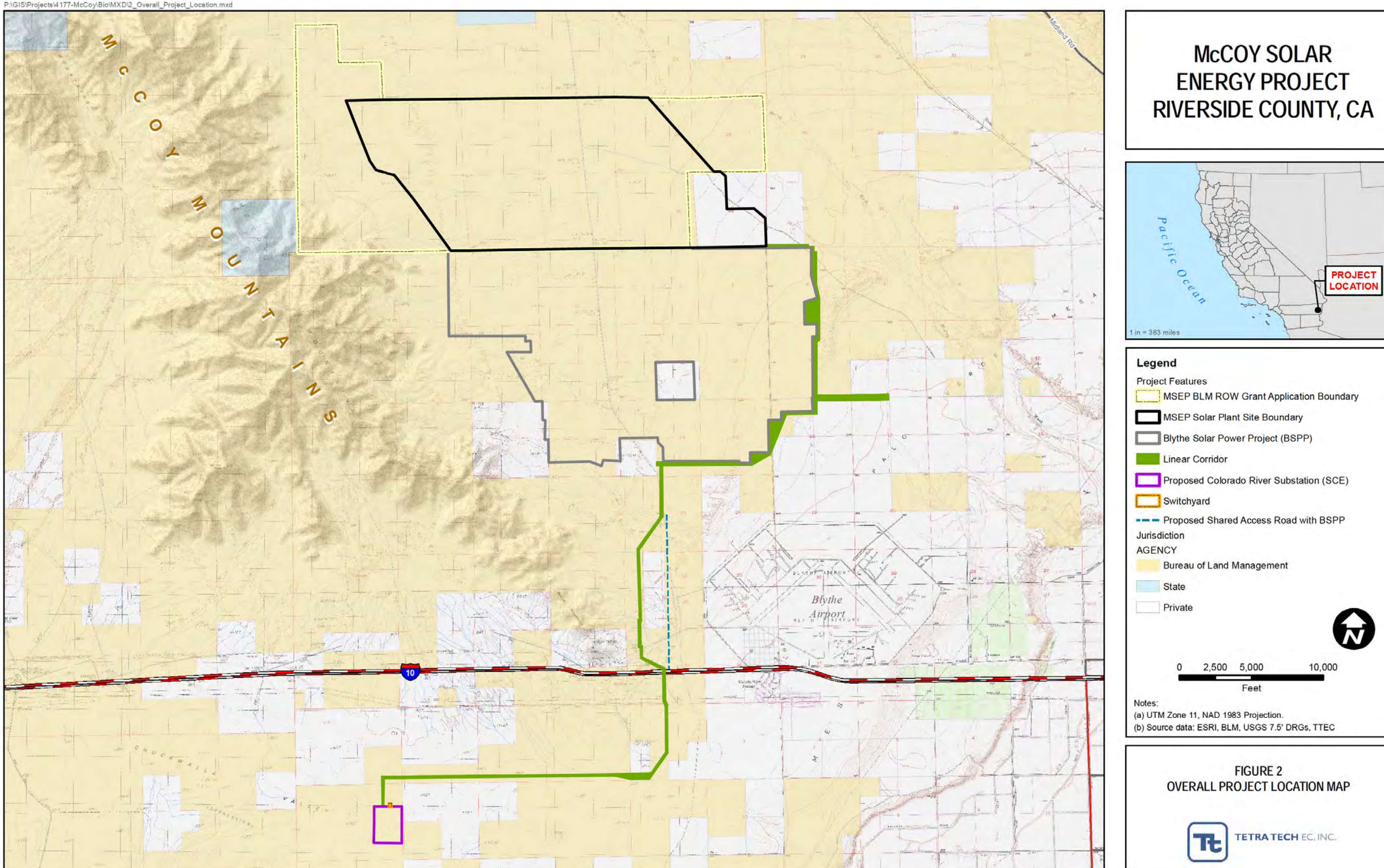
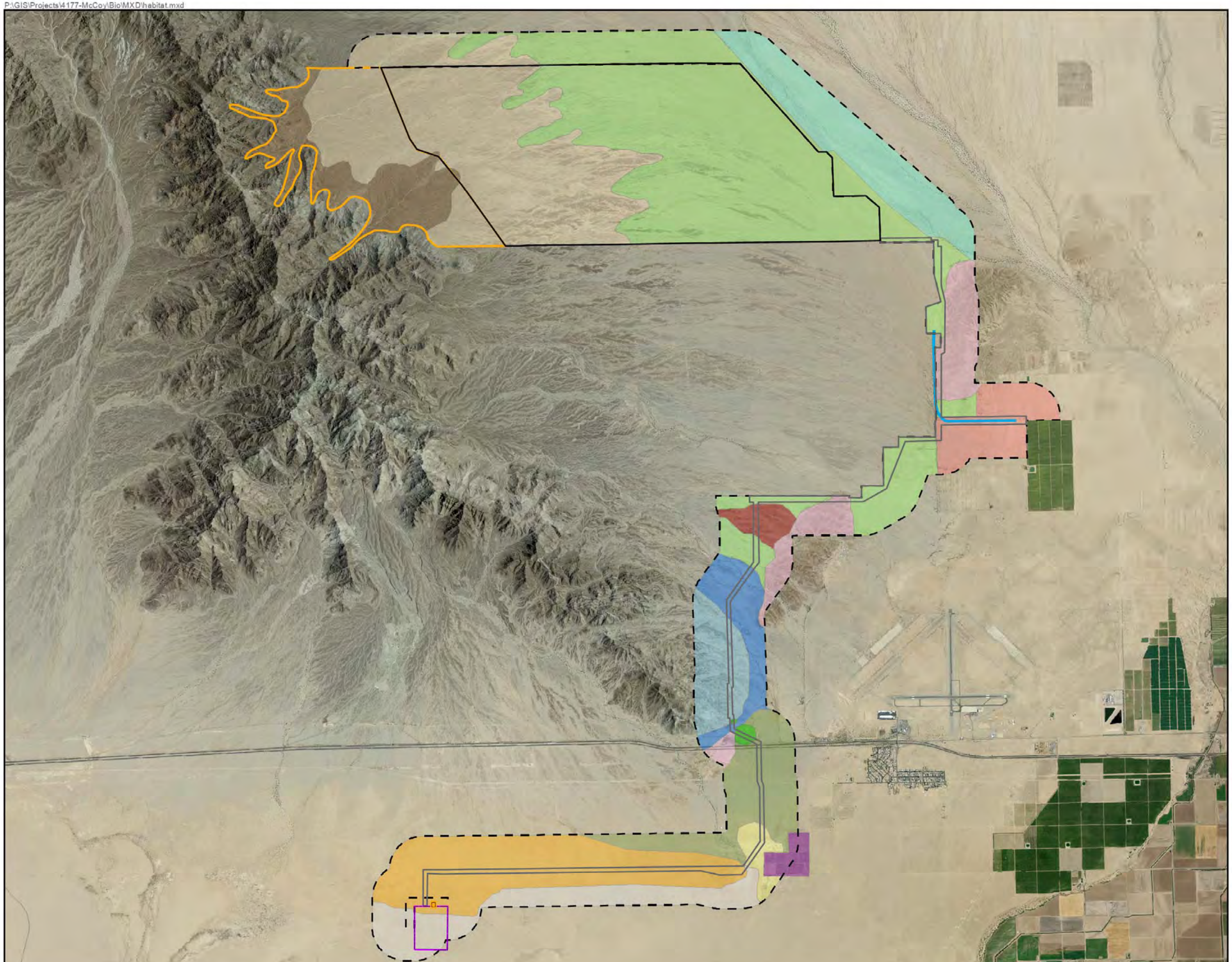


McCOY SOLAR ENERGY PROJECT RIVERSIDE COUNTY, CA

FIGURE 2
OVERALL PROJECT LOCATION MAP

TETRA TECH EC, INC.

P:\GIS\Projects\4177-McCoy\Bio\MXD\habitat.mxd



McCOY SOLAR ENERGY PROJECT RIVERSIDE COUNTY, CA

Legend

- MSEP Solar Plant Site Boundary
- Linear Corridor
- Proposed Colorado River Substation (SCE)
- Switchyard
- Extent of Area Surveyed
- Potential Primary Recipient Area

Habitat

- Arboreal Wash
- Agriculture
- Borrow Pit and Depression
- Boulder Outflow
- Desert Pavement Plain; 3-10 m Incised Washes
- Intermittent Low Sand Dunes and Swales
- Lower Bajada; Few Drainages
- Lower Bajada; Shallow Runnels and Swales
- McCoy Mountains Toeslopes; Arboreal Washes
- McCoy Wash
- Mid-Bajada; Arboreal Washes
- PV Solar Facility
- Pebble Plain
- Sand Dunes
- Sandy Lower Bajada; Sheet Flow, Swales and Percolation
- Well-Developed Desert Pavement

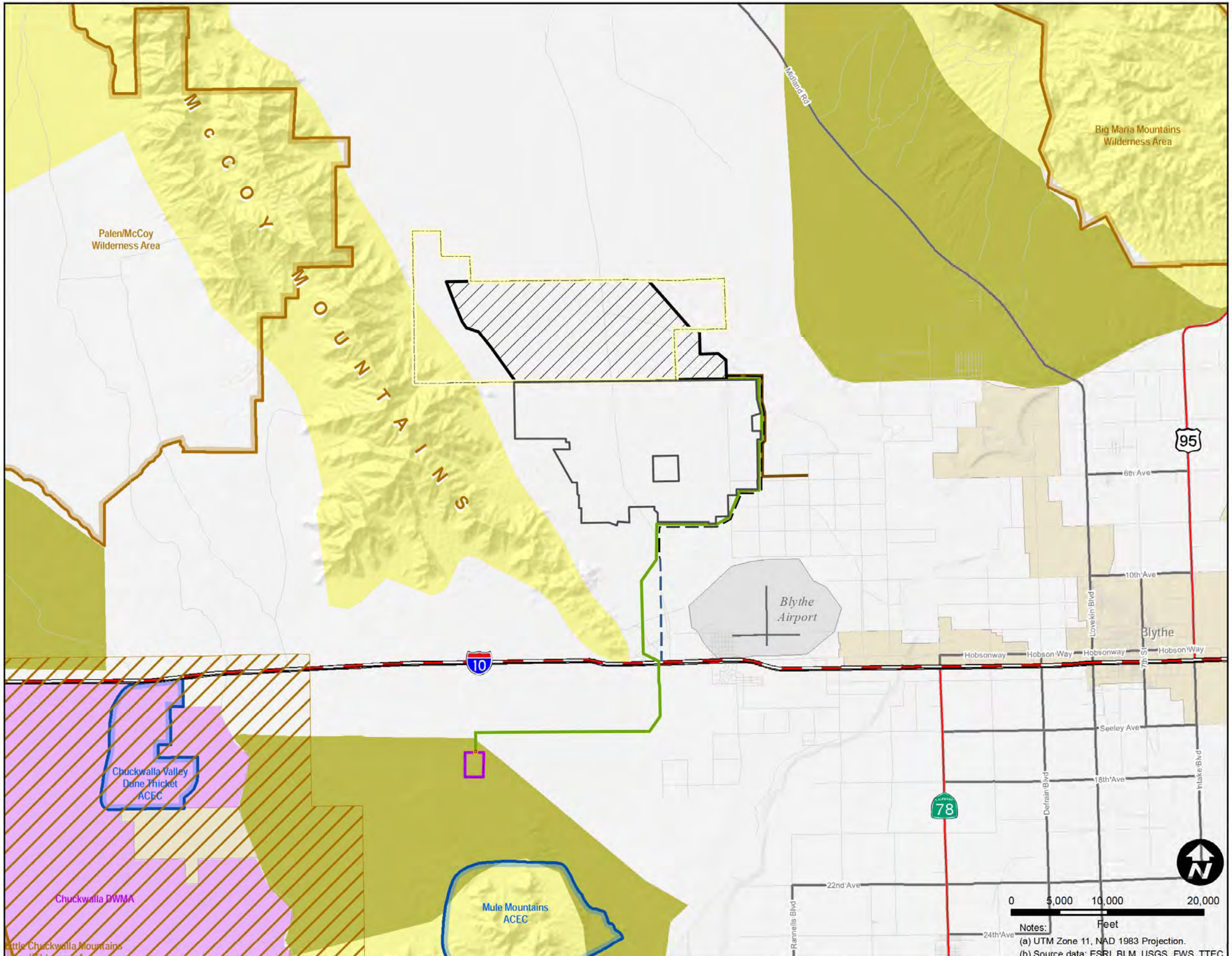
N

0 0.5 1 2
Miles

Notes:
(a) UTM Zone 11, NAD 1983 Projection.
(b) Source data: A. Karl, USDA.

FIGURE 3
PROJECT AREA HABITATS

TETRA TECH EC, INC.



McCOY SOLAR ENERGY PROJECT RIVERSIDE COUNTY, CA

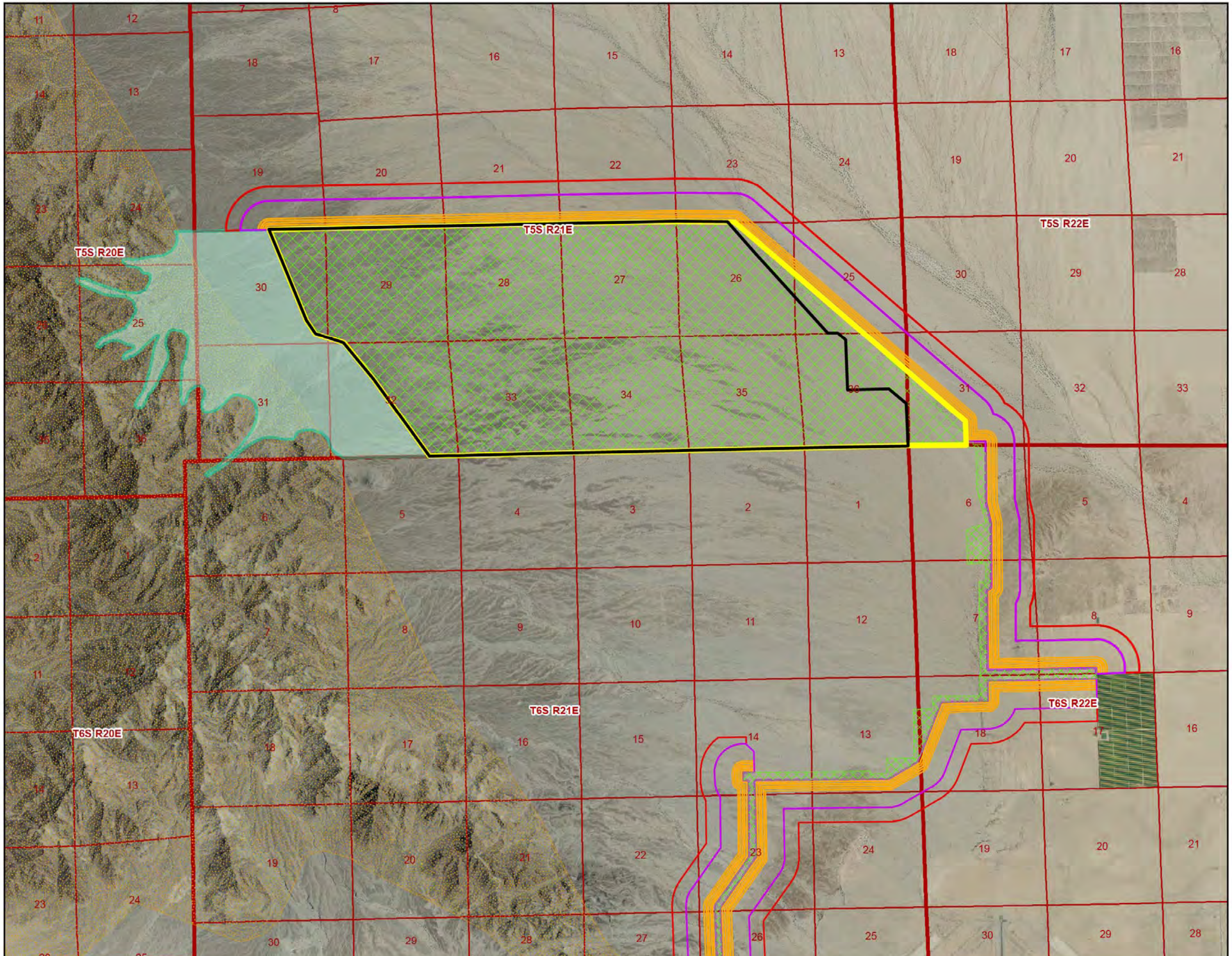
Special Management Areas
- FWS Desert Tortoise Critical Habitat
- BLM Multi Species Wildlife Habitat Management Area (WHMA)
- BLM Big Horn Sheep WHMA
- BLM Area of Critical Environmental Concern (ACEC)
- BLM Desert Wildlife Management Area (DWMA)
- BLM Wilderness Area

Project Features
- MSEP BLM ROW Grant Application Boundary
- MSEP Solar Plant Site Boundary
- Proposed Distribution Line
- Proposed Linear Corridor
- Proposed Shared Access Road with BSPP
- Proposed Access Road
- Proposed Colorado River Substation (SCE)
- Switchyard
- Blythe Solar Power Project ROW

FIGURE 4
SPECIAL MANAGEMENT AREAS WITHIN PROJECT VICINITY

TETRA TECH EC, INC.

P:\GIS\Projects\4177-McCoy\Bio\MXD\5a_Biology_North.mxd



McCOY SOLAR ENERGY PROJECT RIVERSIDE COUNTY, CA

Legend

- Solar Plant Site Survey Area
- MSEP Solar Plant Site Boundary
- 100% Survey Coverage
- 100 to 500 ft Buffer and Burrowing Owl Transects
- 1,312 ft (400 m) Buffer Transect
- 1,969 ft (600 m) Buffer Transect
- Big Horn Sheep WHMA
- Potential Primary Tortoise Recipient (Translocation) Area (100% coverage)
- Township/Range
- Sections

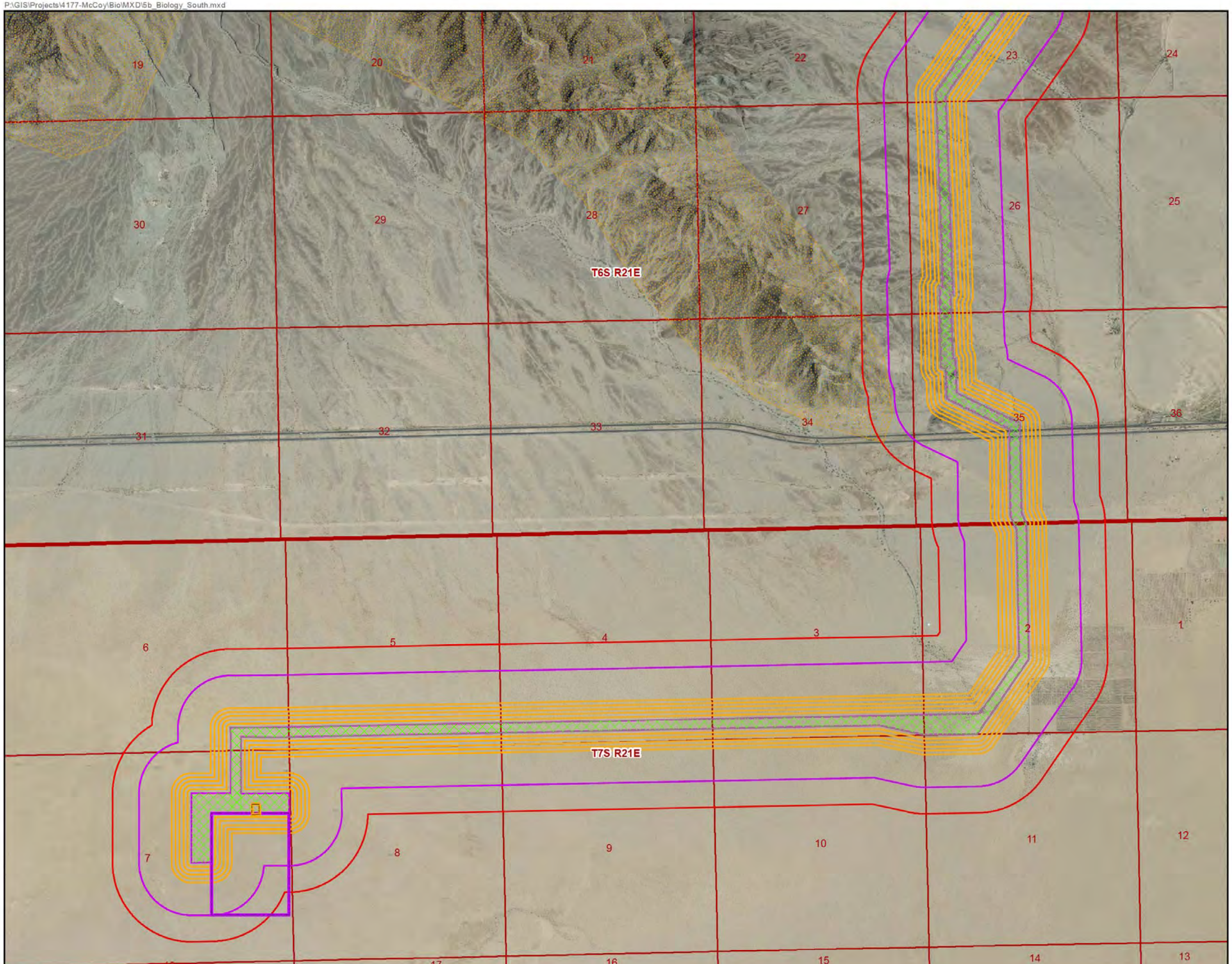
N

0 2,500 5,000 10,000
Feet

Notes:
(a) UTM Zone 11, NAD 1983 Projection.
(b) Source data: ESRI, BLM, USGS 7.5' DRGs, TTEC

FIGURE 5A
2011 BIOLOGICAL RESOURCES SURVEY AREA

TETRA TECH EC, INC.



McCOY SOLAR ENERGY PROJECT RIVERSIDE COUNTY, CA

Legend

- Proposed Colorado River Substation (SCE)
- Switchyard
- 100% Coverage Survey Area
- 100 to 500 ft Buffer and Burrowing Owl Transects
- 1,312 ft (400 m) Buffer Transect
- 1,969 ft (600 m) Buffer Transect
- Big Horn Sheep WHMA
- Township/Range
- Sections

N

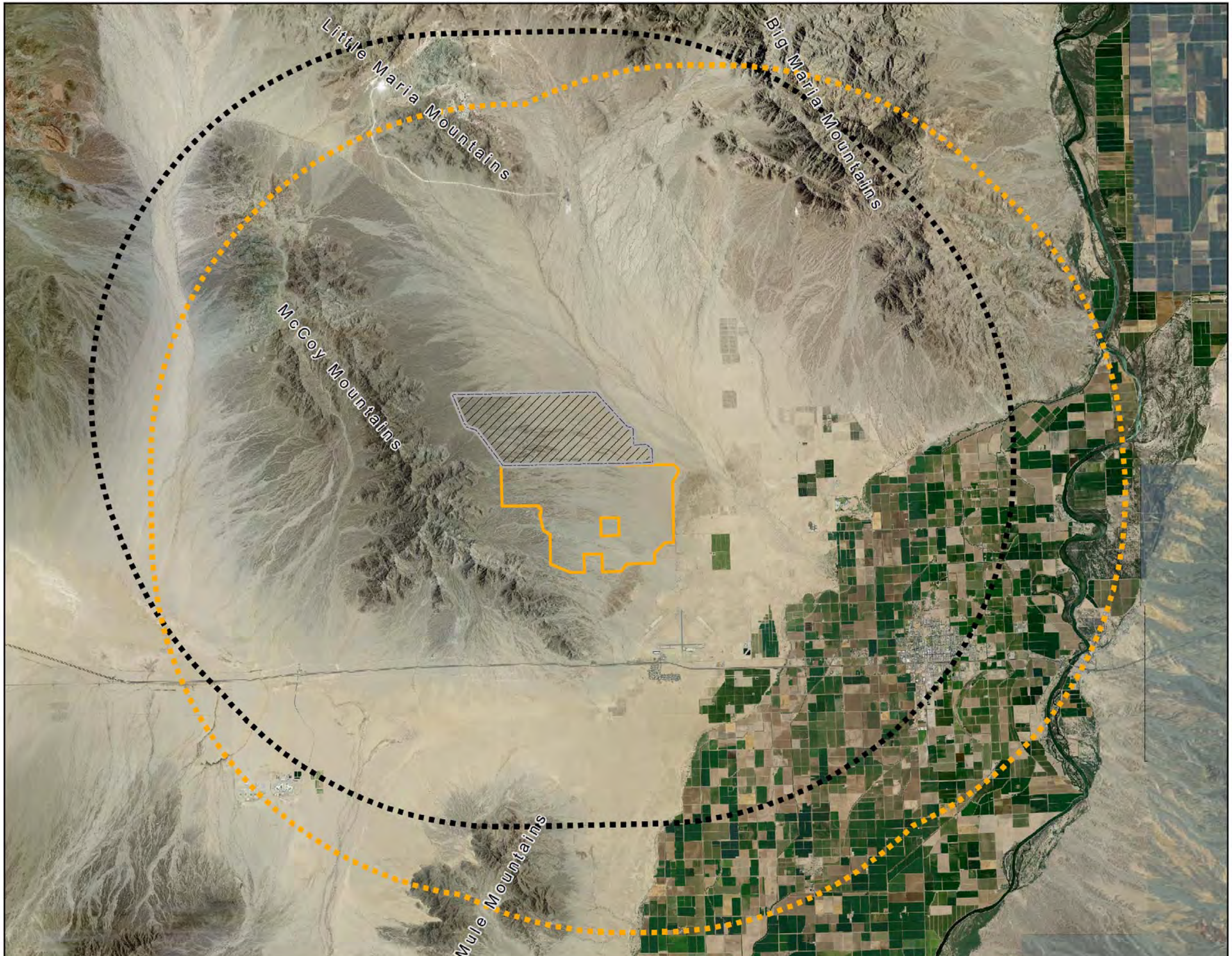
0 1,250 2,500 5,000

Feet

Notes:
(a) UTM Zone 11, NAD 1983 Projection.
(b) Source data: ESRI, BLM, USGS 7.5' DRGs, TTEC

FIGURE 5B
2011 BIOLOGICAL RESOURCES SURVEY AREA

TETRA TECH EC, INC.



McCOY SOLAR ENERGY PROJECT RIVERSIDE COUNTY, CA

Legend

- MSEP Solar Plant Site Boundary
- 10-Mile Buffer from MSEP Plant Site
- Blythe Solar Power Project
- 2010 Blythe Solar Power Project Helicopter Survey Area

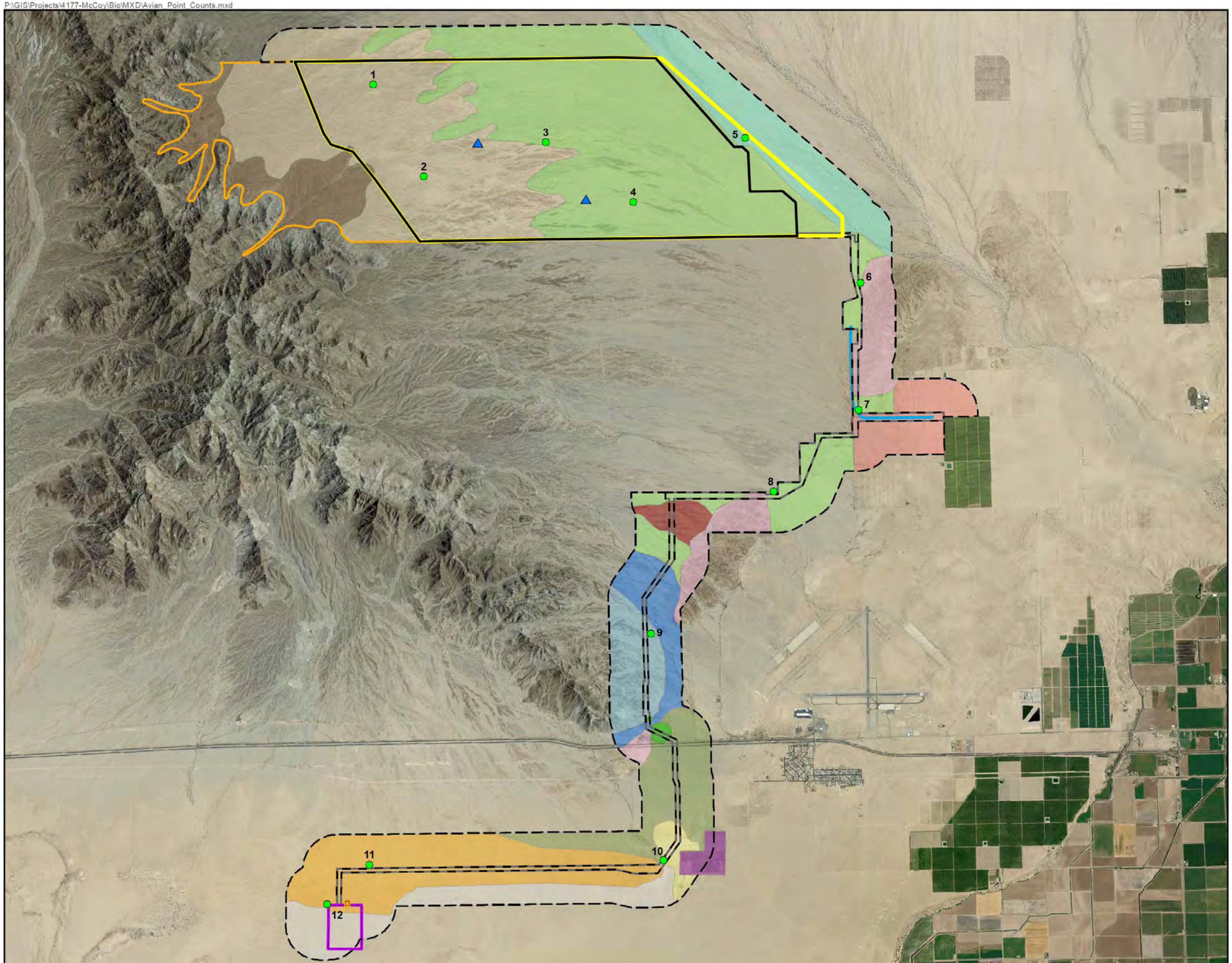
0 1 2 4
Miles

Notes:
(a) UTM Zone 11, NAD 1983 Projection.
(b) Source data: ESRI, BLM, USGS, TTEC
(c) Eagle Data (WRI 2010)

FIGURE 6
SURVEY AREA, 2010 AND 2011
GOLDEN EAGLE HELICOPTER SURVEYS

TETRA TECH EC, INC.

P:\GIS\Projects\4177-McCoy\Bio\MXD\Avian_Point_Counts.mxd



McCOY SOLAR ENERGY PROJECT RIVERSIDE COUNTY, CA

Legend

- Avian Point Count Plot
- Small-Mammal Trap Line
- MSEP Solar Plant Site Boundary
- Solar Plant Site Survey Area
- Proposed Linear Corridor
- Proposed Colorado River Substation (SCE)
- Switchyard
- Extent of Area Surveyed
- Potential Primary Recipient Area

Habitat

- Arboreal Wash
- Agriculture
- Borrow Pit and Depression
- Boulder Outflow
- Desert Pavement Plain; 3-10 m Incised Washes
- Intermittent Low Sand Dunes and Swales
- Lower Bajada; Few Drainages
- Lower Bajada; Shallow Runnels and Swales
- McCoy Mountains Toeslopes; Arboreal Washes
- McCoy Wash
- Mid-Bajada; Arboreal Washes
- PV Solar Facility
- Pebble Plain
- Sand Dunes
- Sandy Lower Bajada; Sheet Flow, Swales and Percolation
- Well-Developed Desert Pavement

N

0 0.5 1 2
Miles

Notes:
(a) UTM Zone 11, NAD 1983 Projection.
(b) Source data: A. Karl, ESRI, CNDDB, USDA.

FIGURE 7
AVIAN POINT COUNT AND SMALL-MAMMAL TRAPPING PLOTS

TETRA TECH EC, INC.

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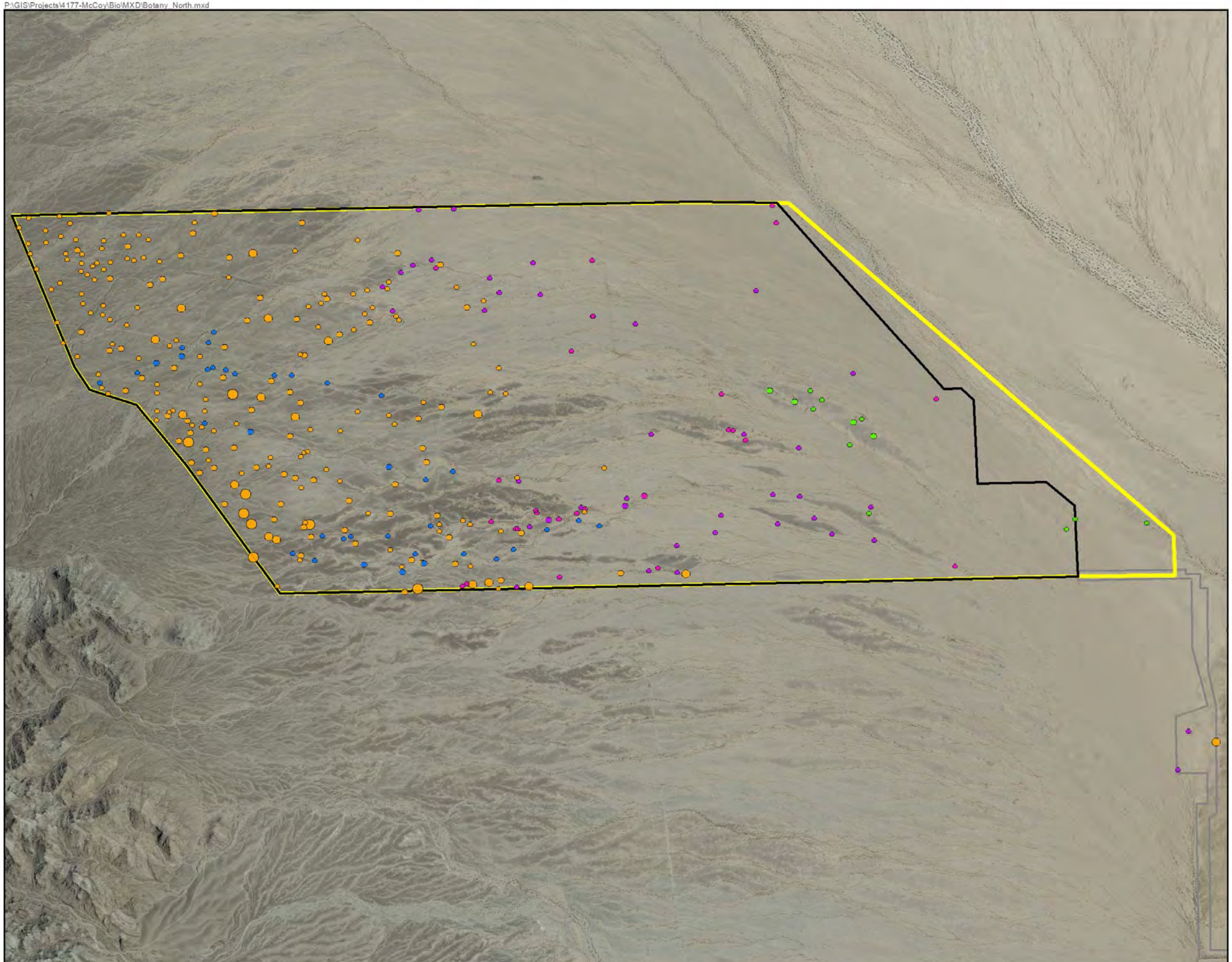


McCOY SOLAR ENERGY PROJECT RIVERSIDE COUNTY, CA

Legend

Common Name
- Harwood's phlox
- Harwood's milkvetch
- Las Animas colubrina
- Utah cynanchum
- Desert unicorn plant
- Desert unicorn plant seed pods
- Ribbed cryptantha

Population Size
- 1-10 plants
- 11-50 plants
- 51-100 plants
- 101-500 plants
- >1000 plants

- MSEP Solar Plant Site Boundary
- Proposed Linear Corridor
- Solar Plant Site Survey Area

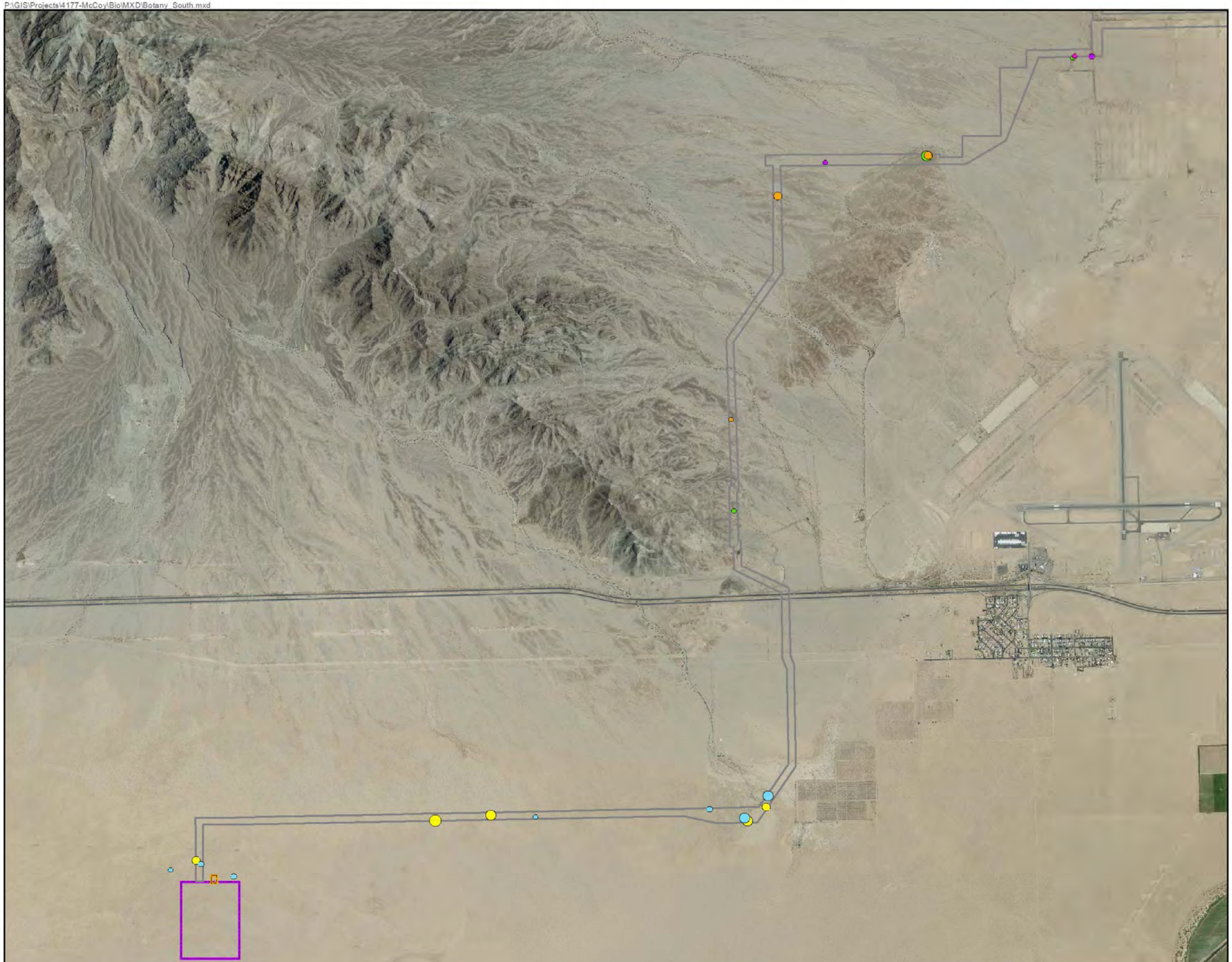
0 1,000 2,000 4,000
Feet

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

FIGURE 8A
SPECIAL-STATUS PLANT OBSERVATIONS

TETRA TECH EC, INC.

P:\GIS\Projects\4177-McCoy\Bio\MXD\Botany_South.mxd



McCOY SOLAR ENERGY PROJECT RIVERSIDE COUNTY, CA

Legend

Common Name
- Harwood's phlox
- Harwood's milkvetch
- Las Animas colubrina
- Utah cynanchum
- Desert unicorn plant
- Desert unicorn plant seed pods
- Ribbed cryptantha

Population Size
- 1-10 plants
- 11-50 plants
- 51-100 plants
- 101-500 plants
- >1000 plants

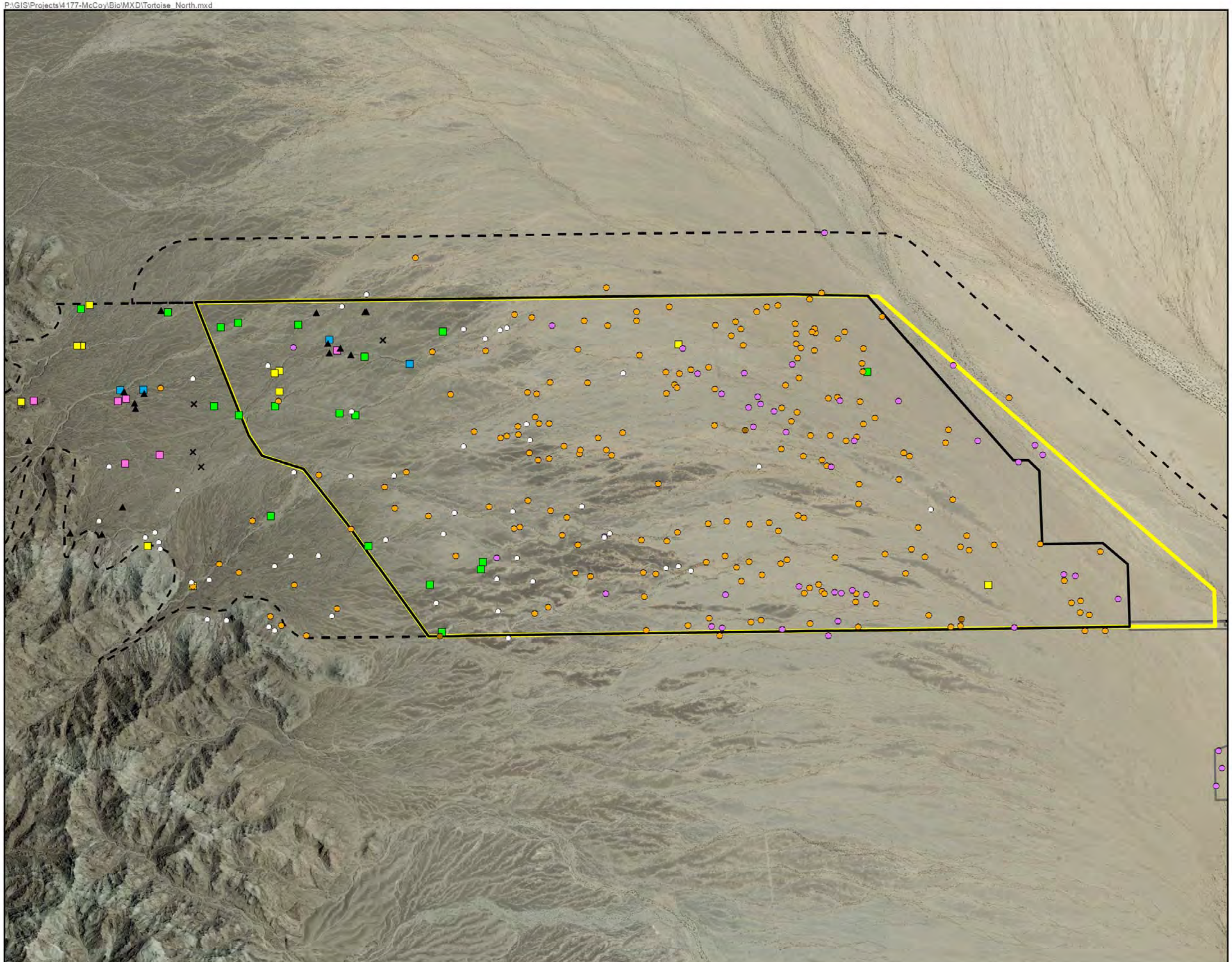
- MSEP Solar Plant Site Boundary
- Proposed Linear Corridor
- Proposed Colorado River Substation (SCE)
- Switchyard

0 2,000 4,000 8,000
Feet

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

FIGURE 8B
SPECIAL-STATUS PLANT OBSERVATIONS

TETRA TECH EC, INC.



McCOY SOLAR
ENERGY PROJECT
RIVERSIDE COUNTY, CA

Legend

Tortoise Sign

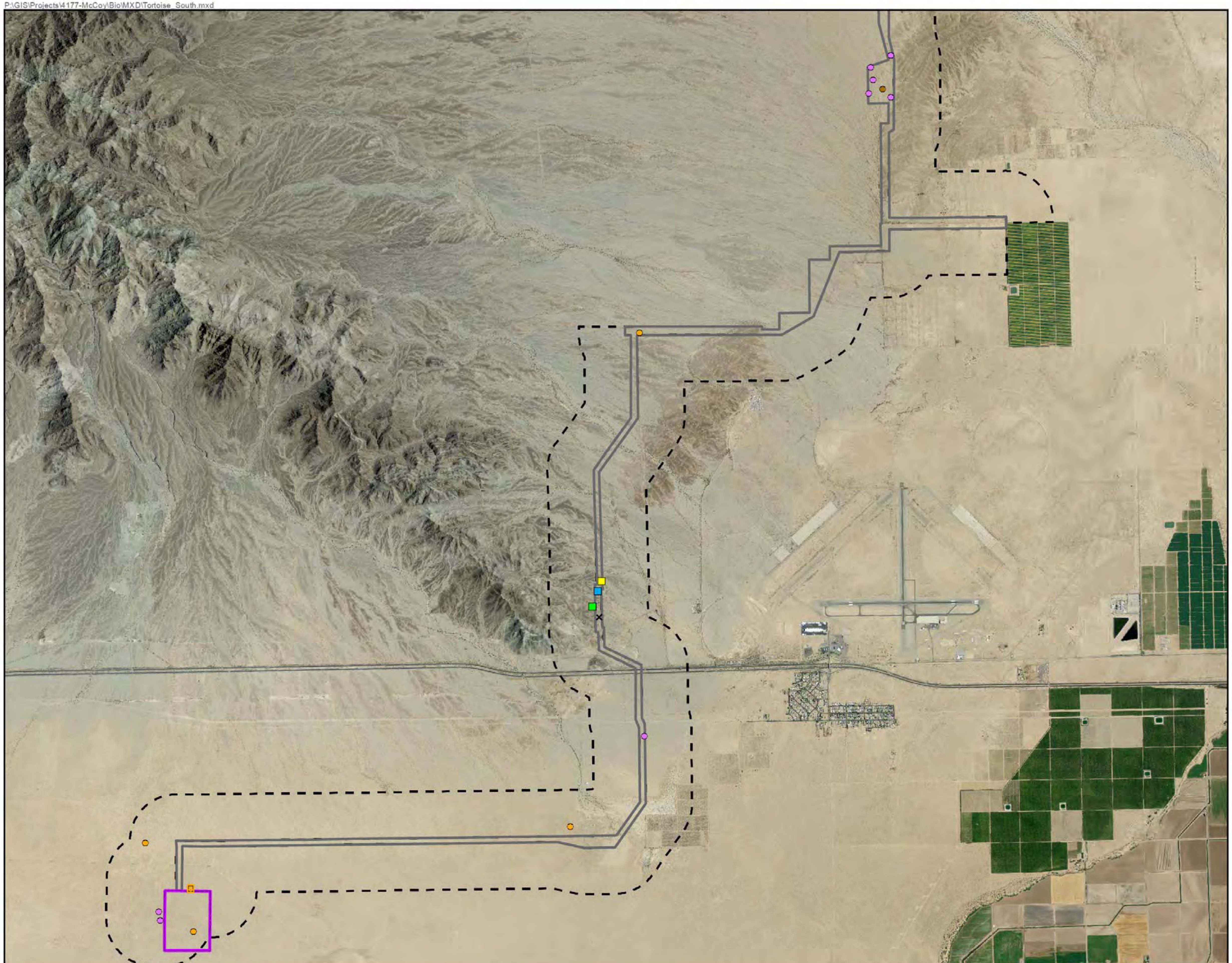
- Tortoise
- Burrow - Class 1
- Burrow - Class 2
- Burrow - Class 3
- Burrow - Class 4
- Scat
- Carcass
- Egg Shells
- Shell fragment < 4 years old
- Shell fragment > 4 years old
- Shell fragment (permineralized)
- MSEP Solar Plant Site Boundary
- Solar Plant Site Survey Area
- Proposed Linear Corridor
- Proposed Colorado River Substation (SCE)
- Extent of Area Surveyed

0 0.25 0.5 1
Miles

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

FIGURE 9-A
DESERT TORTOISE
OBSERVATIONS IN SPRING 2011

TETRA TECH EC, INC.



McCOY SOLAR
ENERGY PROJECT
RIVERSIDE COUNTY, CA

Legend

Tortoise Sign

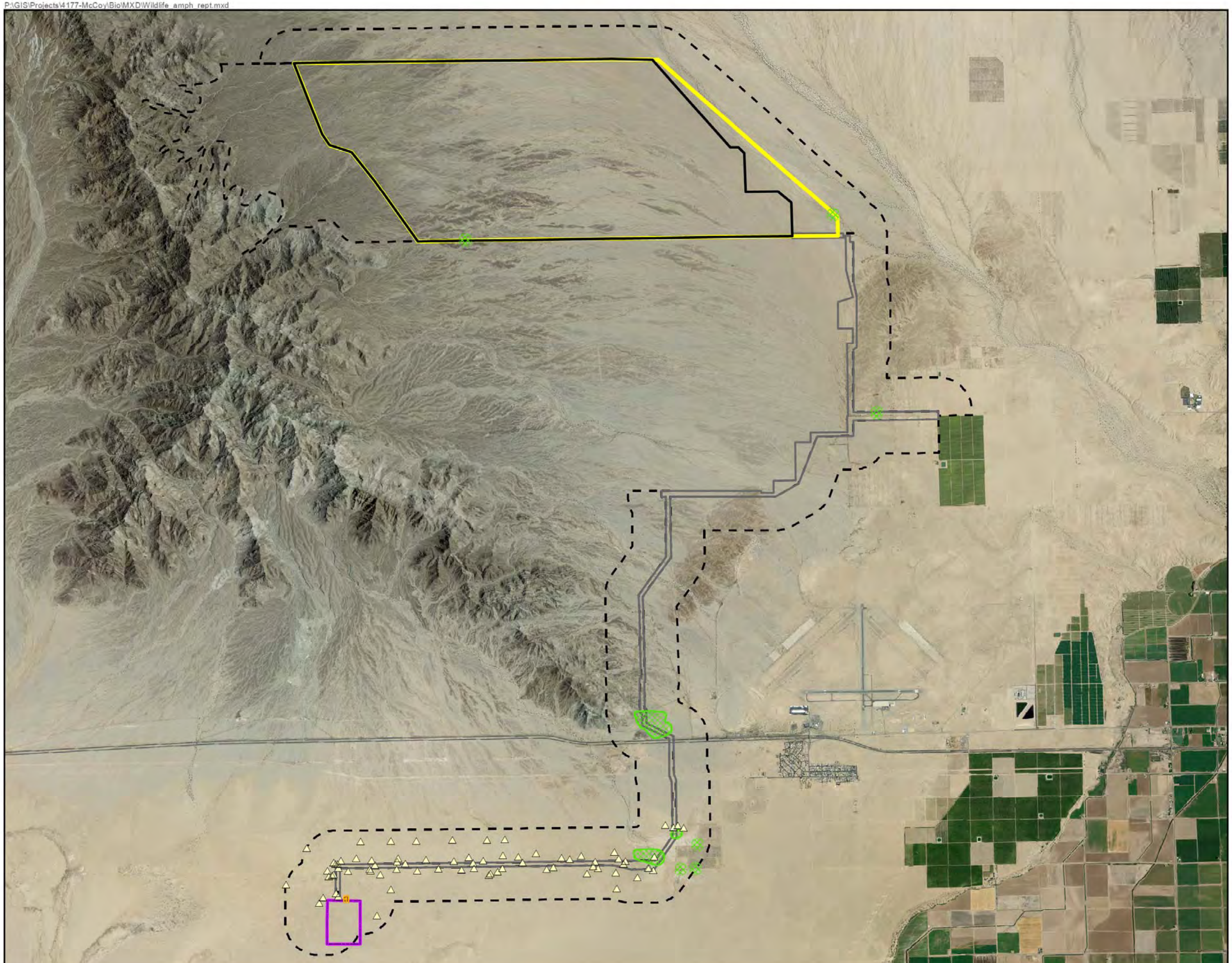
- Tortoise
- Burrow - Class 1
- Burrow - Class 2
- Burrow - Class 3
- Burrow - Class 4
- Scat
- Carcass
- Egg Shells
- Shell fragment < 4 years old
- Shell fragment > 4 years old
- Shell fragment (permineralized)
- MSEP Solar Plant Site Boundary
- Solar Plant Site Survey Area
- Proposed Linear Corridor
- Proposed Colorado River Substation (SCE)
- Switchyard
- Extent of Area Surveyed

0 0.5 1 2
Miles

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

FIGURE 9-B
DESERT TORTOISE
OBSERVATIONS IN SPRING 2011

TETRA TECH EC, INC.



McCOY SOLAR
ENERGY PROJECT
RIVERSIDE COUNTY, CA

Legend

Species

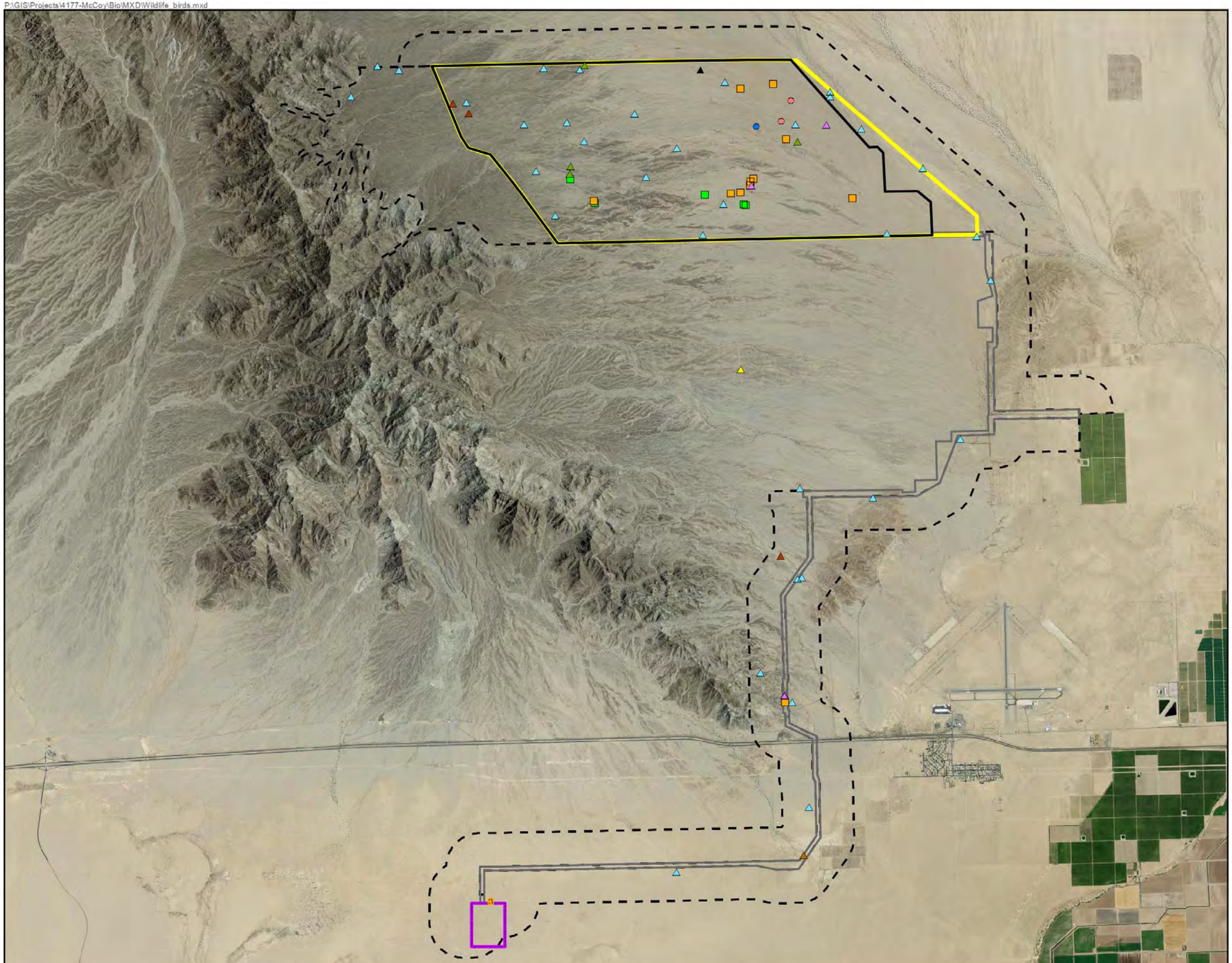
- Mojave fringe-toed lizard
- Potential Couch's Spadefoot Toad Breeding Habitat
- MSEP Solar Plant Site Boundary
- Solar Plant Site Survey Area
- Proposed Linear Corridor
- Proposed Colorado River Substation (SCE)
- Switchyard
- Extent of Area Surveyed

0 0.5 1 2
Miles

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

FIGURE 10
OTHER SPECIAL-STATUS REPTILES
AND AMPHIBIANS
OBSERVATIONS IN SPRING 2011

TETRA TECH EC, INC.



McCOY SOLAR ENERGY PROJECT RIVERSIDE COUNTY, CA

Legend

Species
- Brewer's sparrow
- Golden eagle
- Le Conte's thrasher
- Loggerhead shrike
- Prairie falcon
- Yellow Warbler

Phase II Burrowing Owl Survey Observations
- Bird
- Burrow
- Burrow (Inactive)
- White Wash
- White Wash and Pellets

- MSEP Solar Plant Site Boundary
- Solar Plant Site Survey Area
- Proposed Linear Corridor
- Proposed Colorado River Substation (SCE)
- Switchyard
- Extent of Area Surveyed

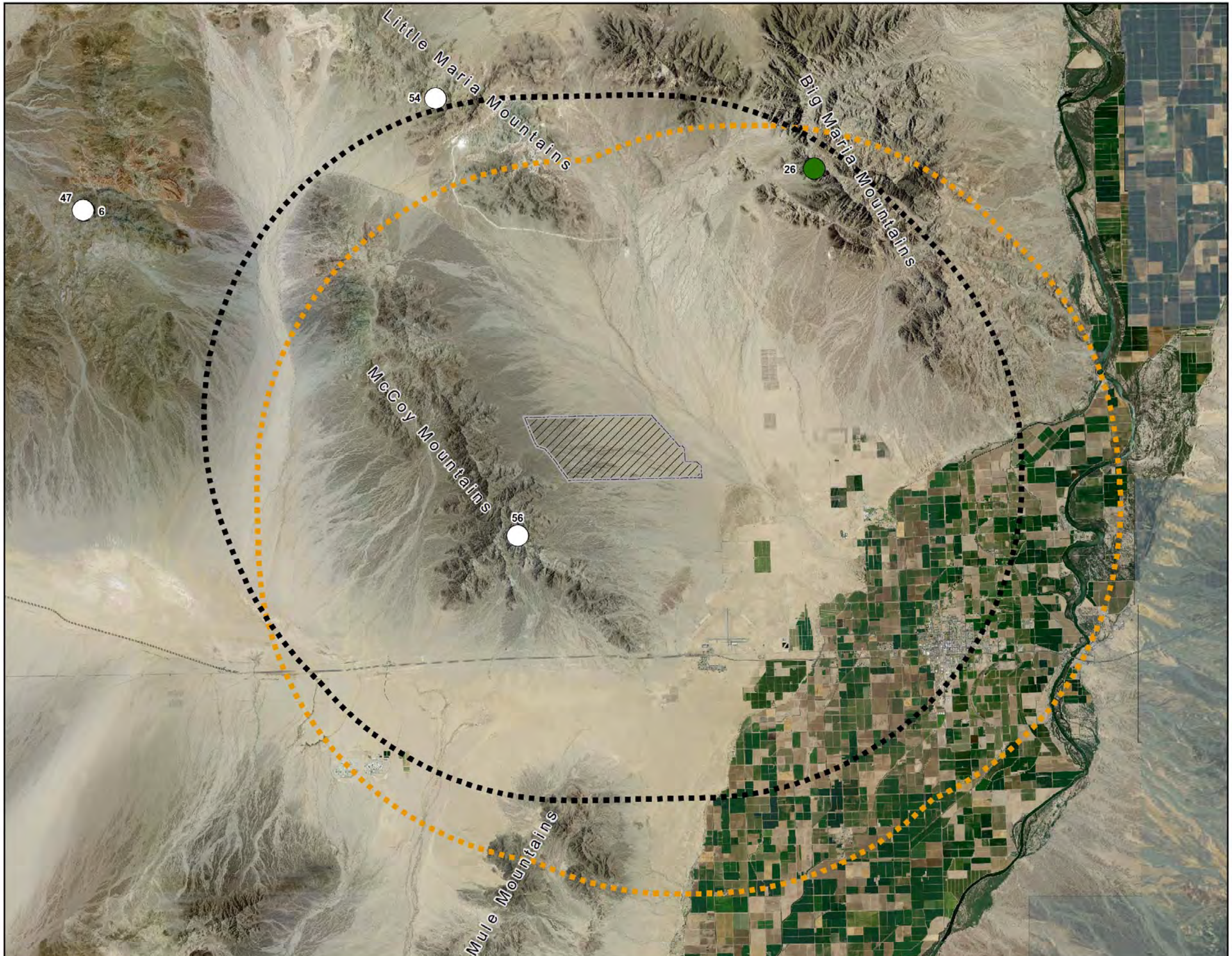
0 0.5 1 2
Miles

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

FIGURE 11
SPECIAL-STATUS BIRDS
OBSERVATIONS IN SPRING 2011

TETRA TECH EC, INC.

P:\GIS\Projects\4177-McCoy\Bio\MXD\Golden_Eagle_2010.mxd



McCOY SOLAR ENERGY PROJECT RIVERSIDE COUNTY, CA

Legend

- MSEP Solar Plant Site Boundary
- 10-mile-radius Around Project Area
- 2010 Survey Boundary
- Inactive Golden Eagle Nest
- Active Golden Eagle Nest

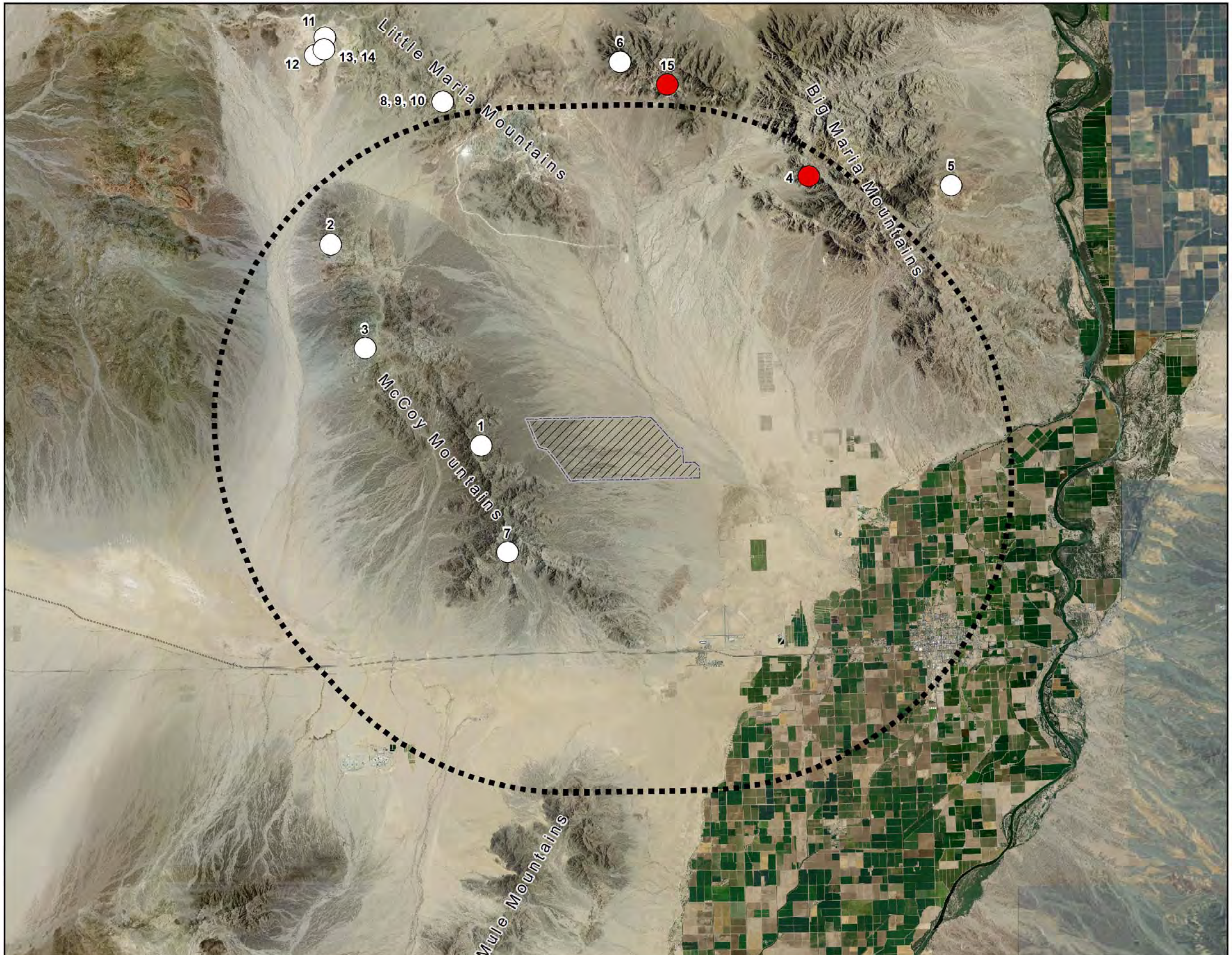
0 1.5 3 6
Miles

Notes:
(a) UTM Zone 11, NAD 1983 Projection.
(b) Source data: ESRI, BLM, USGS, TTEC
(c) Eagle data (WRI 2010)

FIGURE 12A
APPROXIMATE GOLDEN EAGLE NEST LOCATIONS
2010 WILDLIFE RESEARCH INSTITUTE
HELICOPTER SURVEYS

TETRA TECH EC, INC.

P:\GIS\Projects\4177-McCoy\Bio\MXD\3_Golden_Eagle_2011.mxd



McCOY SOLAR ENERGY PROJECT RIVERSIDE COUNTY, CA

Legend

- MSEP Solar Plant Site Boundary
- 2011 McCoy Solar Energy Project 10-mile-radius Helicopter Survey Area
- Inactive Golden Eagle Nest
- Inactive Golden Eagle Nest In use by Another Species

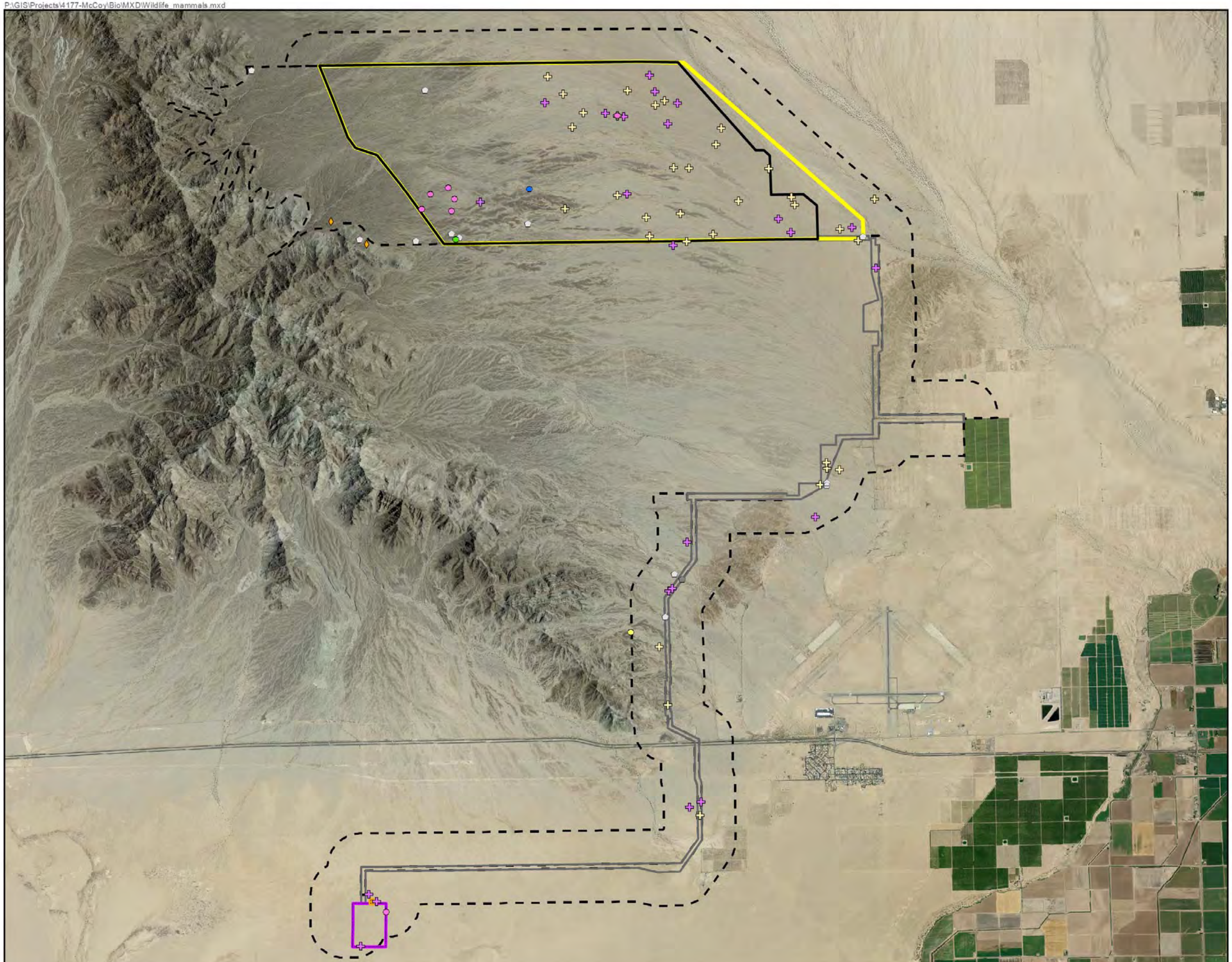
0 1.5 3 6
Miles

Notes:
(a) UTM Zone 11, NAD 1983 Projection.
(b) Source data: ESRI, BLM, USGS, TTEC
(c) Eagle data (WRI 2011)

FIGURE 12B
APPROXIMATE GOLDEN EAGLE NEST LOCATIONS
2011 WILDLIFE RESEARCH INSTITUTE
HELICOPTER SURVEYS

TETRA TECH EC, INC.

P:\GIS\Projects\4177-McCoy\Bio\MXD\Wildlife_mammals.mxd



McCOY SOLAR ENERGY PROJECT RIVERSIDE COUNTY, CA

Legend

Species

- American badger
- American badger digs
- Burro deer hide
- Desert kit fox natal den (Active)
- Desert kit fox natal den (Inactive)
- Potential bat roost
- Mountain lion scat
- Wild burro scat
- Wild burro teeth

- MSEP Solar Plant Site Boundary
- Solar Plant Site Survey Area
- Proposed Linear Corridor
- Proposed Colorado River Substation (SCE)
- Switchyard
- Extent of Area Surveyed

0 0.5 1 2
Miles

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

FIGURE 13
SPECIAL-STATUS MAMMALS OBSERVATIONS IN SPRING 2011

TETRA TECH EC, INC.

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APPENDIX A

REPRESENTATIVE PROJECT AREA PHOTOGRAPHS

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APPENDIX A

REPRESENTATIVE PROJECT AREA PHOTOGRAPHS

The following set of photographs shows representative habitats on the Project Area. The procession is from west to east on the Solar Plant Site, then south along the Linear Corridor.

Broad patches of well-developed desert pavement with small intersecting runnels in the western portion of the Solar Plant Site. Photo is taken from Survey Cell 80 in the southwestern Solar Plant Site, facing west toward the McCoy Mountains.

Another view of the western Solar Plant Site, taken from the northwestern area (Survey Cell 06). Note the small stature and rarity of trees in most washes.

One of a few small areas in the northwestern portion of the Solar Plant Site with more drainages. Facing North.

The most well-developed wash on the Solar Plant Site, located in the western portion of the site, approximately midway north to south. This section of the wash is about 3000 feet long and dominated by relatively large palo verde, along with the common wash-shrub species.

Typical habitat in the eastern portion of the Solar Plant Site, taken in Cell 41 along the eastern edge of the Solar Plant Site.

Another view of habitat on the eastern portion of the Solar Plant Site, taken from Survey Cell 39 near the center of the eastern half of the Solar Plant Site.

Typical runnels and swales on the eastern portion of the Solar Plant Site, dominated by typically upland species.

Another view of typical runnels in the Solar Plant Site. Note the common presence of big galleta grass and common upland shrubs and the small, occasional palo verde in the upper drainage. Photo is taken from Survey Cell 67, west of midway in the Solar Plant Site. The McCoy Mountains are in the background.

Eastern border of Solar Plant Site, showing sheeting hydrology. A small branch of McCoy Wash travels along the eastern border of the Solar Plant Site. Photo is from northwest corner of Survey Cell 41, facing east.

The main channel of McCoy Wash, about one mile east of the Solar Plant Site, dominated by large palo verde and ironwood.

Open habitat where the Linear Corridor exits the Solar Plant Site. Photo taken in Survey Segment 1.

Typical lower bajadas habitat with shallow runnels and swales in most of the Li near Corridor north of I-10. Note the elevated pebble terrace in the background.

View from the pebble terrace, facing southwest, in the northern Linear Corridor. This is a point where several small channels coalesce to form an arboreal wash that travels adjacent to the Linear Corridor, crossing it near the farmed fields to the south (see Figure 3). Photo taken in Survey Segment 8.

Linear Corridor north of I-10 near southern end of McCoy Mountains. The habitat is open, with little plant cover, but also with several arboreal washes that cross the Linear Corridor. Photo taken in Survey Segment 19.

Borrow pit just north of I-10 with a dense honey mesquite-palo verde bosque-ironwood bosque.

Aeolian sand sheets along the long east-west portion of the Linear Corridor south of I-10. Note abundant Sahara mustard. Photo taken in Survey Segment 32.

Potential T ranslocation Sit e: bou lder outfl ow in th e southwestern and far western p ortion. Ph oto tak en facing and near the McCoy Mountains.

APPENDIX B

CALIFORNIA NATURAL DIVERSITY DATABASE RESULTS WITHIN 50 MILES OF THE PROJECT AREA

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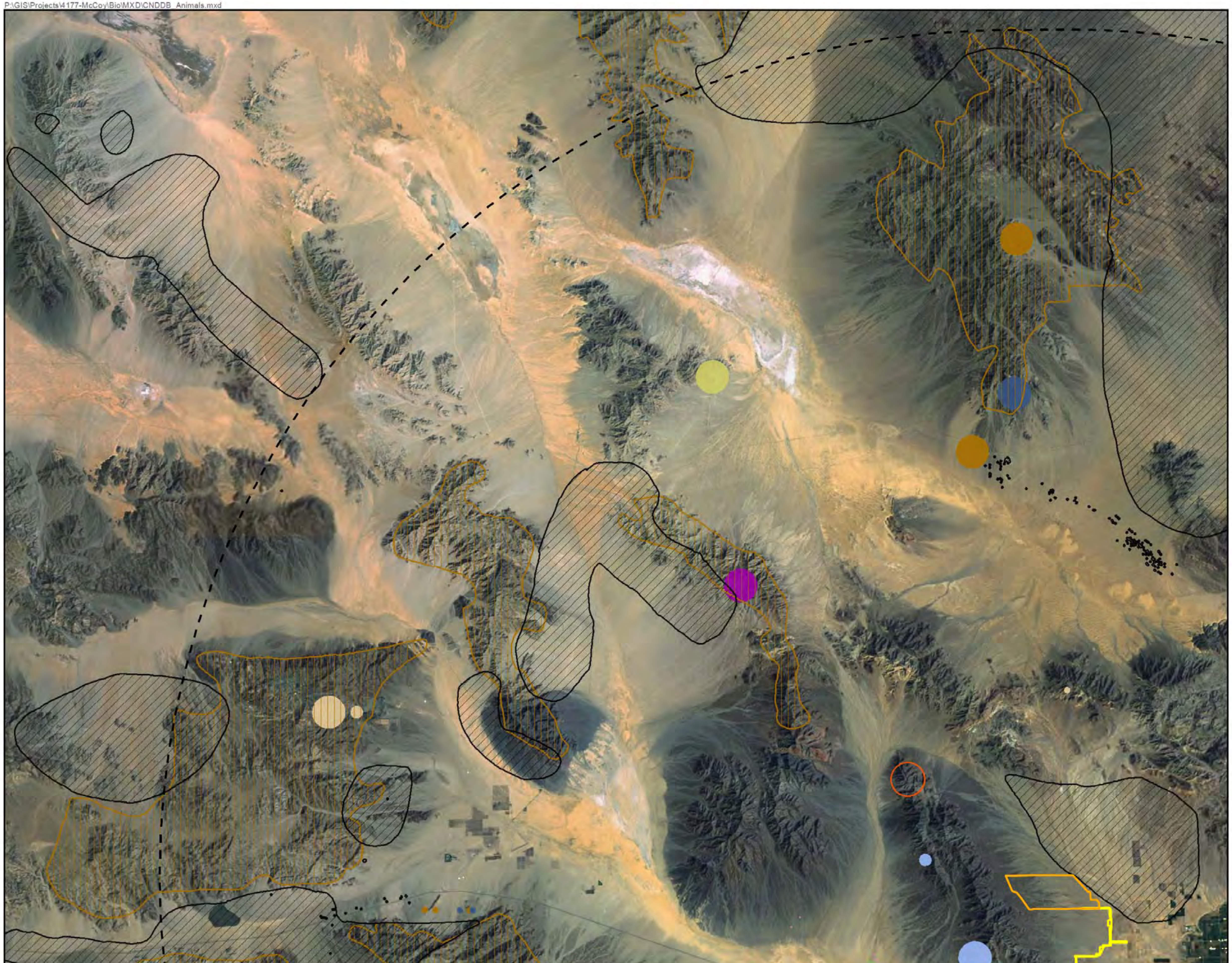

McCOY SOLAR ENERGY PROJECT RIVERSIDE COUNTY, CA

Legend
- MSEP Solar Plant Site Boundary
- Switchyard
- Proposed Linear Corridor
- Proposed Colorado River Substation (SCE)
- 50-Mile Site Buffer

CNDDB Common Name
- Bendire's thrasher
- California Mccoy snail
- California leaf-nosed bat
- Le Conte's thrasher
- Mojave fringe-toed lizard
- Nelson's bighorn sheep
- banded gila monster
- burrowing owl
- desert tortoise
- hepatic tanager
- loggerhead shrike
- pallid bat

0 2.5 5 10
Miles

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

APPENDIX B CNDDB SPECIAL STATUS SPECIES OCCURRENCES WITHIN 25 MILES OF THE PROJECT

TETRA TECH EC, INC.

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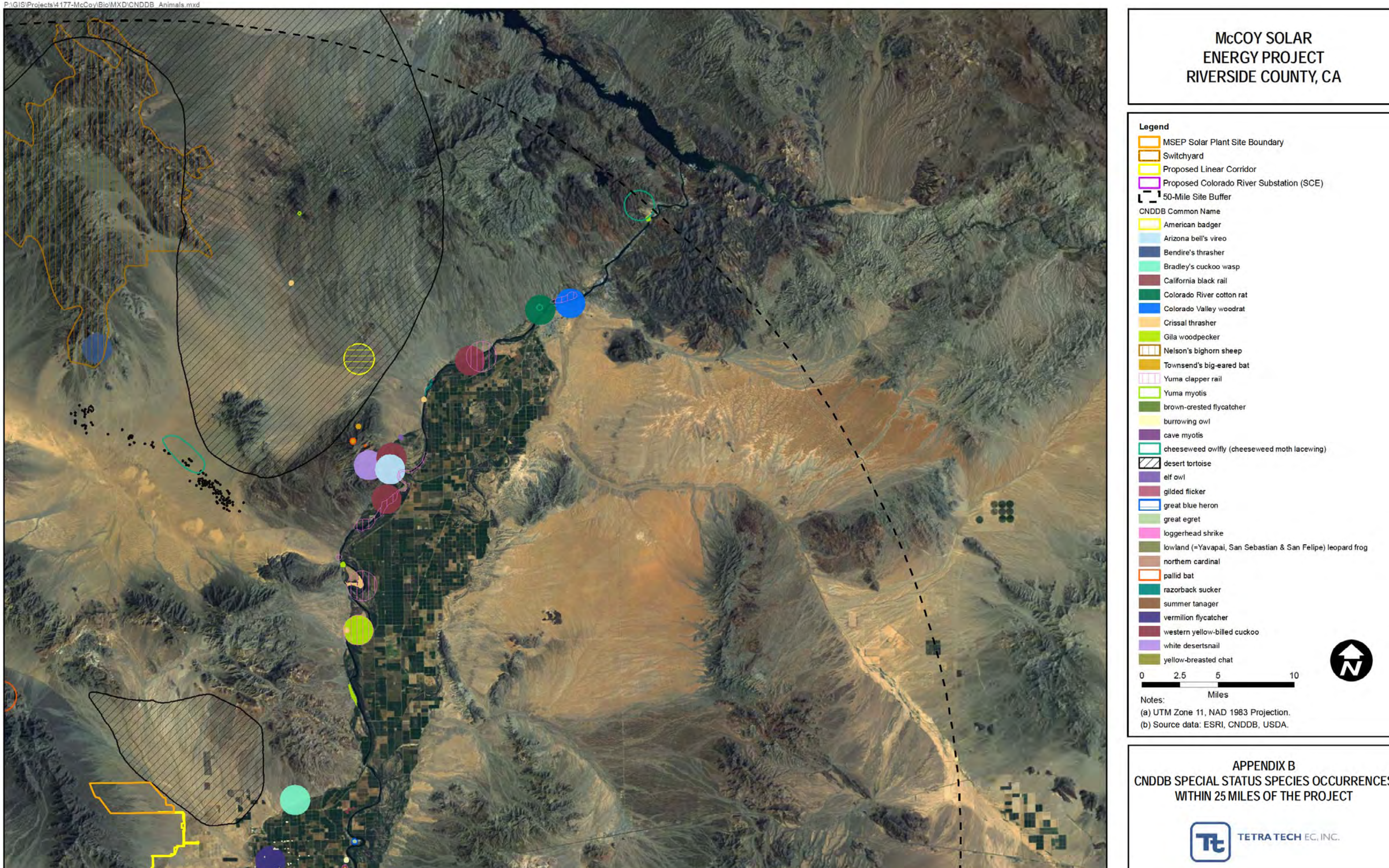

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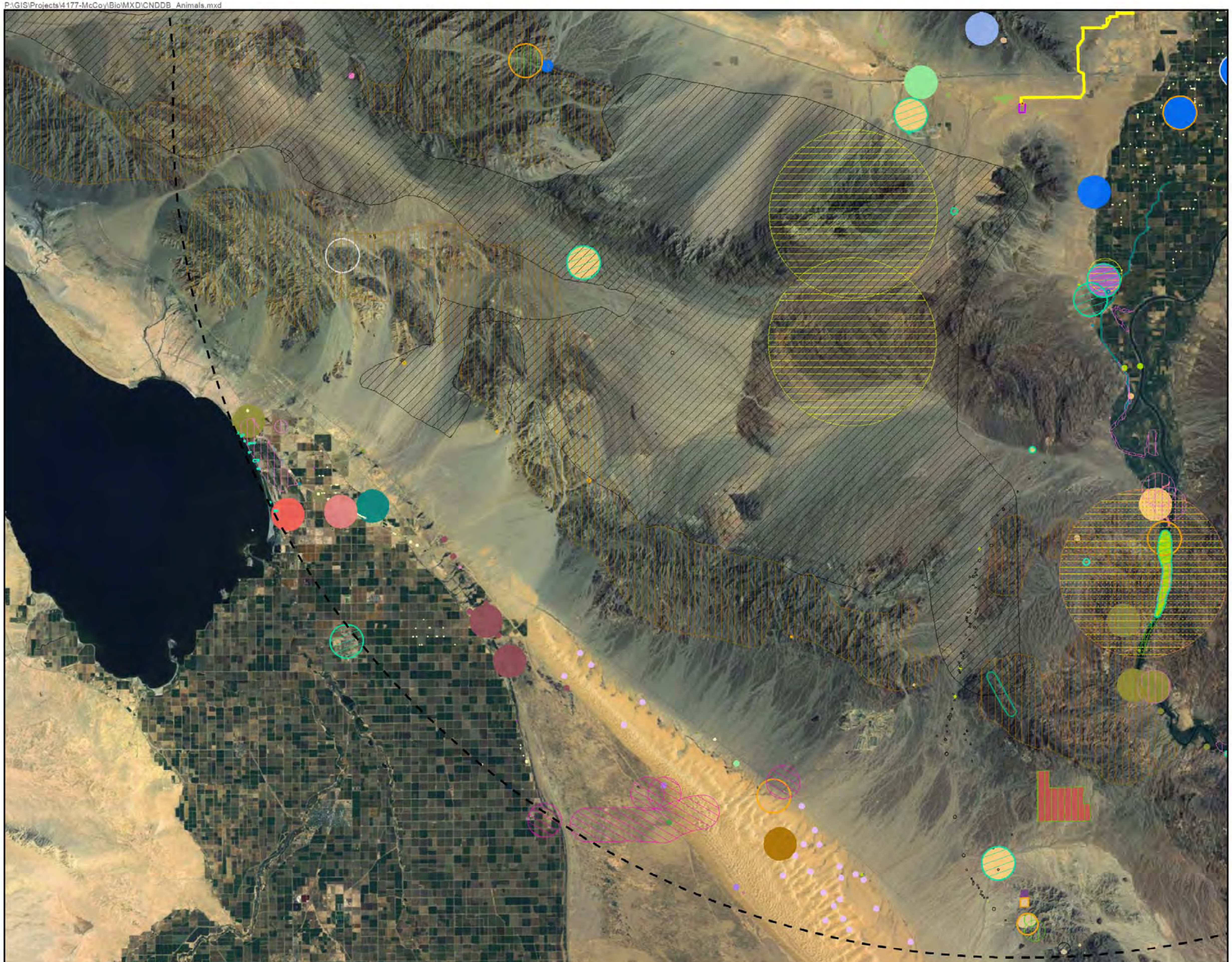

McCOY SOLAR ENERGY PROJECT RIVERSIDE COUNTY, CA

Legend

- MSEP Solar Plant Site Boundary
- Switchyard
- Proposed Linear Corridor
- Proposed Colorado River Substation (SCE)
- 50-Mile Site Buffer

CNDDB Common Name

- A mellitid bee
- Algodones sand jewel beetle
- American badger
- Andrew's dune scarab beetle
- California Mccoy snail
- California black rail
- California leaf-nosed bat
- Carlson's dune beetle
- Colorado Valley woodrat
- Couch's spadefoot
- Crissal thrasher
- Gila woodpecker
- Hardy's dune beetle
- Le Conte's thrasher
- Mojave fringe-toed lizard
- Nelson's bighorn sheep
- Riverside cuckoo wasp
- Sonoran desert toad
- Yuma clapper rail
- Yuma hispid cotton rat
- Yuma mountain lion
- black-tailed gnatcatcher
- burrowing owl
- cave myotis
- cheeseweed owlfly (cheeseweed moth lacewing)
- desert pupfish
- desert tortoise
- flat-tailed horned lizard
- hoary bat
- loggerhead shrike
- lowland (=Yavapai, San Sebastian & San Felipe) leopard frog
- merlin
- pallid bat
- pocketed free-tailed bat
- razorback sucker
- western mastiff bat
- western small-footed myotis
- western yellow bat
- yellow warbler
- yellow-breasted chat

0 2.5 5 10
Miles

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

APPENDIX B
CNDDB SPECIAL STATUS SPECIES OCCURRENCES WITHIN 25 MILES OF THE PROJECT

TETRA TECH EC, INC.

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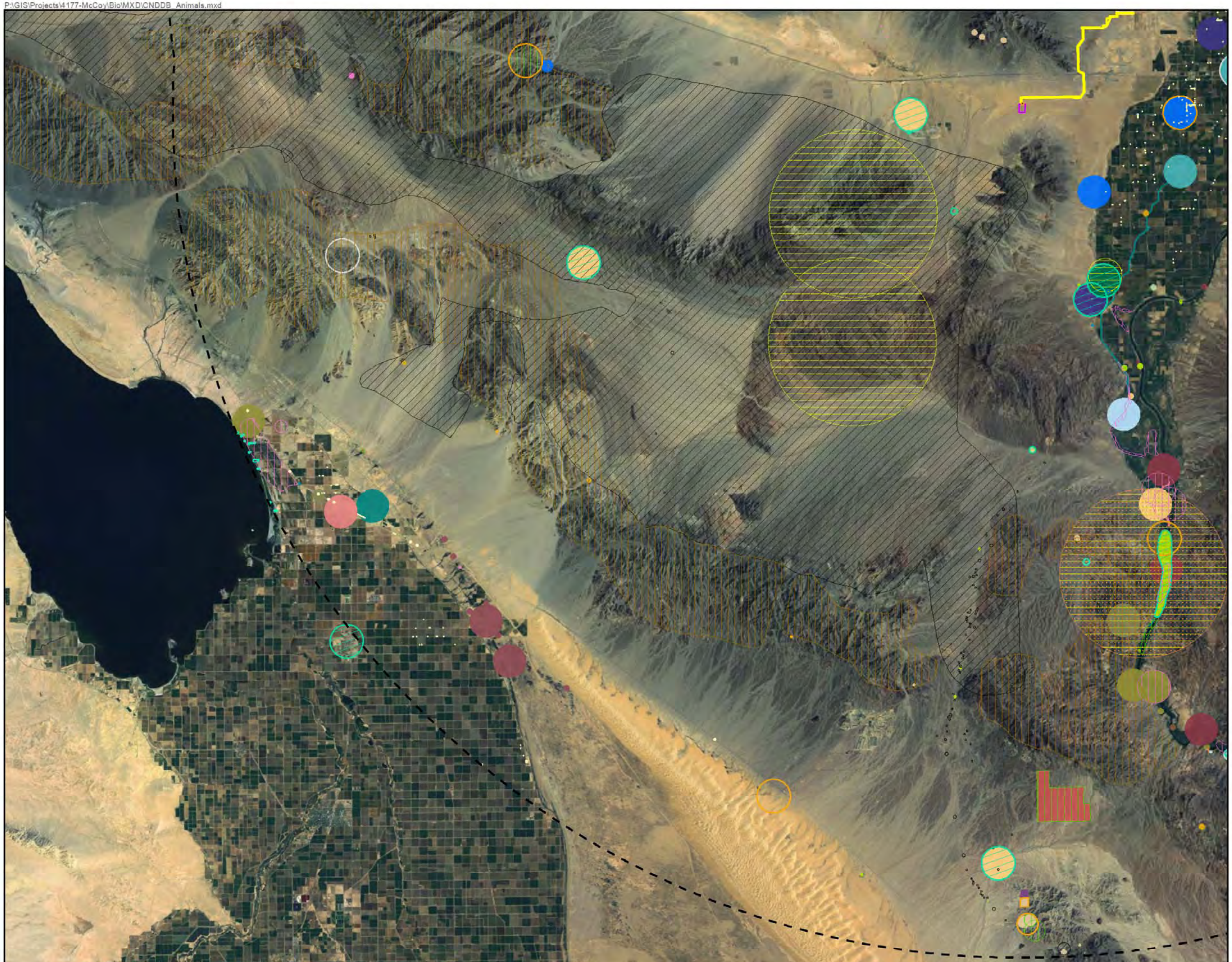

McCOY SOLAR ENERGY PROJECT RIVERSIDE COUNTY, CA

Legend

- MSEP Solar Plant Site Boundary
- Switchyard
- Proposed Linear Corridor
- Proposed Colorado River Substation (SCE)
- 50-Mile Site Buffer

CNDDB Common Name

- American badger
- Arizona Myotis
- Arizona bell's vireo
- California black rail
- California leaf-nosed bat
- Colorado River cotton rat
- Colorado Valley woodrat
- Colorado pikeminnow
- Couch's spadefoot
- Crissal thrasher
- Gila woodpecker
- Lucy's warbler
- Nelson's bighorn sheep
- Sonoran desert toad
- Sonoran yellow warbler
- Townsend's big-eared bat
- Yuma clapper rail
- Yuma mountain lion
- Yuma myotis
- black-tailed gnatcatcher
- brown-crested flycatcher
- burrowing owl
- cave myotis
- desert pupfish
- desert tortoise
- elf owl
- great blue heron
- great egret
- hoary bat
- least bittern
- loggerhead shrike
- lowland (=Yavapai, San Sebastian & San Felipe) leopard frog
- pallid bat
- pocketed free-tailed bat
- razorback sucker
- southwestern willow flycatcher
- summer tanager
- vermilion flycatcher
- western mastiff bat
- western yellow bat
- western yellow-billed cuckoo
- yellow-breasted chat

0 2.5 5 10
Miles

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

APPENDIX B
CNDDB SPECIAL STATUS SPECIES OCCURRENCES WITHIN 25 MILES OF THE PROJECT

TETRA TECH EC, INC.

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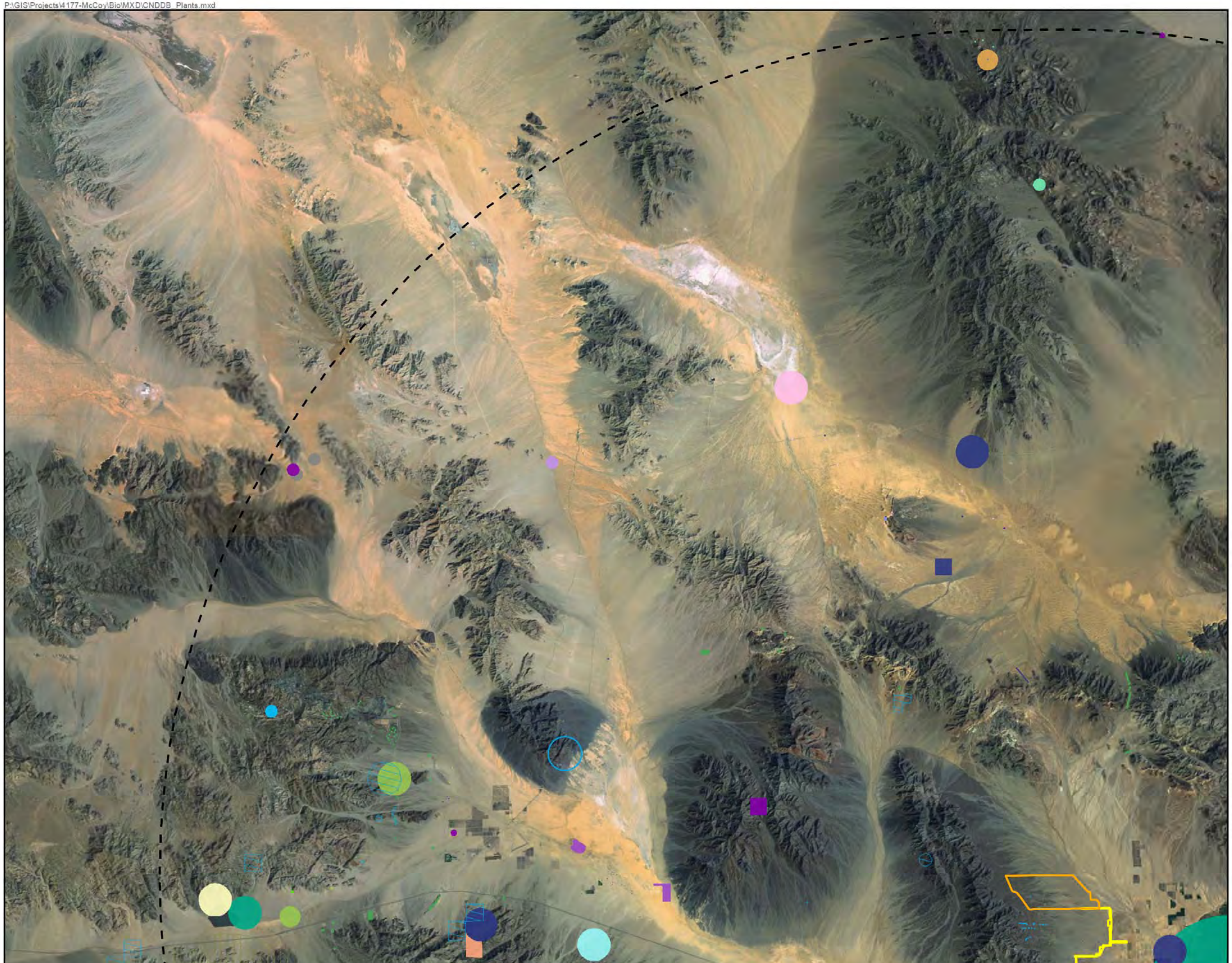

McCOY SOLAR
ENERGY PROJECT
RIVERSIDE COUNTY, CA

Legend

- MSEP Solar Plant Site Boundary
- Switchyard
- Proposed Linear Corridor
- Proposed Colorado River Substation (SCE)
- 50-Mile Site Buffer

CNDDB Common Name

- Abrams' spurge
- Alverson's foxtail cactus
- Arizona pholistoma
- California ditaxis
- Cove's cassia
- Darlington's blazing star
- Emory's crucifixion-thorn
- Harwood's eriastrum
- Harwood's milk-vetch
- Las Animas colubrina
- Orocopia sage
- Palmer's jackass clover
- Parish's club-cholla
- Robison's monardella
- desert sand-parsley
- desert spike-moss
- dwarf germander
- glandular ditaxis
- lobed ground-cherry
- mesquite neststraw
- slender cottonheads
- slender-spined all-thorn
- small-flowered androstephium
- spear-leaf matelea
- three-awned grama

0 2.5 5 10
Miles

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

APPENDIX B
CNDDB SPECIAL STATUS PLANT OCCURRENCES
WITHIN 25 MILES OF THE PROJECT

TETRA TECH EC, INC.

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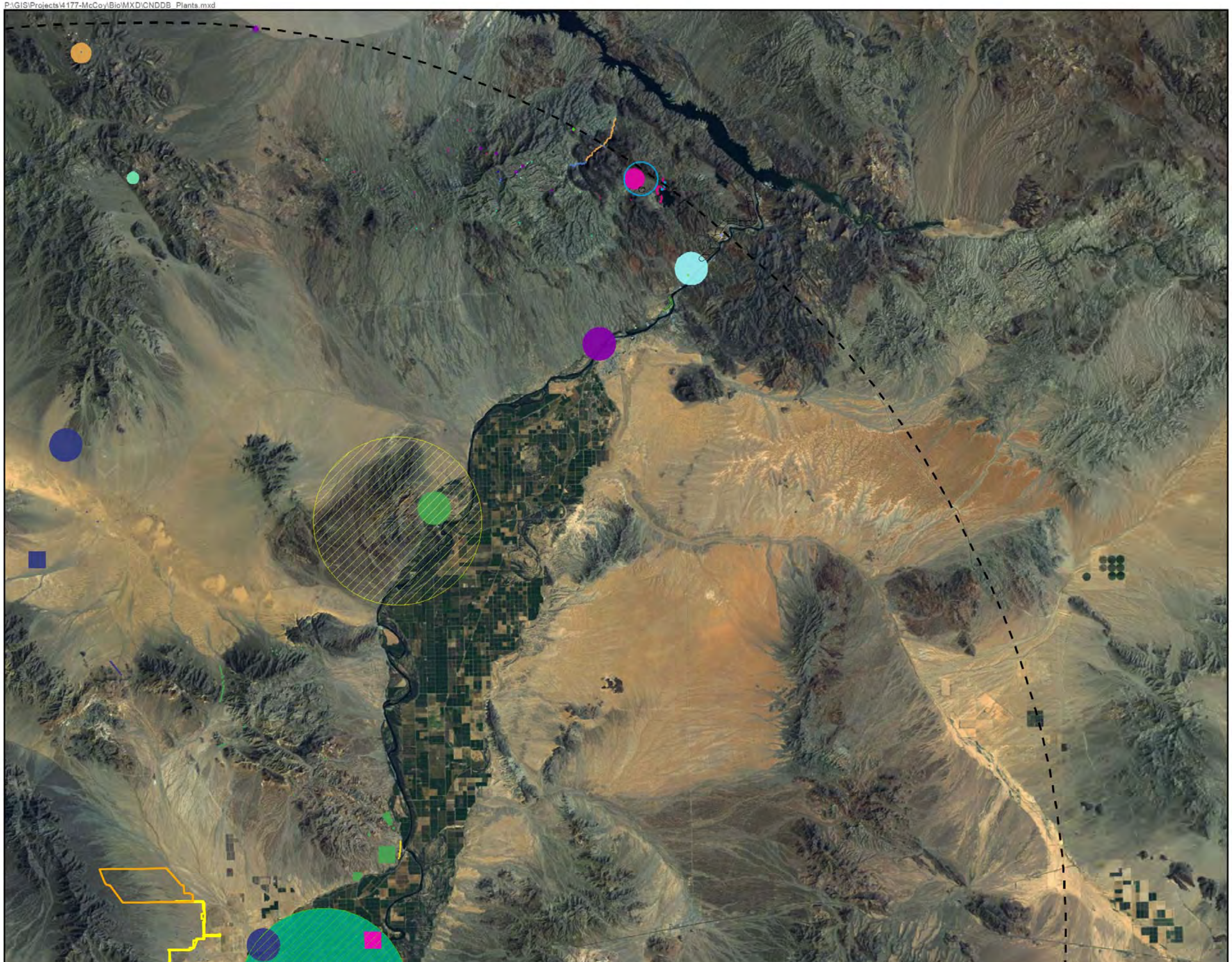


McCOY SOLAR ENERGY PROJECT RIVERSIDE COUNTY, CA

Legend

- MSEP Solar Plant Site Boundary
- Switchyard
- Proposed Linear Corridor
- Proposed Colorado River Substation (SCE)
- 50-Mile Site Buffer

CNDDB Common Name

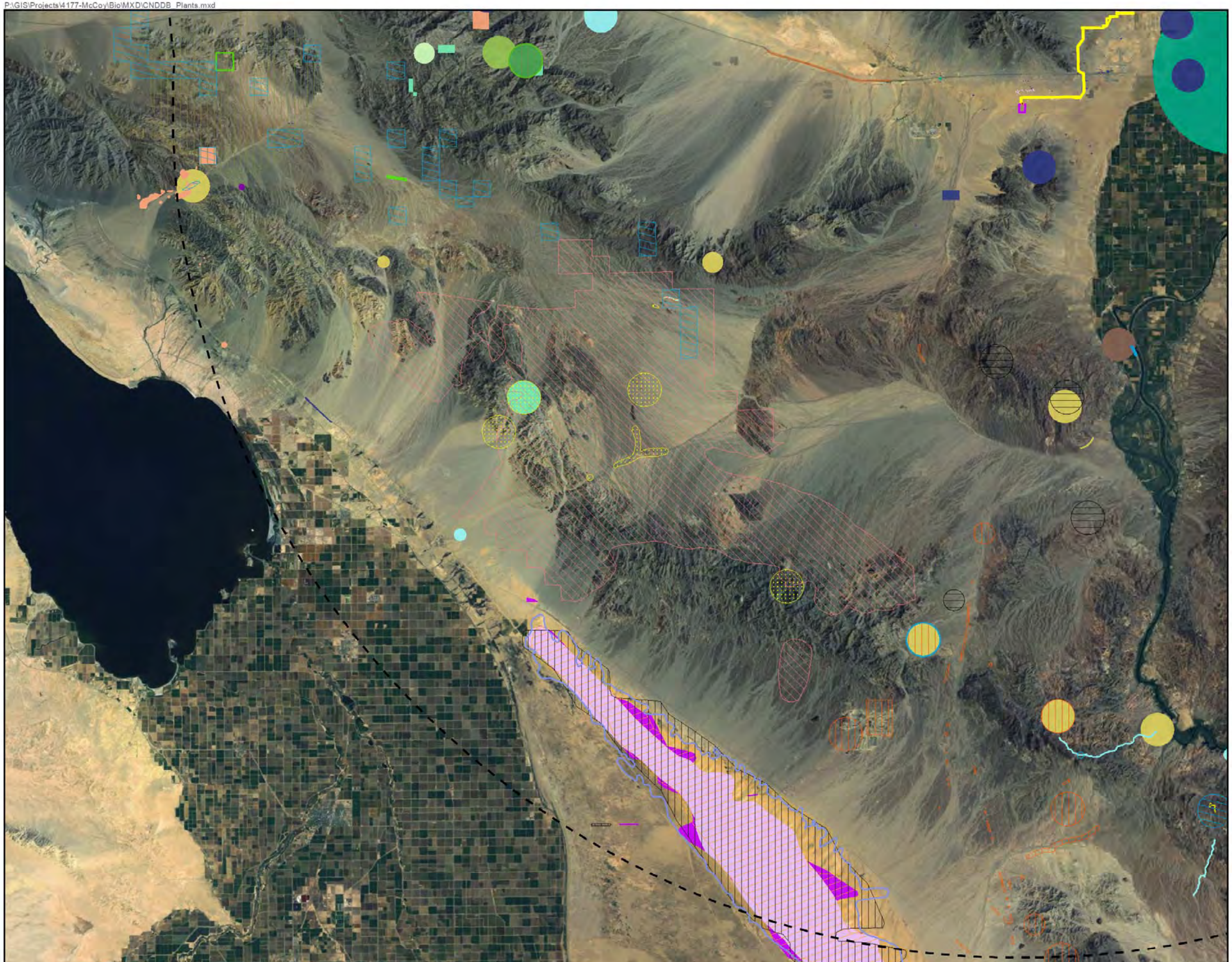
- Alverson's foxtail cactus
- Arizona pholistoma
- California satintail
- Cove's cassia
- Darlington's blazing star
- Emory's crucifixion-thorn
- Graham fishhook cactus
- Harwood's milk-vetch
- Kofa barberry
- Wiggins' cholla
- angel trumpets
- bare-stem larkspur
- bitter hymenoxys
- chaparral sand-verbena
- desert germander
- desert pincushion
- dwarf germander
- glandular ditaxis
- narrow-leaved psorothamnus
- saguaro
- slender cottonheads
- small-flowered androstephium
- spear-leaf matelea
- three-awned grama
- wand-like fleabane daisy

0 2.5 5 10
Miles

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

APPENDIX B CNDDB SPECIAL STATUS PLANT OCCURRENCES WITHIN 25 MILES OF THE PROJECT

TETRA TECH EC, INC.



McCOY SOLAR ENERGY PROJECT RIVERSIDE COUNTY, CA

Legend

- MSEP Solar Plant Site Boundary
- Switchyard
- Proposed Linear Corridor
- Proposed Colorado River Substation (SCE)
- 50-Mile Site Buffer

CNDDB Common Name

- Abrams' spurge
- Algodones Dunes sunflower
- Alverson's foxtail cactus
- Arizona pholistoma
- California ayenia
- California ditaxis
- Cove's cassia
- Darlington's blazing star
- Emory's crucifixion-thorn
- Graham fishhook cactus
- Harwood's eriastrum
- Harwood's milk-vetch
- Las Animas colubrina
- Munz's cholla
- Orocopia sage
- Peirson's milk-vetch
- Wiggins' cholla
- desert spike-moss
- dwarf germander
- giant spanish-needle
- glandular ditaxis
- pink fairy-duster
- saguaro
- sand evening-primrose
- sand food
- slender cottonheads
- slender-spined all-thorn
- spear-leaf matelea

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

APPENDIX B CNDDB SPECIAL STATUS PLANT OCCURRENCES WITHIN 25 MILES OF THE PROJECT

TETRA TECH EC, INC.

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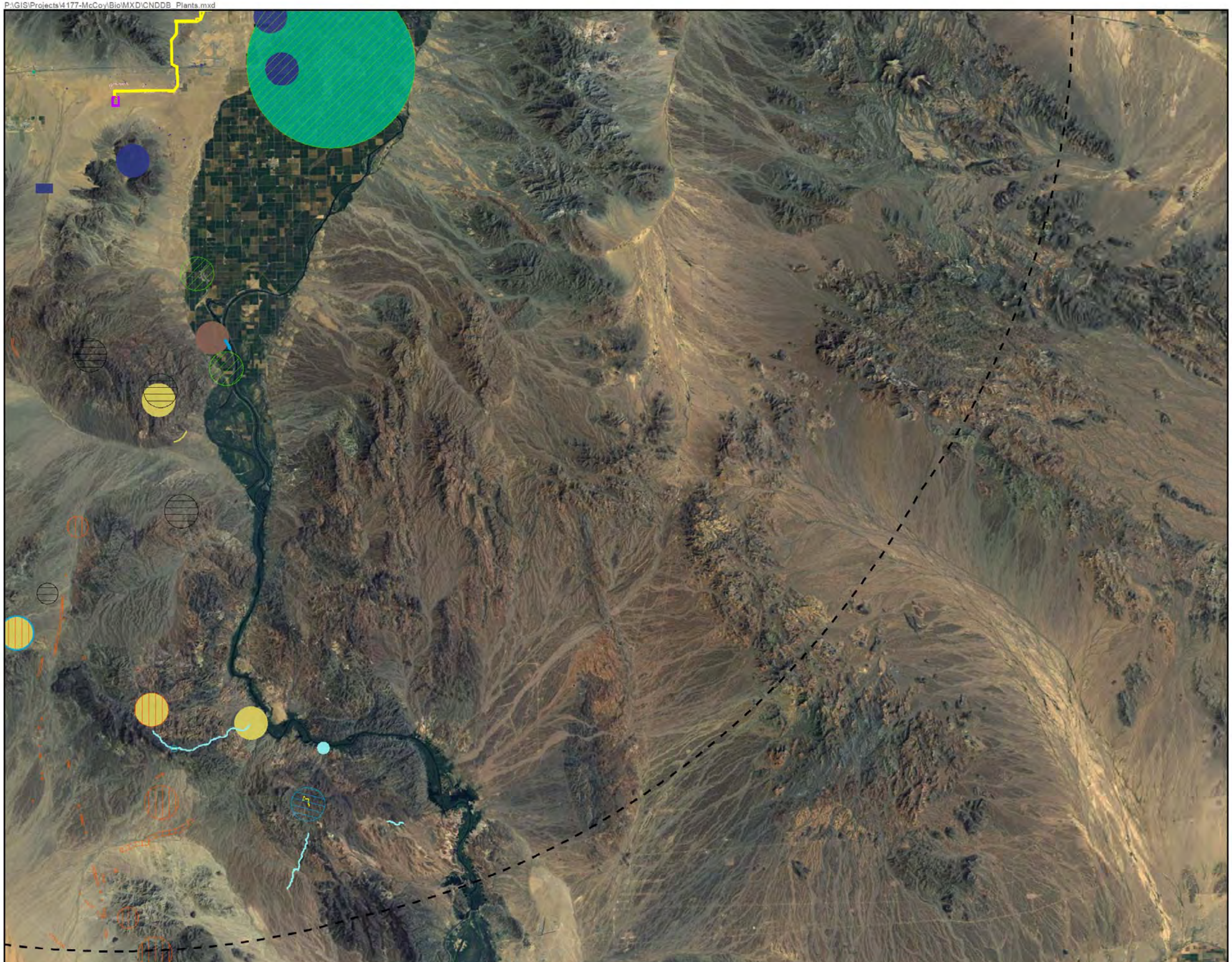

McCOY SOLAR
ENERGY PROJECT
RIVERSIDE COUNTY, CA

Legend

- MSEP Solar Plant Site Boundary
- Switchyard
- Proposed Linear Corridor
- Proposed Colorado River Substation (SCE)
- 50-Mile Site Buffer

CNDDB Common Name

- Darlington's blazing star
- Harwood's eriastrum
- Harwood's milk-vetch
- Las Animas colubrina
- Wiggins' cholla
- bitter hymenoxys
- dwarf germander
- glandular ditaxis
- pink fairy-duster
- saguaro
- sand evening-primrose
- slender-spined all-thorn

0 2.5 5 10
Miles

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

APPENDIX B
CNDDB SPECIAL STATUS PLANT OCCURRENCES
WITHIN 25 MILES OF THE PROJECT

TETRA TECH EC, INC.

APPENDIX C

SURVEY MAP AND EXAMPLE OF SURVEY DATA SHEETS

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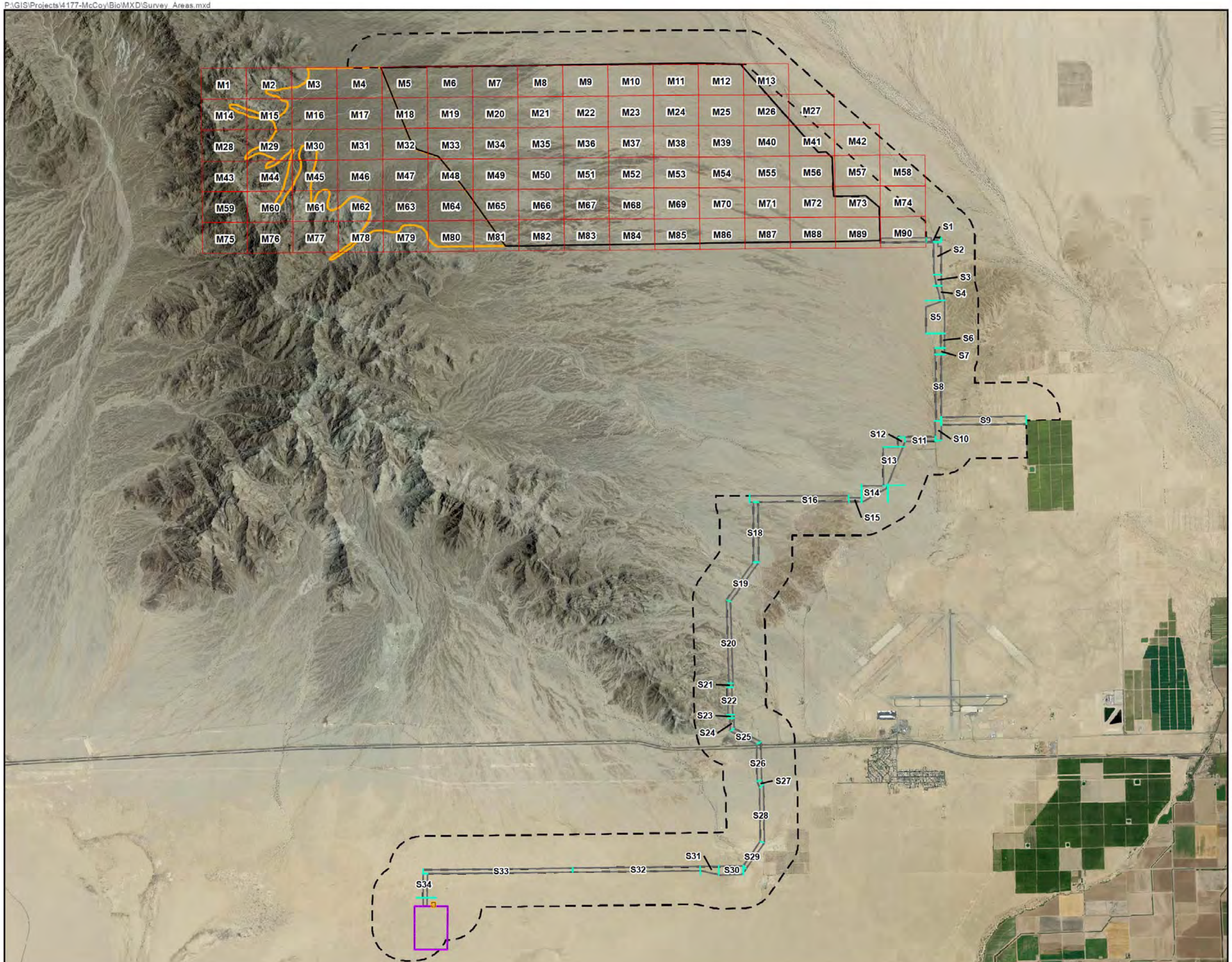

McCOY SOLAR ENERGY PROJECT
RIVERSIDE COUNTY, CA

Legend

- MSEP Solar Plant Site Boundary
- Proposed Linear Corridor
- Proposed Colorado River Substation (SCE)
- Switchyard
- Extent of Area Surveyed
- Potential Primary Recipient Area
- Survey Grid
- Survey Segment Boundaries

N

0 0.5 1 2
Miles

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

APPENDIX C
PROJECT SURVEY AREAS

TETRA TECH EC, INC.

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M 8

PROJECT McCoy Solar Energy Project
2011 SPECIAL-STATUS SPECIES SURVEYS

Page 1/2

DATE 14 APR 2011
TIME: Start 0815
End 1630

SURVEYORS: Navigator Lex Watts
Art Schaub
GPS Nate Mudry
Data Laura Pavliscak

WEATHER:

	Ta	Ts cm	Tg	Cloud Cover	Wind
Start	17.8	18.0	18.6	0	7-12 N
End	26.8	29.0	35.4	15% cirrus hazy	3-7 N

CELL I.D. M8
~~or ZOI/ROW Description~~
TRANSECT NOs COMPLETED 1-60 (All)
STARTING UTM 704002 E 3733152 N
ENDING UTM 704823 E 3732625 N
(NAD 83)
TOTAL TRANSECT WIDTH (30') 4 FT or M

GENERAL SITE DESCRIPTION:
VEGETATION SHRUB LAYER AND BUNCH GRASSES)
Aspect Dominants
LARTRI, ENCFAR, AMBDUM

Common Species
CERFLO, CYLRAM, KRAGRA, ACAGRE, PLURIG, CYLECH

Occasional Species
LYCAND, HIBDEU, EROINF, HYPEMO, BEBJUN

% Cover pavement: ~1% / washes: 85% / runnels: 60%
Avg. Height of Dominant Shrub Species
pavement: ~3cm / washes: 1.5m / runnels: 0.75m

UNDERSTORY
Abundant Species
CHAPOL, CHORIG, PLAOVA, ~~CHASTE~~ CHACAR
Exotics (Map concentrations and describe here relative to population size and geographic breadth.)
BRATUR-concentrated in runnels and washes

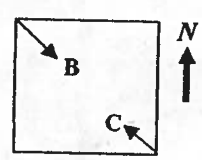
TOPOGRAPHY
Landform
Mid-bajada - desert pavement interwoven by surficial, densely vegetated w/ runnels/washes
Drainage Type
slightly incised washes -densely vegetated (<1 m deep, ~5-15m wide), runnels densely vegetated
Elevation (state meters or feet)
628 ft.

SUBSTRATE
Color pavement: dark brown to grey washes, runnels, exposed soil (in E cell): light tan
Coarse Particles (Type, % Cover)
pavement: 90% (25% fine, 65% coarse, 10% cobble) / wash: 30% (15% fine, 60% coarse, 25% cobble)
Soil Texture and Consistence
pavement: firm sandy silt / washes: loose to firm silty sand

PRESENCE OF PREDATORS: Ravens - # Detected 0 # Nests 0
Coyotes - # Detected 0 Scat? Yes Scat Piles # 2

HUMAN-RELATED DISTURBANCES (Onsite and Adjacent)
WWII era debris and tank tracks common across desert pavement

SITE PICTURE: Photographer L. Pavliscak
A - Form ☒ M8
B - SE from NW Corner ☒
C – NW from SE Corner ☒
D – Other ☐



COMMENTS

Map Sign

Show: Direction of Travel
Origin

N

Sign #	Waypoint I.D.	UTM (NAD 83)	DESERT TORTOISE Sign Type	Class	Size Width (sc, bur, tr) MCL (shell, tort)	Burrow Location	In/Out Burrow? Visible?	Live Tortoise Evidence of Disease?	Photo (check)
3	MO8TC3	704610 3733014	Bone FRAG.	>4	UNK.	~~[illegible]~~			
4	MO8TC4	704774 3732988	Bone FRAG	>4	ADULT				
5	MO8TC5	704486 3732915	Bone FRAG	>4	ADULT				
6	MO8TC6	704476 3732868	Bone FRAGS AND 1/2 PLASTRON, 1/4 CARAPACE	>4	ADULT	SCATTERED ~30m RADIUS GULAR HAD BEEN CHEWED (WHEN ALIVE)			
7	MO8TC7	704334 3732786	PARTIAL PLASTRON AND FRAGS/SCUTES	>4	ADULT	HALF PLASTRON AND DISARTICULATED FRAGS GULAR ALSO CHEWED WHEN ALIVE (CARCASS WIDE SCATTERED ~30			

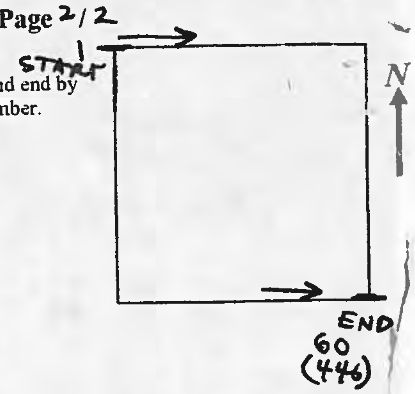
OTHER SPECIES

Sign #	Waypoint I.D.	UTM (NAD 83)	Species	Sign Type	Sign Condition	Ungulate Scat Collected (Check)	Comments
1	MO8AA1	704293 3733122	LeConte's THRASHER	INDIVIDUALS (3)	LIVE		OBSERVED IN DENSE VEGETATI OF RUNNEL
2	MO8AA2	704206 3733045	~~[illegible]~~ LOGGERHEAD SHRIKE	INDIVIDUAL W/ NEST	LIVE, ACTIVE		FLUSHED SHRIKE FROM CERFL AND FOUND NEST WITH 2 EGGS

PROJECT McCoy Solar Energy Project **Page** 2/2

DATE 14 APR 2011
CELL I.D. M8
LEGEND:

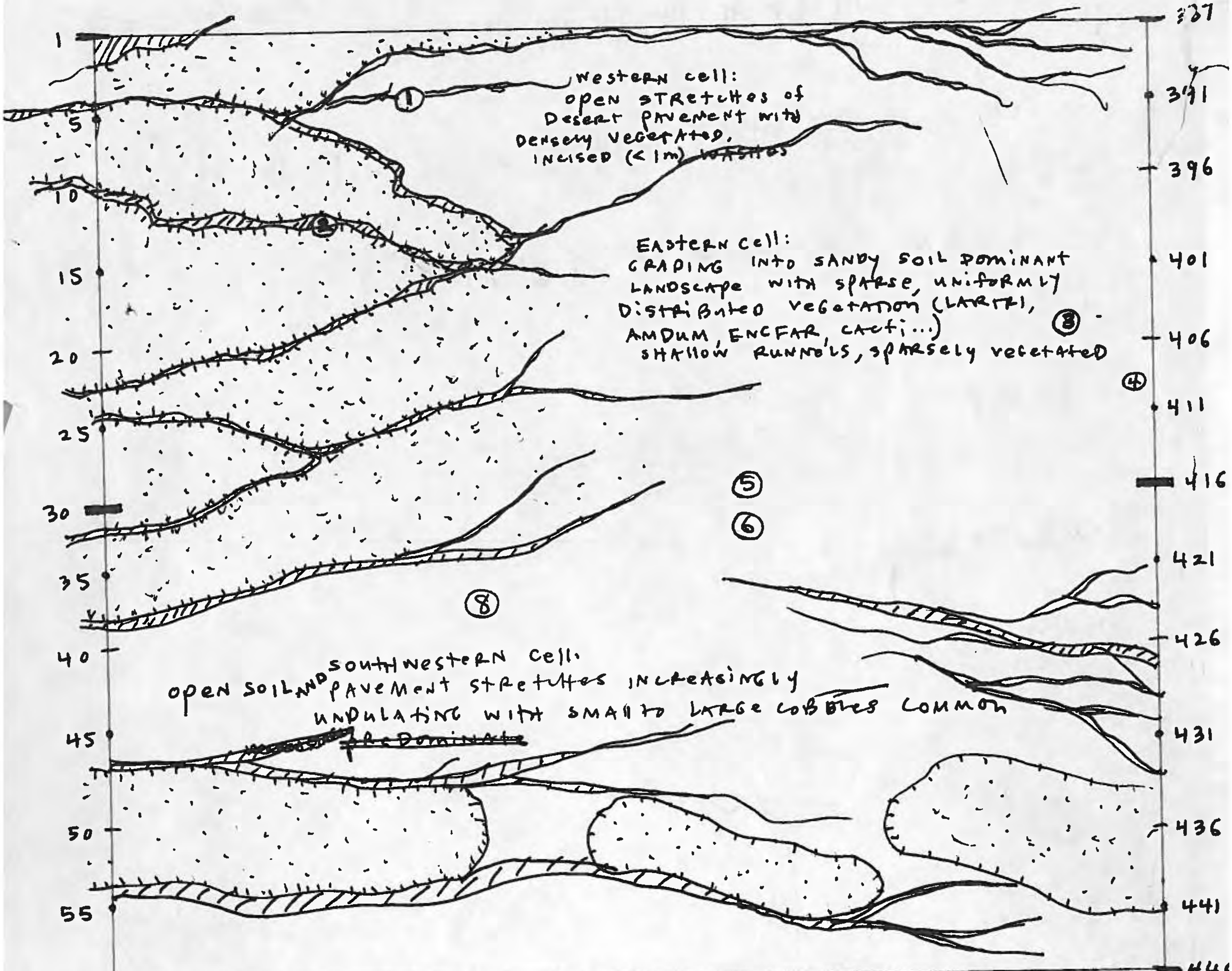
Transect,s: show start, and end by direction and transect number.



SHALLOWLY INCISED, DENSELY VEGETATED WASHES

VEGETATED RUNNELS

INTACT TRACT OF DESERT PAVEMENT



* patchy areas of cryptobiotic soil throughout cell - especially along incised washbanks

Counted all → ACAGRE 400
CERFLO 43
CYLECH 69
CYLRAM 41
ECHPOL 1
MAMTET 1
OPUBAS 1

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APPENDIX D

LIST OF FIELD BIOLOGISTS

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APPENDIX D

LIST OF FIELD BIOLOGISTS

Field Biologists	October 2010 Surveys	Spring 2011			
		Wildlife Surveys	Plant Surveys	Burrowing Owl Surveys	Avian/Raptor Point Count Surveys
Alexis Watts		X			
Alice Karl, Ph.D.*	X	X	X		
Art Schaub	X	X	X	X	X
Bill Hasskamp		X		X	
Bret Blosser, Ph.D.		X			
Brian Sandstrom		X			
Carrie Warman		X			
Corey Mitchell		X		X	
Dave Focardi		X			
Emily Mix *	X	X			
Glenn Rink	X		X		
Jake Mohlmann	X	X			X
Jennifer Weidensee		X			
Jim Toney		X			
Joel Cosper		X			
Kent Hughes	X		X		
Kevin Walsh		X			
Laura Pavliscak		X			
Liz (Jacqueline) Smith		X			
Lehong Chow	X	X			
Marc Baker	X		X		
Mark Bagsley			X		
Mary Ann Hasskamp		X			
Michael Honer	X	X	X		
Nathan Mudry (eGIS)	X	X		X	X
Paul Frank	X	X			
Rachael Woodard		X	X		
Shawn Lindey		X		X	
Tim Thomas	X	X	X		
Tina Poole		X			
Tsegaye Mengistu		X			

* Report Preparers

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APPENDIX E

KEY TO DESERT TORTOISE SIGN CLASSES

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APPENDIX E

KEY TO SIGN CLASSES

BURROWS

1 – DEFINITELY TORTOISE – FRESH (TRACKS, TORTOISE INSIDE, FRESHLY DISTURBED SOIL ON MOUND/RUNWAY)

2 – DEFINITELY TORTOISE – USED THIS SEASON (CLEARED OF ANNUALS, BUT NO FRESHLY DISTURBED SOIL)

3 – DEFINITELY TORTOISE – NOT USED THIS SEASON (PROBABLY HAS ANNUALS GROWING IN RUNWAY)

4 – POSSIBLY TORTOISE – IN GOOD CONDITION BUT UNSURE OF SPECIES USING BURROW

5 – DEFINITELY TORTOISE – DETERIORATED SUCH THAT IT WOULD REQUIRE SUBSTANTIAL REMODELING TO BE USABLE

6 – POSSIBLY TORTOISE – DETERIORATED

SCAT

TY1 – WET OR FRESH DARK, ODORIFEROUS

TY2 – DRIED, POSSIBLE GLAZE ON PART; UNEXPOSED SURFACES DARK BROWN; SLIGHT ODOR

TY3 – DRIED, NO GLAZE; AT LEAST PARTIALLY FADED ON EXTERIOR; VERY SLIGHT ODOR

NTY3 – DRIED, NO GLAZE; AT LEAST PARTIALLY FADED ON EXTERIOR; NO ODOR (DISTINGUISHES FROM TY3)

NTY4 – DRIED, LOOSENING, PALE OR BLEACHED

CARCASSES – GENERAL INDICATORS FOR TIME SINCE DEATH

<1 YR – UNEXPOSED SCUTES NORMAL COLOR AND SHEEN, ADHERE TIGHTLY. EXPOSED SCUTES PALING AND MAY BE LIFTING OR OFF. UNEXPOSED BONE WAXY AND SOLID.

1–2 YRS – UNEXPOSED SCUTES NORMAL COLOR WITH SLIGHT SHEEN, MOSTLY TIGHTLY ATTACHED. EXPOSED SCUTES SLIGHTLY PALE WITH NO SHEEN AND NO TO SLIGHT GROWTH RING PEELING. NO ODOR. UNEXPOSED BONE SILKY.

2–3 YRS – UNEXPOSED SCUTES PALE AND WITHOUT SHEEN BUT NO GROWTH RING PEELING. EXPOSED SCUTES PALE WITH SLIGHT PEELING, SCUTES LOOSE, OFF AND/OR TIGHT. BONE SUTURES GENERALLY TIGHT.

4 YRS – UNEXPOSED SCUTES NORMAL COLOR TO SLIGHTLY PALE, NO SHEEN, NO PEELING. EXPOSED SCUTES LOOSE, PALE, DULL, WITH MODERATE PEELING. SUTURES SEPARATING AND BONE SURFACE IS FISSURED, EDGES ARE ROUGHENED (FISSURED UNDER HAND LENS) AND CHIP FAIRLY EASILY.

>>4 YRS – DISARTICULATED AND DISARTICULATING. BONE EDGES CHIP AND CRUMBLE EASILY. SCUTES ARE PEELING AND CURLED.

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APPENDIX F

LIST OF ALL SPECIES OBSERVED DURING FIELD SURVEYS

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APPENDIX F

LIST OF ALL SPECIES OBSERVED DURING FIELD SURVEYS

Wildlife and Plant Species Observed at the McCoy Solar Energy Project, including the Proposed Translocation Area, during Spring 2011 Surveys	
INVERTEBRATES	
Lytta morrisoni	Blister beetle
Pepsis sp.	Tarantula hawk
REPTILES	
Callisaurus draconoides	zebra-tail lizard
Cnemidophorus (=*Aspidoscelis*) *tigris*	western whiptail
Crotalus atrox	western diamond-backed rattlesnake
Crotalus cerastes	sidewinder
Crotalus mitchelli	speckled rattlesnake
Crotalus scutulatus	Mojave green rattlesnake
Crotaphytus collaris	collared lizard
Dipsosaurus dorsalis	desert iguana
Gambelia wislizenii	leopard lizard
Gopherus agassizii	desert tortoise
Phyllorhynchus decurtatus	spotted leaf-nosed snake
Phrynosoma platyrhinos	desert horned lizard
Salvadora hexalepis hexalepis	desert patch-nosed snake
Sauromalus ater (=*obesus*)	common chuckwalla
Uma scoparia	Mojave fringe-toed lizard
Urosaurus graciosus	brush lizard
Uta stansburiana	side-blotched lizard
BIRDS	
Aeronautes saxatalis	white-throated swift
Accipiter cooperii	Cooper's hawk
Agelaius phoeniceus	red-winged blackbird
Amphispiza bilineata	black-throated sparrow
Aquila chrysaetos	golden eagle
Auriparus flaviceps	verdin
Athene cunicularia	burrowing owl
Bubo virginianus	great-horned owl (off-site in McCoy Wash)
Buteo jamaicensis	red-tailed hawk
Buteo swainsoni	Swainson's hawk
Callipepla gambelii	Gambel's quail
Calypte costae	Costa's hummingbird
Campylorhynchus brunneicapillus	cactus wren
Carpodacus mexicanus	house finch
Cathartes aura	turkey vulture
Chaetura vauxi	Vaux's swift
Chordeiles acutipennis	lesser nighthawk
Circus cyaneus	northern harrier
Columba livia	rock pigeon
Corvus corax	common raven
Dendroica coronata	yellow-rumped warbler
Dendroica petechia	yellow warbler
Empidonax oberholseri	dusky flycatcher
Eremophila alpestris	California horned lark
Falco mexicanus	prairie falcon
Falco peregrinus	peregrine falcon
Falco sparverius	American kestrel
Geococcyx californianus	greater roadrunner
Hirundo rustica	barn swallow
Hirundo pyrrhonota	cliff swallow

Wildlife and Plant Species Observed at the McCoy Solar Energy Project, including the Proposed Translocation Area, during Spring 2011 Surveys	
Icterus parisorum	Scott's oriole (off-site in McCoy Wash)
Lanius ludovicianus	loggerhead shrike
Mimus polyglottos	northern mockingbird
Myiarchus cinerascens	ash-throated flycatcher
Pandion haliaetus	osprey
Passer domesticus	house sparrow
Phainopepla nitens	phainopepla
Phalaenoptilus nuttallii	common poor-will
Pheucticus melanocephalus	black-headed grosbeak
Picoides scalaris	ladder-backed woodpecker
Piranga ludoviciana	western tanager
Polioptila melanura	black-tailed gnatcatcher
Quiscalus mexicanus	great-tailed grackle
Sayornis saya	Say's phoebe
Spinus psaltria	lesser goldfinch
Spizella breweri	Brewer's sparrow
Spizella passerina	chipping sparrow (off site in McCoy Wash)
Stelgidopteryx serripennis	northern rough-winged swallow
Streptopelia decaocto	Eurasian collared dove
Sturnella neglecta	western meadowlark
Sturnus vulgaris	European starling
Tachycineta bicolor	tree swallow
Tachycineta thalassina	violet-green swallow
Toxostoma lecontei	LeConte's thrasher
Tyrannus verticalis	western kingbird
Vermivora luciae	Lucy's warbler (off site in McCoy Wash)
Wilsonia pusilla	Wilson's warbler
Zenaida asiatica	white-winged dove
Zenaida macroura	mourning dove
Zonotrichia albicollis	white-crowned sparrow
MAMMALS	
Ammospermophilus leucurus	antelope ground squirrel
Canis latrans	coyote (scat)
Chaetodipus formosus	long-tailed pocket mouse
Chaetodipus penicillatus	desert pocket mouse
Dipodomys deserti	desert kangaroo rat
Dipodomys merriami	Merriam's kangaroo rat
Equus asinus	wild burro (scat; tracks on previous survey)
Felis concolor	mountain lion (tracks and scat in translocation area)
Lepus californicus	black-tailed hare
Neotoma lepida	desert woodrat (midden)
Taxidea taxus	American badger (digs, claw marks; individual seen off-site)
Spermophilus tereticaudus	round-tailed ground squirrel
Sylvilagus audubonii	desert cottontail
Vulpes macrotis	desert kit fox (individuals, natal dens)
PLANTS	
Abronia villosa var. *villosa*	sand verbena
Adenophyllum porophylloides	adenophyllum
Allionia incarnata	windmills
A. dumosa	white bursage
A. (=Hymenoclea) salsola	cheesebush
Amsinckia menziesii var. intermedia	fiddleneck
Aristida adscencionis	three-awn
A. purpurea	purple three-awn
Asclepias albicans	buggywhip milkweed
A. subulata	rush milkweed

Wildlife and Plant Species Observed at the McCoy Solar Energy Project, including the Proposed Translocation Area, during Spring 2011 Surveys	
Abronia villosa var. *villosa*	sand verbena
Achyronychia cooperi	frost-mat
Adenophyllum porophylloides	adenophyllum
Allionia incarnata	windmills, trailing four o'clock
A. dumosa	white burr sage
A. (=Hymenoclea) salsola	cheesebush
Amsinckia menziesii	fiddleneck
Aristida adscencionis	three-awn
A. purpurea var. *nealleyi*	purple three-awn
Asclepias albicans	buggywhip milkweed
A. subulata	rush milkweed
Astragalus acutirostris	keel-beak
Astragalus aridus	astragalus
A. insularis var. *harwoodii*	Harwood's milkvetch
A. nuttallianus	Nuttall locoweed
Atrichoseris platyphylla	gravel-ghost
Atriplex elegans	wheelscale
Baileya pauciradiata	desert marigold
Baccharis brachyphylla	short-leaved baccharis
Bahiopsis (= Viguiera) parishii	viguiera
Bebbia juncea	chuckwalla bush
Brandegea bigelovii	desert starvine
**Brassica tournefortii*	Sahara mustard
Bromus madritensis var. *rubescens*	red brome
Calycoseris wrightii	white tackstem
Camissonia boothii ssp. *condensata*	bottlebrush primrose
C. boothii ssp. *desertorum*	bottlebrush primrose
C. brevipes	yellow-cups
C. cardiophylla	heart-leaved primrose
C. claviformis ssp. *aurantiaca*	brown-eyed primrose
C. refracta	narrow-leaved primrose
Cercidium floridum (=Parkinsonia florida)	blue paloverde
Chaenactis carphoclinia	pebble pincushion
C. stevioides	desert pincushion
Chamaesyce polycarpa	spurge
**Chenopodium album*	pigweed
**C. murale*	goosefoot
Chorizanthe brevicornu	brittle spine-flower
C. corrugata	spineflower
C. rigida	rigid spinyherb
Colubrina californica	Las Animas colubrina
Cryptantha angustifolia	narrow-leaved forget-me-not
C. barbigera	bearded cryptantha
C. costata	ribbed cryptantha
C. dumetorum	flexuous forget-me-not
C. maritima	white-haired forget-me-not
C. micrantha	purple-rooted forget-me-not
C. nevadensis	Nevada forget-me-not
C. pterocarya	wing-nut forget-me-not
C. (=Opuntia) echinocarpa	silver cholla
C. (=Opuntia) ramosissima	pencil cholla
Dalea mollis	silk dalea
D. mollissima	silk dalea
Dicoria canescens	desert dicoria
Ditaxis lanceolata	lance-leafed ditaxis
D. neomexicana	ditaxis
Dithyrea californica	spectacle-pod

Wildlife and Plant Species Observed at the McCoy Solar Energy Project, including the Proposed Translocation Area, during Spring 2011 Surveys	
Echinocactus polycephalus	cottontop cactus
Encelia farinosa var. *farinosa*	brittlebush
E. farinosa var. *phenicodonta*	brittlebush
E. frutescens	rayless encelia
Ephedra aspera	joint fir
E. californica	California joint fir
Eremalche rotundifolia	desert five-spot
Eriastrum diffusum	phlox
E. harwoodii	Harwood's phlox
Eriogonum deflexum	skeleton-weed
E. inflatum	desert trumpet
E. reniforme	kidney-leaved buckwheat
E. thomasii	Thomas' buckwheat
E. trichopes	little trumpet
Erodium texanum	storksbill
Erioneuron pulchellum	fluff grass
Eschscholtzia glyptosperma	gold-poppy
E. minutiflora	small-flowered gold-poppy
Eucrypta micrantha	small-flowered eucrypta
Euphorbia eriantha	beetle spurge
Fagonia laevis	California fagonbush
Ferocactus cylindraceus	barrel cactus
Funastrum (=*Sarcostemma*) *hirtellum*	hairy milkweed
F. (=*S.*) *cyanchoides hartwegii*	climbing milkweed
F. (= *Cynanchum*) *utahense*	Utah cynanchum
Fouquieria splendens	ocotillo
Geraea canescens	desert sunflower
Gilia latifolia	broad-leaved gilia
G. stellata	star gilia
Grayia spinosa	spiny hopsage
Guillenia (=Thelypodium) lasiophylla	California mustard
Hesperocallis undulata	desert lily
Hibiscus denudatus	rock hibiscus
Hyptis emoryi	desert lavender
Krameria erecta	little-leaf rhatany
K. grayi	white rhatany
Lactuca serriola	prickly lettuce
Langloisia setosissima ssp. *setosissima*	bristly langloisia
Larrea tridentata	creosote bush
Lepidium lasiocarpum	pepper grass
Linanthus jonesii	Jones' linanthus
Loeseliastrum mathewsii	desert calico
L. schottii	Schott gilia
Logfia (= Filago) arizonica	Arizona filago
L. depressa	dwarf filago
Lotus strigosus	hairy lotus
Lupinus arizonicus	Arizona lupine
Lycium andersonii	Anderson boxthorn
L. pallidum var. *oligospermum*	boxthorn
Malacothrix glabrata	desert dandelion
**Malva parviflora*	cheeseweed
Mammillaria tetrancistra	fish-hook cactus
Marina parryi	parry dalea
Mentzelia affinis	blazing star
M. albicaulis	white-stemmed blazing star
M. involucrata	sand blazing star
M. multiflora var. longiloba	blazing star

Wildlife and Plant Species Observed at the McCoy Solar Energy Project, including the Proposed Translocation Area, during Spring 2011 Surveys	
Mirabilis bigelovii var. *retrorsa*	four-o'clock
Mohavea confertifolia	ghost flower
Monoptilon bellioides	Mojave desert-star
Nama demissum	purple mat
N. hispidum var. *spathulatum*	hispid nama
Nicotiana obtusifolia	tobacco
Oenothera deltoides	dune primrose
O. primiveris	yellow desert primrose
Oligomeris linifolia	mignonette
Olneya tesota	ironwood
Opuntia basilaris	beavertail cactus
Orobanche cooperi	broom-rape
Palafoxia arida (= linearis)	Spanish needle
**Panicum antidotale*	blue panicgrass
Pectis papposa	chinchweed
Pectocarya heterocarpa	hairy-leaved comb-bur
P. platycarpa	broad-nutted comb-bur
P. recurvata	arch-nutted comb-bur
Perityle emoryi	Emory rock daisy
Peucephyllum schottii	desert fir
Phacelia crenulata var. *ambigua*	notchleaf phacelia
P.crenulata var. minutiflora	notchleaf phacelia
P. neglecta	alkali phacelia
Phoradendron californicum	mistletoe
Physalis crassifolia	ground cherry
Plagiobothrys jonesii	Jones' popcornflower
Plantago ovata	plantain
Pleuraphis (=Hilaria) rigida	big galleta grass
Pleurocoronis pluriseta	arrow-leaf
Pluchea sericea	arrow weed
Porophyllum gracile	odora
Prenanthella (= *Lygodesmia*) *exigua*	brightwhite
Proboscidea althaeifolia	desert unicorn plant
Prosopis glandulosa	honey mesquite
Psathyrotes ramosissima	turtleback
Psorothamnus emoryi	Emory dalea
P. spinosus	smoke tree (immediately adjacent to plant site)
Rafinesquia neomexicana	desert chicory
**Salsola tragus*	Russian thistle, tumbleweed
**Schismus arabicus*	Mediterranean grass
Senecio mohavensis	Mojave ragwort
Senegalia (= Acacia) greggii	catclaw acacia
**Sisymbrium irio*	London rocket
Sonchus oleraceous	sow thistle
Sphaeralcea ambigua	globe mallow
S. emoryi	Emory globe mallow
Stephanomeria exigua	annual mitra
S. parryi	Parry rock-pink
S. pauciflora	Wire-lettuce
Stillingia spinulosa	broad-leaved stillingia
Streptanthella longirostris	mustard
**Tamarix aphylla*	tamarisk
Tidestromia oblongifolia	Arizona honeysweet
Tiquilia plicata	plicate coldenia
**Tribulus terrestris*	caltrops, puncture vine
Trichoptilium incisum	yellow-head
Trixis californica	trixis

Wildlife and Plant Species Observed at the McCoy Solar Energy Project, including the Proposed Translocation Area, during Spring 2011 Surveys	
Vulpia octoflora	vulpia
Ziziphus obtusifolia var. *canescens*	graythorn

* Non-native

APPENDIX G

FIGURE OF SPECIAL-STATUS PLANT OBSERVATIONS AND CORRESPONDING TABLE

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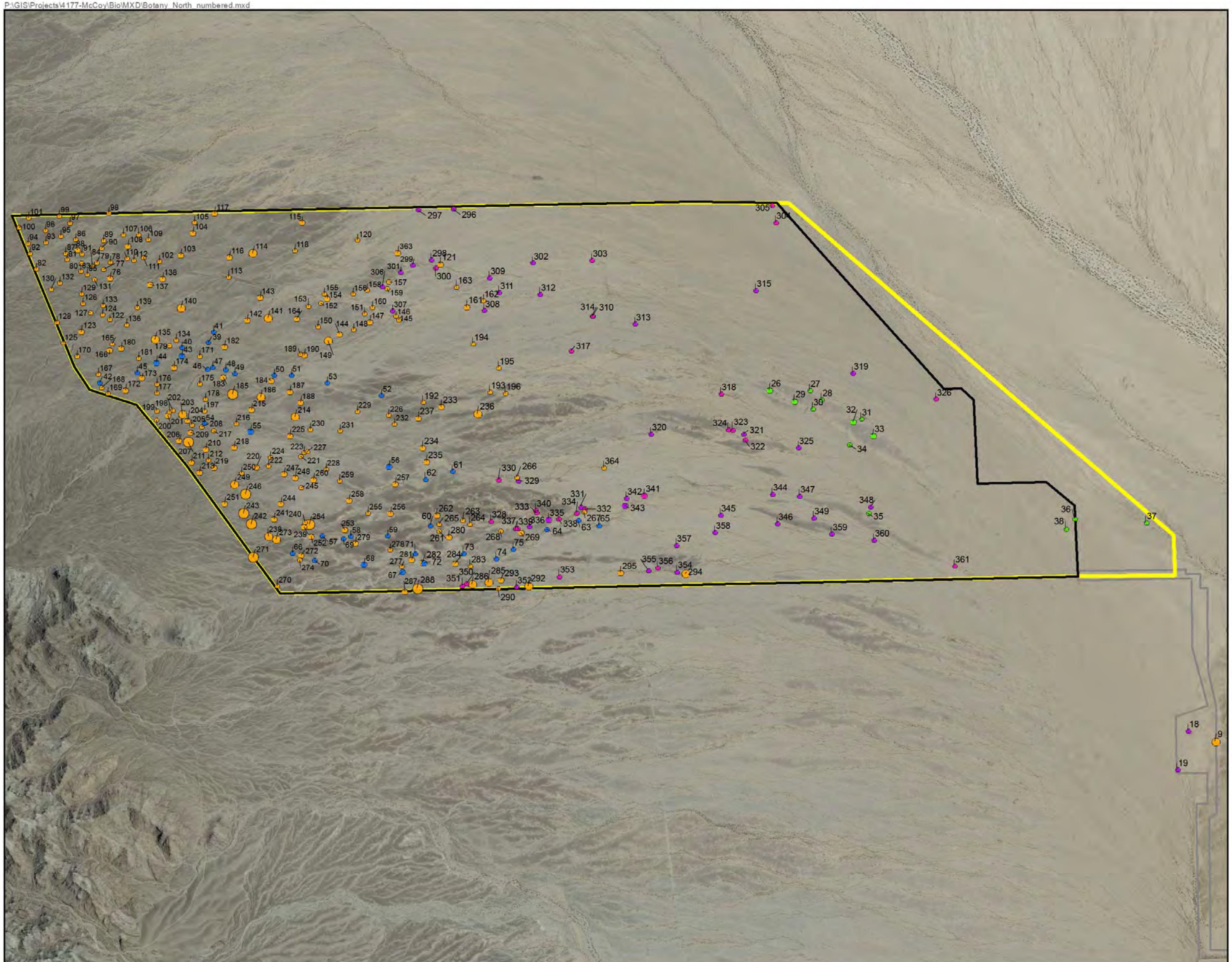


McCOY SOLAR ENERGY PROJECT RIVERSIDE COUNTY, CA

Legend

Common Name

- Harwood's phlox
- Harwood's milkvetch
- Las Animas colubrina
- Utah cynanchum
- Desert unicorn plant
- Desert unicorn plant seed pods
- Ribbed cryptantha

Population Size

- 1-10 plants
- 11-50 plants
- 51-100 plants
- 101-500 plants
- >1000 plants

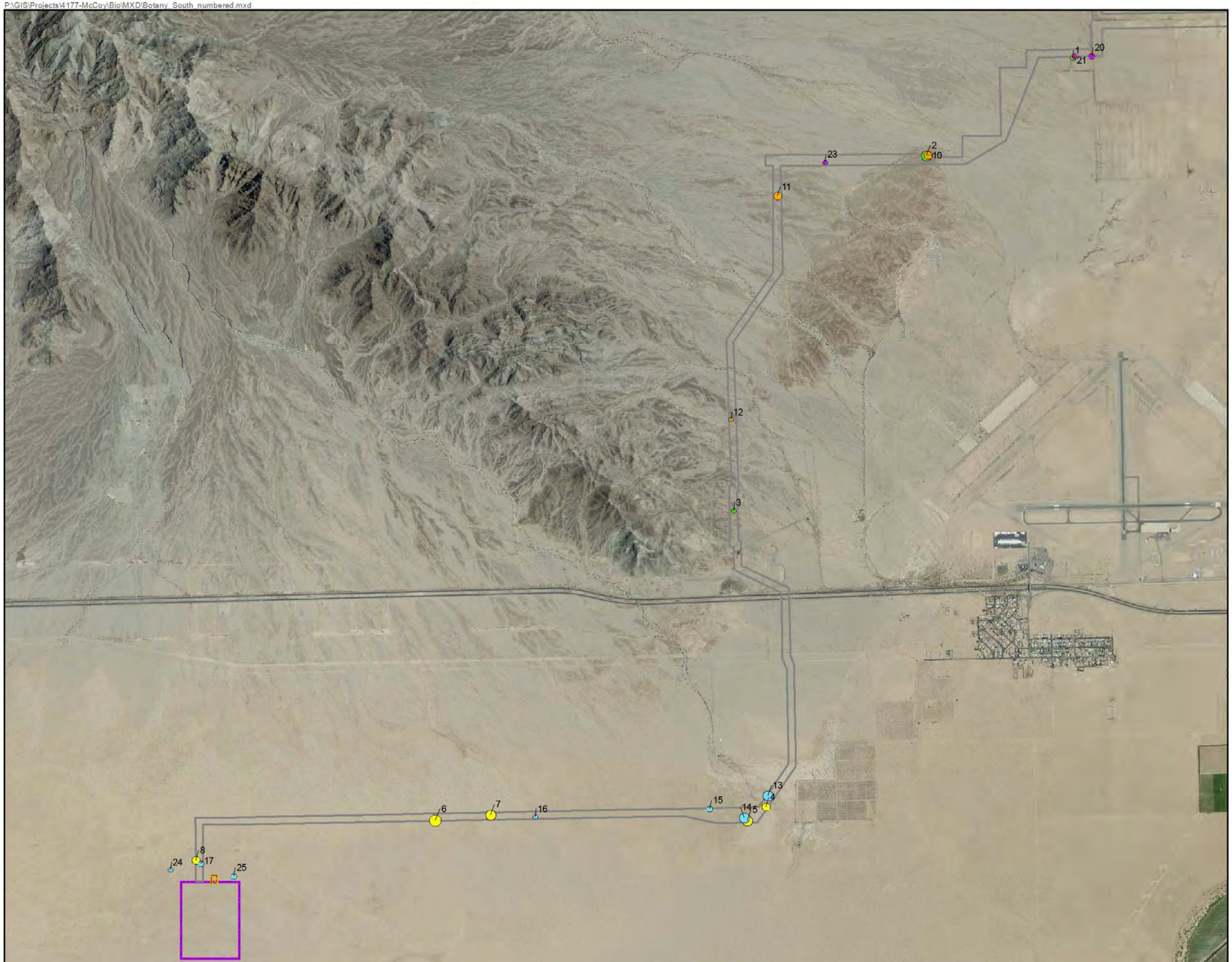
- MSEP Solar Plant Site Boundary
- Proposed Linear Corridor
- Solar Plant Site Survey Area

0 1,000 2,000 4,000 Feet

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

APPENDIX G
SPECIAL-STATUS PLANT OBSERVATIONS

TETRA TECH EC, INC.



McCOY SOLAR ENERGY PROJECT RIVERSIDE COUNTY, CA

Legend

Common Name
- Harwood's phlox
- Harwood's milkvetch
- Las Animas colubrina
- Utah cynanchum
- Desert unicorn plant
- Desert unicorn plant seed pods
- Ribbed cryptantha

Population Size
- 1-10 plants
- 11-50 plants
- 51-100 plants
- 101-500 plants
- >1000 plants

- MSEP Solar Plant Site Boundary
- Proposed Linear Corridor
- Proposed Colorado River Substation (SCE)
- Switchyard

0 2,000 4,000 8,000
Feet

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

APPENDIX G
SPECIAL-STATUS PLANT OBSERVATIONS

TETRA TECH EC, INC.

APPENDIX G

SPECIAL-STATUS PLANT OBSERVATIONS AND CORRESPONDING TABLE

Map Number	UTM NAD(83)		Species		Population Size (Number of Plants or Abundance)[1]	Area (square meters)
18	711414	3728796	Desert unicorn plant	*Proboscidea althaeifolia*	1 seed pod	<1
19	711323	3728472	Desert unicorn plant	*Proboscidea althaeifolia*	1 seed pod	<1
20	711491	3726535	Desert unicorn plant	*Proboscidea althaeifolia*	13 seed pods	4,000
21	711309	3726520	Desert unicorn plant	*Proboscidea althaeifolia*	1	0.001
23	708795	3725460	Desert unicorn plant	*Proboscidea althaeifolia*	1 seed pod	0.7
296	705266	3733167	Desert unicorn plant	*Proboscidea althaeifolia*	1 seed pod	<1
297	704972	3733156	Desert unicorn plant	*Proboscidea althaeifolia*	2 seed pods	150
298	705080	3732740	Desert unicorn plant	*Proboscidea althaeifolia*	1 seed pod	<1
299	704924	3732694	Desert unicorn plant	*Proboscidea althaeifolia*	10 seed pods	2
300	705117	3732671	Desert unicorn plant	*Proboscidea althaeifolia*	1	0.5
301	704821	3732634	Desert unicorn plant	*Proboscidea althaeifolia*	1 seed pod	1
302	705927	3732714	Desert unicorn plant	*Proboscidea althaeifolia*	5 seed pods	10
303	706423	3732736	Desert unicorn plant	*Proboscidea althaeifolia*	1	0.005
304	707962	3733051	Desert unicorn plant	*Proboscidea althaeifolia*	1	
305	707930	3733195	Desert unicorn plant	*Proboscidea althaeifolia*	1	
306	704668	3732514	Desert unicorn plant	*Proboscidea althaeifolia*	1seed pod	<1
307	704756	3732313	Desert unicorn plant	*Proboscidea althaeifolia*	2 seed pods	<1
308	705522	3732317	Desert unicorn plant	*Proboscidea althaeifolia*	1 seed pod	0.01
309	705566	3732589	Desert unicorn plant	*Proboscidea althaeifolia*	1 seed pod	0.04
310	706429	3732270	Desert unicorn plant	*Proboscidea althaeifolia*	1	0.2
311	705645	3732465	Desert unicorn plant	*Proboscidea althaeifolia*	1seed pod	<1
312	705989	3732451	Desert unicorn plant	*Proboscidea althaeifolia*	1 seed pod	<1
313	706784	3732204	Desert unicorn plant	*Proboscidea althaeifolia*	2 seed pods	<1
314	706428	3732271	Desert unicorn plant	*Proboscidea althaeifolia*	1	<1
315	707795	3732483	Desert unicorn plant	*Proboscidea althaeifolia*	1 seed pod	<1
317	706251	3731975	Desert unicorn plant	*Proboscidea althaeifolia*	1	<1
318	707502	3731617	Desert unicorn plant	*Proboscidea althaeifolia*	1	<1
319	708607	3731791	Desert unicorn plant	*Proboscidea althaeifolia*	4 seed pods	100
320	706919	3731281	Desert unicorn plant	*Proboscidea althaeifolia*	1 seed pod	<1
321	707694	3731280	Desert unicorn plant	*Proboscidea althaeifolia*	4 seed pods	<1
322	707707	3731231	Desert unicorn plant	*Proboscidea althaeifolia*	1	<1

Map Number	UTM NAD(83)		Species		Population Size (Number of Plants or Abundance)[1]	Area (square meters)
323	707602	3731311	Desert unicorn plant	*Proboscidea althaeifolia*	1	
324	707565	3731316	Desert unicorn plant	*Proboscidea althaeifolia*	1	
325	708151	3731169	Desert unicorn plant	*Proboscidea althaeifolia*	1 seed pod	<1
326	709302	3731576	Desert unicorn plant	*Proboscidea althaeifolia*	1	0.003
328	705579	3730554	Desert unicorn plant	*Proboscidea althaeifolia*	1	
329	705806	3730892	Desert unicorn plant	*Proboscidea althaeifolia*	3 seed pods	100
330	705641	3730899	Desert unicorn plant	*Proboscidea althaeifolia*	1	0.01
331	706332	3730668	Desert unicorn plant	*Proboscidea althaeifolia*	8 seed pods	100
332	706361	3730656	Desert unicorn plant	*Proboscidea althaeifolia*	1	0.005
333	705959	3730625	Desert unicorn plant	*Proboscidea althaeifolia*	1	0.02
334	706295	3730619	Desert unicorn plant	*Proboscidea althaeifolia*	1	0.1
335	706059	3730567	Desert unicorn plant	*Proboscidea althaeifolia*	20 - 30 seed pods	100
336	705902	3730509	Desert unicorn plant	*Proboscidea althaeifolia*	1 seed pod	30
337	705784	3730494	Desert unicorn plant	*Proboscidea althaeifolia*	1	50
338	706147	3730574	Desert unicorn plant	*Proboscidea althaeifolia*	2	
339	705800	3730494	Desert unicorn plant	*Proboscidea althaeifolia*	2	
340	705954	3730644	Desert unicorn plant	*Proboscidea althaeifolia*	1	
341	706860	3730768	Desert unicorn plant	*Proboscidea althaeifolia*	>19	In approx. 170 meter segment of runnel
342	706711	3730746	Desert unicorn plant	*Proboscidea althaeifolia*	1 seed pod	0.01
343	706702	3730686	Desert unicorn plant	*Proboscidea althaeifolia*	15 seed pods	200
344	707933	3730777	Desert unicorn plant	*Proboscidea althaeifolia*	1 seed pod	<1
345	707499	3730603	Desert unicorn plant	*Proboscidea althaeifolia*	2 seed pods	40
346	707975	3730532	Desert unicorn plant	*Proboscidea althaeifolia*	1 seed pod	<1
347	708161	3730763	Desert unicorn plant	*Proboscidea althaeifolia*	1 seed pod	<1
348	708756	3730672	Desert unicorn plant	*Proboscidea althaeifolia*	1 seed pod	<1
349	708279	3730579	Desert unicorn plant	*Proboscidea althaeifolia*	1 seed pod	<1
350	705375	3730029	Desert unicorn plant	*Proboscidea althaeifolia*	1	<0.1
351	705339	3730008	Desert unicorn plant	*Proboscidea althaeifolia*	3	55
352	705793	3730001	Desert unicorn plant	*Proboscidea althaeifolia*	1 seed pod	<1
353	706148	3730088	Desert unicorn plant	*Proboscidea althaeifolia*	1	3
354	707135	3730128	Desert unicorn plant	*Proboscidea althaeifolia*	6 seed pods	1
355	706897	3730139	Desert unicorn plant	*Proboscidea althaeifolia*	3 seed pods	<1
356	706973	3730164	Desert unicorn plant	*Proboscidea althaeifolia*	1	0.25
357	707129	3730352	Desert unicorn plant	*Proboscidea althaeifolia*	1 seed pod	<1

Map Number	UTM NAD(83)		Species		Population Size (Number of Plants or Abundance)[1]	Area (square meters)
358	707452	3730459	Desert unicorn plant	*Proboscidea althaeifolia*	1 seed pod	<1
359	708430	3730447	Desert unicorn plant	*Proboscidea althaeifolia*	1 seed pod	<1
360	708784	3730394	Desert unicorn plant	*Proboscidea althaeifolia*	1 seed pod	<1
361	709458	3730177	Desert unicorn plant	*Proboscidea althaeifolia*	1	
1	711296	3726514	Harwood's milkvetch	*Astragalus insularis var. harwoodii*	1	0.001
2	709820	3725527	Harwood's milkvetch	*Astragalus insularis var. harwoodii*	>300	50
3	707870	3721937	Harwood's milkvetch	*Astragalus insularis var. harwoodii*	6	10
26 7079	12	3731651	Harwood's milkvetch	*Astragalus insularis var. harwoodii*	50 1,500	
27 7082	47	3731645	Harwood's milkvetch	*Astragalus insularis var. harwoodii*	5	15
28 7083	45	3731570	Harwood's milkvetch	*Astragalus insularis var. harwoodii*	4	5
29 7081	18	3731559	Harwood's milkvetch	*Astragalus insularis var. harwoodii*	27 2	
30 7082	71	3731492	Harwood's milkvetch	*Astragalus insularis var. harwoodii*	4	2
31 7086	77	3731408	Harwood's milkvetch	*Astragalus insularis var. harwoodii*	1	0.05
32 7086	11	3731386	Harwood's milkvetch	*Astragalus insularis var. harwoodii*	20 10	
33 7087	78	3731270	Harwood's milkvetch	*Astragalus insularis var. harwoodii*	>30 10	
34 7085	79	3731191	Harwood's milkvetch	*Astragalus insularis var. harwoodii*	10 10	
35 7087	37	3730621	Harwood's milkvetch	*Astragalus insularis var. harwoodii*	1	<1
36 7104	64	3730574	Harwood's milkvetch	*Astragalus insularis var. harwoodii*	1	300
37 7110	61	3730542	Harwood's milkvetch	*Astragalus insularis var. harwoodii*	3	5
38 7103	90	3730487	Harwood's milkvetch	*Astragalus insularis var. harwoodii*	2	3
13 7082	14	3719053	Harwood's phlox	*Eriastrum harwoodii*	>100 See	comments
14 7079	76	3718830	Harwood's phlox	*Eriastrum harwoodii*	>200 See	comments
15 7076	30	3718920	Harwood's phlox	*Eriastrum harwoodii*	20 See	comments

Map Number	UTM NAD(83)		Species		Population Size (Number of Plants or Abundance)[1]	Area (square meters)
16 7058	62	3718841	Harwood's phlox	*Eriastrum harwoodii*	1	0.001
17 7024	84	3718368	Harwood's phlox	*Eriastrum harwoodii*	20 Not	noted
24 7021	77	3718304	Harwood's phlox	*Eriastrum harwoodii*	5	<1
25 7028	15	3718240	Harwood's phlox	*Eriastrum harwoodii*	40 See	comments
39 7032	15	3732047	Las Animas colubrina	*Colubrina californica*	5	30
40 7029	93	3732005	Las Animas colubrina	*Colubrina californica*	4	20
41 7032	57	3732138	Las Animas colubrina	*Colubrina californica*	3	20
42 7023	05	3731712	Las Animas colubrina	*Colubrina californica*	8	60
43 7029	94	3731936	Las Animas colubrina	*Colubrina californica*	>20 300	
44 7027	81	3731881	Las Animas colubrina	*Colubrina californica*	15 300	
45 7026	18	3731797	Las Animas colubrina	*Colubrina californica*	10 60	
46 7032	07	3731824	Las Animas colubrina	*Colubrina californica*	3	25
47 7032	51	3731841	Las Animas colubrina	*Colubrina californica*	2	12
48 7033	60	3731818	Las Animas colubrina	*Colubrina californica*	6	32
49 7034	34	3731788	Las Animas colubrina	*Colubrina californica*	10 28	
50 7037	66	3731773	Las Animas colubrina	*Colubrina californica*	1	4
51 7039	08	3731774	Las Animas colubrina	*Colubrina californica*	1	2
52 7046	61	3731605	Las Animas colubrina	*Colubrina californica*	3	20
53 7042	08	3731712	Las Animas colubrina	*Colubrina californica*	1	5
54 7031	83	3731371	Las Animas colubrina	*Colubrina californica*	1	2
55 7035	67	3731303	Las Animas colubrina	*Colubrina californica*	43 30,000	
56 7047	28	3731012	Las Animas colubrina	*Colubrina californica*	35 10	
57 7041	69	3730431	Las Animas colubrina	*Colubrina californica*	2	20
58 7044	05	3730428	Las Animas colubrina	*Colubrina californica*	1	4
59 7047	13	3730433	Las Animas colubrina	*Colubrina californica*	3	150
60 7050	71	3730518	Las Animas colubrina	*Colubrina californica*	5 - 6	15
61 7052	56	3730971	Las Animas colubrina	*Colubrina californica*	3	45
62 7050	32	3730904	Las Animas colubrina	*Colubrina californica*	2	8
63 7063	09	3730561	Las Animas colubrina	*Colubrina californica*	1	15
64 7060	46	3730486	Las Animas colubrina	*Colubrina californica*	1	10
65 7064	85	3730518	Las Animas colubrina	*Colubrina californica*	1	5
66 7039	18	3730287	Las Animas colubrina	*Colubrina californica*	3	380
67 7048	40	3730130	Las Animas colubrina	*Colubrina californica*	9-15 1,500	
68 7045	19	3730194	Las Animas colubrina	*Colubrina californica*	10-15 400	
69 7043	45	3730407	Las Animas colubrina	*Colubrina californica*	Not noted	Not noted

Map Number	UTM NAD(83)		Species		Population Size (Number of Plants or Abundance)[1]	Area (square meters)
70 7041	01	3730226	Las Animas colubrina	*Colubrina californica*	Not noted	Not noted
71 7049	44	3730284	Las Animas colubrina	*Colubrina californica*	3	200
72 7050	18	3730206	Las Animas colubrina	*Colubrina californica*	30 - 40	3,000
73 7053	49	3730282	Las Animas colubrina	*Colubrina californica*	1	4
74 7056	23	3730239	Las Animas colubrina	*Colubrina californica*	1	8
75 7057	65	3730320	Las Animas colubrina	*Colubrina californica*	2	50
4	708197	3718942	Ribbed cryptantha	*Cryptantha costata*	>75 See	comments
5	708005	3718801	Ribbed cryptantha	*Cryptantha costata*	>200 See	comments
6	704853	3718807	Ribbed cryptantha	*Cryptantha costata*	> 1,000	See comments
7	705412	3718859	Ribbed cryptantha	*Cryptantha costata*	Several 100	See comments
8	702430	3718403	Ribbed cryptantha	*Cryptantha costata*	>40 See	comments
9	711641	3728707	Utah cynanchum	*Funastrum utahense*	>50 plants	1.5
10 7098	36	3725532	Utah cynanchum	*Funastrum utahense*	100 1,000	
11 7083	15	3725119	Utah cynanchum	*Funastrum utahense*	>50	300 - 500
12 7078	44	3722857	Utah cynanchum	*Funastrum utahense*	6	5
76 7023	95	3732588	Utah cynanchum	*Funastrum utahense*	12 60	
77 7023	36	3732661	Utah cynanchum	*Funastrum utahense*	3	10
78 7023	95	3732718	Utah cynanchum	*Funastrum utahense*	10 80	
79 7022	81	3732716	Utah cynanchum	*Funastrum utahense*	10 100	
80 7021	51	3732712	Utah cynanchum	*Funastrum utahense*	8	100
81 7020	34	3732744	Utah cynanchum	*Funastrum utahense*	1	<1
82 7017	76	3732665	Utah cynanchum	*Funastrum utahense*	3	4
83 7021	49	3732642	Utah cynanchum	*Funastrum utahense*	8	75
84 7022	47	3732687	Utah cynanchum	*Funastrum utahense*	7	50
85 7022	02	3732614	Utah cynanchum	*Funastrum utahense*	8	85
86 7021	05	3732910	Utah cynanchum	*Funastrum utahense*	8	10
87 7020	20	3732794	Utah cynanchum	*Funastrum utahense*	4	10
88 7021	20	3732824	Utah cynanchum	*Funastrum utahense*	20 25	
89 7023	36	3732901	Utah cynanchum	*Funastrum utahense*	8	150
90 7023	23	3732838	Utah cynanchum	*Funastrum utahense*	4	<1
91 7021	57	3732790	Utah cynanchum	*Funastrum utahense*	8	40
92 7017	23	3732793	Utah cynanchum	*Funastrum utahense*	5	7
93 7018	54	3732884	Utah cynanchum	*Funastrum utahense*	6	20
94 7017	07	3732878	Utah cynanchum	*Funastrum utahense*	6	50
95 7019	80	3732937	Utah cynanchum	*Funastrum utahense*	1	1

Map Number	UTM NAD(83)			Species		Population Size (Number of Plants or Abundance)[1]	Area (square meters)
96	7018	50	3732985	Utah cynanchum	*Funastrum utahense*	1	1
97	7020	57	3733045	Utah cynanchum	*Funastrum utahense*	2	1
98	7023	81	3733128	Utah cynanchum	*Funastrum utahense*	10 4	
99	7019	69	3733107	Utah cynanchum	*Funastrum utahense*	2	2
100	7016	29	3733011	Utah cynanchum	*Funastrum utahense*	5	8
101	7017	11	3733091	Utah cynanchum	*Funastrum utahense*	4	15
102	7028	05	3732728	Utah cynanchum	*Funastrum utahense*	10 10	
103	7029	86	3732781	Utah cynanchum	*Funastrum utahense*	30 75	
104	7030	87	3732966	Utah cynanchum	*Funastrum utahense*	35 5,000	
105	7030	98	3733052	Utah cynanchum	*Funastrum utahense*	10 Not	noted
106	7026	32	3732949	Utah cynanchum	*Funastrum utahense*	8	70
107	7025	02	3732949	Utah cynanchum	*Funastrum utahense*	1	1
108	7025	42	3732857	Utah cynanchum	*Funastrum utahense*	49	Along 250 m stretch of wash
109	7027	13	3732909	Utah cynanchum	*Funastrum utahense*	3	1
110	7025	34	3732752	Utah cynanchum	*Funastrum utahense*	10 4	
111	7026	73	3732758	Utah cynanchum	*Funastrum utahense*	1	0.3
112	7025	93	3732735	Utah cynanchum	*Funastrum utahense*	10 10	
113	7033	82	3732597	Utah cynanchum	*Funastrum utahense*	8	170
114	7035	85	3732795	Utah cynanchum	*Funastrum utahense*	53 800	
115	7039	97	3733054	Utah cynanchum	*Funastrum utahense*	18 500	
116	7033	92	3732764	Utah cynanchum	*Funastrum utahense*	19 300	
117	7032	67	3733128	Utah cynanchum	*Funastrum utahense*	12 200	
118	7039	37	3732815	Utah cynanchum	*Funastrum utahense*	8	200
120	7044	62	3732903	Utah cynanchum	*Funastrum utahense*	5	10
121	7051	57	3732704	Utah cynanchum	*Funastrum utahense*	30 660	
122	7023	89	3732241	Utah cynanchum	*Funastrum utahense*	10 4	
123	7021	52	3732141	Utah cynanchum	*Funastrum utahense*	14 500	
124	7023	30	3732283	Utah cynanchum	*Funastrum utahense*	3	10
125	7019	99	3732043	Utah cynanchum	*Funastrum utahense*	3	4
126	7021	66	3732374	Utah cynanchum	*Funastrum utahense*	8	20,000
127	7022	29	3732299	Utah cynanchum	*Funastrum utahense*	3	9
128	7019	48	3732217	Utah cynanchum	*Funastrum utahense*	6	400
129	7021	55	3732456	Utah cynanchum	*Funastrum utahense*	4	2,000
130	7018	99	3732493	Utah cynanchum	*Funastrum utahense*	1	2.5
131	7022	63	3732577	Utah cynanchum	*Funastrum utahense*	1	1

Map Number	UTM NAD(83)		Species		Population Size (Number of Plants or Abundance)[1]	Area (square meters)
132 7019	74	3732548	Utah cynanchum	*Funastrum utahense*	7	500
133 7023	34	3732357	Utah cynanchum	*Funastrum utahense*	2	0.5
134 7029	46	3732068	Utah cynanchum	*Funastrum utahense*	2	4
135 7027	68	3732078	Utah cynanchum	*Funastrum utahense*	50 - 60	1,287
136 7025	30	3732196	Utah cynanchum	*Funastrum utahense*	10 30	
137 7027	27	3732536	Utah cynanchum	*Funastrum utahense*	15 50	
138 7028	31	3732584	Utah cynanchum	*Funastrum utahense*	21 100	
139 7026	18	3732342	Utah cynanchum	*Funastrum utahense*	1	1
140 7029	86	3732339	Utah cynanchum	*Funastrum utahense*	70 100	
141 7037	12	3732253	Utah cynanchum	*Funastrum utahense*	50 - 100	200
142 7035	39	3732237	Utah cynanchum	*Funastrum utahense*	10 - 20	800
143 7036	47	3732426	Utah cynanchum	*Funastrum utahense*	30 50	
144 7043	14	3732119	Utah cynanchum	*Funastrum utahense*	30 50	
145 7048	05	3732239	Utah cynanchum	*Funastrum utahense*	2	2
146 7047	82	3732269	Utah cynanchum	*Funastrum utahense*	2	2
147 7045	64	3732223	Utah cynanchum	*Funastrum utahense*	20 20	
148 7044	29	3732155	Utah cynanchum	*Funastrum utahense*	10 20	
149 7042	14	3732065	Utah cynanchum	*Funastrum utahense*	>50 200	
150 7041	33	3732180	Utah cynanchum	*Funastrum utahense*	2	3
151 7045	21	3732290	Utah cynanchum	*Funastrum utahense*	1	1
152 7041	54	3732377	Utah cynanchum	*Funastrum utahense*	6	120
153 7040	50	3732348	Utah cynanchum	*Funastrum utahense*	3	20
154 7042	09	3732417	Utah cynanchum	*Funastrum utahense*	12 60	
155 7041	85	3732454	Utah cynanchum	*Funastrum utahense*	3	5
156 7044	23	3732453	Utah cynanchum	*Funastrum utahense*	8	10
157 7047	24	3732555	Utah cynanchum	*Funastrum utahense*	8	10
158 7045	41	3732485	Utah cynanchum	*Funastrum utahense*	1	1
159 7047	09	3732499	Utah cynanchum	*Funastrum utahense*	2	2
160 7045	86	3732342	Utah cynanchum	*Funastrum utahense*	3	5
161 7053	78	3732347	Utah cynanchum	*Funastrum utahense*	20 500	
162 7055	16	3732400	Utah cynanchum	*Funastrum utahense*	3	10
163 7052	91	3732511	Utah cynanchum	*Funastrum utahense*	Not noted	170
164 7039	55	3732248	Utah cynanchum	*Funastrum utahense*	12 600	
165 7024	11	3732038	Utah cynanchum	*Funastrum utahense*	2	2
166 7023	90	3731982	Utah cynanchum	*Funastrum utahense*	35 1,500	

Map Number	UTM NAD(83)		Species		Population Size (Number of Plants or Abundance)[1]	Area (square meters)
167	7022 95	3731782	Utah cynanchum	*Funastrum utahense*	8	80
168	7023 23	3731669	Utah cynanchum	*Funastrum utahense*	1	0.25
169	7023 75	3731621	Utah cynanchum	*Funastrum utahense*	3	1.5
170	7021 15	3731931	Utah cynanchum	*Funastrum utahense*	7	40
171	7031 44	3731933	Utah cynanchum	*Funastrum utahense*	4	150
172	7025 24	3731651	Utah cynanchum	*Funastrum utahense*	15 5	
173	7026 59	3731753	Utah cynanchum	*Funastrum utahense*	14 150	
174	7029 27	3731840	Utah cynanchum	*Funastrum utahense*	30 300	
175	7031 42	3731702	Utah cynanchum	*Funastrum utahense*	2	1
176	7027 85	3731700	Utah cynanchum	*Funastrum utahense*	6	180
177	7027 85	3731627	Utah cynanchum	*Funastrum utahense*	Not noted	Not noted
178	7031 90	3731575	Utah cynanchum	*Funastrum utahense*	3	40
179	7028 90	3732022	Utah cynanchum	*Funastrum utahense*	3	10
180	7024 85	3731999	Utah cynanchum	*Funastrum utahense*	12 30	
181	7026 30	3731915	Utah cynanchum	*Funastrum utahense*	5	20
182	7033 52	3732014	Utah cynanchum	*Funastrum utahense*	40 2,402	
183	7033 39	3731757	Utah cynanchum	*Funastrum utahense*	15 15	
184	7037 40	3731732	Utah cynanchum	*Funastrum utahense*	25 20	
185	7034 16	3731620	Utah cynanchum	*Funastrum utahense*	154 144	
186	7036 51	3731594	Utah cynanchum	*Funastrum utahense*	73 70	
187	7038 98	3731638	Utah cynanchum	*Funastrum utahense*	15 - 20	20
188	7039 85	3731548	Utah cynanchum	*Funastrum utahense*	13 10	
189	7039 82	3731946	Utah cynanchum	*Funastrum utahense*	8	6
190	7040 20	3731942	Utah cynanchum	*Funastrum utahense*	18 200	
192	7050 12	3731548	Utah cynanchum	*Funastrum utahense*	8	10
193	7055 70	3731635	Utah cynanchum	*Funastrum utahense*	Not noted	Not noted
194	7054 28	3732038	Utah cynanchum	*Funastrum utahense*	2	1
195	7056 41	3731836	Utah cynanchum	*Funastrum utahense*	2	10
196	7056 99	3731624	Utah cynanchum	*Funastrum utahense*	4	4
197	7031 81	3731477	Utah cynanchum	*Funastrum utahense*	1	0.25
198	7028 89	3731470	Utah cynanchum	*Funastrum utahense*	3	0.5-1
199	7027 84	3731478	Utah cynanchum	*Funastrum utahense*	1 - 3	0.5
200	7027 80	3731400	Utah cynanchum	*Funastrum utahense*	10 5	
201	7028 78	3731440	Utah cynanchum	*Funastrum utahense*	15 5	
202	7029 16	3731482	Utah cynanchum	*Funastrum utahense*	3 - 8	2

Map Number	UTM NAD(83)		Species		Population Size (Number of Plants or Abundance)[1]	Area (square meters)
203	7029 96	3731450	Utah cynanchum	*Funastrum utahense*	75 - 100	In approx. 200 meter segment of wash
204	7030 42	3731396	Utah cynanchum	*Funastrum utahense*	11	In approx. 60 meter segment of wash
205	7030 79	3731357	Utah cynanchum	*Funastrum utahense*	5	1
206	7029 68	3731230	Utah cynanchum	*Funastrum utahense*	40	In approx. 60 meter segment of wash
207	7030 46	3731218	Utah cynanchum	*Funastrum utahense*	125 - 150	In approx. 270 meter of 3 connected drainages
208	7031 59	3731341	Utah cynanchum	*Funastrum utahense*	1	<1
209	7030 64	3731298	Utah cynanchum	*Funastrum utahense*	30 - 50	In 165 meter segment of wash
210	7031 94	3731156	Utah cynanchum	*Funastrum utahense*	10 - 15	In approx. 25 meter segment of wash
211	7030 72	3731048	Utah cynanchum	*Funastrum utahense*	15 - 20	In approx. 110 meter segment of wash
212	7032 14	3731063	Utah cynanchum	*Funastrum utahense*	5	2
213	7031 44	3730963	Utah cynanchum	*Funastrum utahense*	15 - 20	In approx. 90 meter segment of wash
214	7039 40	3731428	Utah cynanchum	*Funastrum utahense*	56 1,500	
215	7035 75	3731488	Utah cynanchum	*Funastrum utahense*	33 30,000	
216	7034 46	3731369	Utah cynanchum	*Funastrum utahense*	3	8
217	7032 57	3731310	Utah cynanchum	*Funastrum utahense*	9	800
218	7034 33	3731170	Utah cynanchum	*Funastrum utahense*	39 2000	
219	7032 61	3731002	Utah cynanchum	*Funastrum utahense*	20 20,000	
220	7036 18	3731006	Utah cynanchum	*Funastrum utahense*	13 15,000	
221	7039 86	3731096	Utah cynanchum	*Funastrum utahense*	3	500
222	7037 18	3731013	Utah cynanchum	*Funastrum utahense*	1	Not noted
223	7040 13	3731129	Utah cynanchum	*Funastrum utahense*	7	2,000
224	7037 32	3731088	Utah cynanchum	*Funastrum utahense*	6	22,500
225	7038 98	3731269	Utah cynanchum	*Funastrum utahense*	36 40,000	
226	7047 23	3731441	Utah cynanchum	*Funastrum utahense*	2	2
227	7040 44	3731136	Utah cynanchum	*Funastrum utahense*	5	10
228	7041 98	3730987	Utah cynanchum	*Funastrum utahense*	7	20
229	7044 59	3731474	Utah cynanchum	*Funastrum utahense*	3	2
230	7040 66	3731320	Utah cynanchum	*Funastrum utahense*	6	20
231	7043 15	3731307	Utah cynanchum	*Funastrum utahense*	2	1
232	7047 72	3731365	Utah cynanchum	*Funastrum utahense*	1	1

Map Number	UTM NAD(83)		Species		Population Size (Number of Plants or Abundance)[1]	Area (square meters)
233 7051	64	3731514	Utah cynanchum	*Funastrum utahense*	18 100	
234 7050	07	3731167	Utah cynanchum	*Funastrum utahense*	33 300	
235 7050	41	3731053	Utah cynanchum	*Funastrum utahense*	13 75	
236 7054	66	3731452	Utah cynanchum	*Funastrum utahense*	82 450	
237 7049	73	3731418	Utah cynanchum	*Funastrum utahense*	11 150	
238 7037	16	3730429	Utah cynanchum	*Funastrum utahense*	80	In approx. 460 meter segment of wash and associated runnels
239 7040	14	3730509	Utah cynanchum	*Funastrum utahense*	20 30	
240 7040	22	3730546	Utah cynanchum	*Funastrum utahense*	10 10	
241 7037	65	3730573	Utah cynanchum	*Funastrum utahense*	23	In approx. 120 meter segment of wash
242 7035	71	3730531	Utah cynanchum	*Funastrum utahense*	110	In approx. 130 meter segment of wash and associated drainages
243 7035	06	3730619	Utah cynanchum	*Funastrum utahense*	116	In approx. 310 meter segment of wash and connected drainages
244 7038	22	3730700	Utah cynanchum	*Funastrum utahense*	30	In approx. 200 meter segment of wash and connected drainages
245 7039	89	3730835	Utah cynanchum	*Funastrum utahense*	10 1	
246 7035	25	3730780	Utah cynanchum	*Funastrum utahense*	136	In approx. 260 meter segment of wash
247 7038	51	3730949	Utah cynanchum	*Funastrum utahense*	35 20	
248 7039	41	3730919	Utah cynanchum	*Funastrum utahense*	20 2	
249 7034	32	3730864	Utah cynanchum	*Funastrum utahense*	78	In approx. 310 meter segment of wash and connected drainages
250 7034	93	3730956	Utah cynanchum	*Funastrum utahense*	10 1	
251 7033	52	3730703	Utah cynanchum	*Funastrum utahense*	45 40	
252 7040	75	3730429	Utah cynanchum	*Funastrum utahense*	47 1,000	
253 7043	58	3730485	Utah cynanchum	*Funastrum utahense*	33 40	
254 7040	58	3730527	Utah cynanchum	*Funastrum utahense*	101	In 280 meter segment of wash and 30 meters of connected runnel
255 7045	49	3730621	Utah cynanchum	*Funastrum utahense*	1	1
256 7047	39	3730622	Utah cynanchum	*Funastrum utahense*	12 10	
257 7047	77	3730868	Utah cynanchum	*Funastrum utahense*	17 220	
258 7043	92	3730729	Utah cynanchum	*Funastrum utahense*	35 - 40	250
259 7043	14	3730892	Utah cynanchum	*Funastrum utahense*	9	40
260 7040	94	3730902	Utah cynanchum	*Funastrum utahense*	31 - 40	200
261 7051	43	3730474	Utah cynanchum	*Funastrum utahense*	10 4	

Map Number	UTM NAD(83)		Species		Population Size (Number of Plants or Abundance)[1]	Area (square meters)
262 7051	28	3730605	Utah cynanchum	*Funastrum utahense*	41 300	
263 7053	43	3730561	Utah cynanchum	*Funastrum utahense*	6	30
264 7054	01	3730530	Utah cynanchum	*Funastrum utahense*	2	0.5
265 7051	46	3730530	Utah cynanchum	*Funastrum utahense*	1	1
266 7057	94	3730920	Utah cynanchum	*Funastrum utahense*	1	0.5
267 7063	59	3730632	Utah cynanchum	*Funastrum utahense*	several 5	
268 7056	58	3730472	Utah cynanchum	*Funastrum utahense*	10 30	
269 7058	31	3730460	Utah cynanchum	*Funastrum utahense*	20 50	
270 7037	88	3730009	Utah cynanchum	*Funastrum utahense*	6	10
271 7035	88	3730254	Utah cynanchum	*Funastrum utahense*	200	In 265 m segment of wash
272 7039	89	3730270	Utah cynanchum	*Funastrum utahense*	25 240	
273 7037	83	3730402	Utah cynanchum	*Funastrum utahense*	80 - 100	6,450
274 7039	78	3730229	Utah cynanchum	*Funastrum utahense*	1	<1
277 7048	30	3730174	Utah cynanchum	*Funastrum utahense*	Not noted	Not noted
278 7047	35	3730314	Utah cynanchum	*Funastrum utahense*	5-10 20	
279 7044	45	3730371	Utah cynanchum	*Funastrum utahense*	20 50	
280 7052	28	3730425	Utah cynanchum	*Funastrum utahense*	20 - 25	90
281 7049	16	3730235	Utah cynanchum	*Funastrum utahense*	20 - 30	45
282 7050	08	3730209	Utah cynanchum	*Funastrum utahense*	15 - 25	30
283 7054	04	3730178	Utah cynanchum	*Funastrum utahense*	10 12	
284 7052	81	3730202	Utah cynanchum	*Funastrum utahense*	30 - 50	20
285 7055	59	3730042	Utah cynanchum	*Funastrum utahense*	50 - 75	400
286 7054	20	3730025	Utah cynanchum	*Funastrum utahense*	50 - 75	35
287 7048	57	3729964	Utah cynanchum	*Funastrum utahense*	30 - 50	60
288 7049	64	3729989	Utah cynanchum	*Funastrum utahense*	300 - 400	3,150
290 7056	38	3729991	Utah cynanchum	*Funastrum utahense*	5	3
292 7058	91	3730009	Utah cynanchum	*Funastrum utahense*	75 - 100	400
293 7056	64	3730062	Utah cynanchum	*Funastrum utahense*	14 1,550	
294 7072	07	3730113	Utah cynanchum	*Funastrum utahense*	81 4,400	
295 7066	63	3730121	Utah cynanchum	*Funastrum utahense*	50 8,000	
363 7047	99	3732802	Utah cynanchum	*Funastrum utahense*	40 150	
364 7065	22	3731000	Utah cynanchum	*Funastrum utahense*	1	1

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APPENDIX H

FIGURE OF DESERT TORTOISE OBSERVATIONS SPRING 2011 AND CORRESPONDING TABLE

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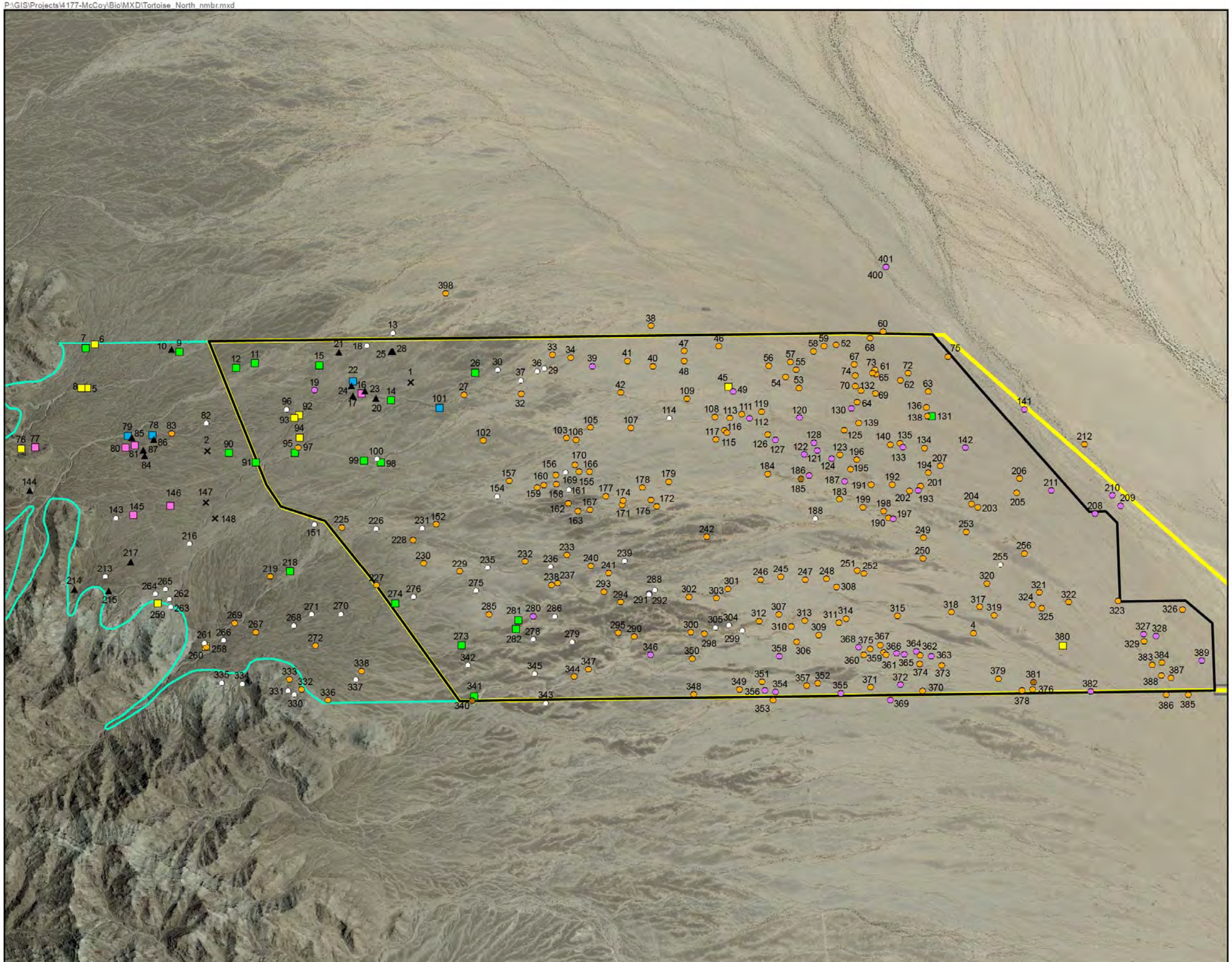

McCOY SOLAR ENERGY PROJECT RIVERSIDE COUNTY, CA

Legend

Tortoise Sign

- Tortoise
- Burrow - Class 1
- Burrow - Class 2
- Burrow - Class 3
- Burrow - Class 4
- Scat
- Carcass
- Egg Shells
- Shell fragment < 4 years old
- Shell fragment > 4 years old
- Shell fragment (perminerailzed)
- MSEP Solar Plant Site Boundary
- Solar Plant Site Survey Area
- Proposed Linear Corridor
- Proposed Colorado River Substation (SCE)
- Potential Primary Tortoise Recipient (Translocation) Area

N

0 0.25 0.5 1
Miles

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

APPENDIX H
DESERT TORTOISE SURVEY OBSERVATIONS
SPRING 2011

TETRA TECH EC, INC.

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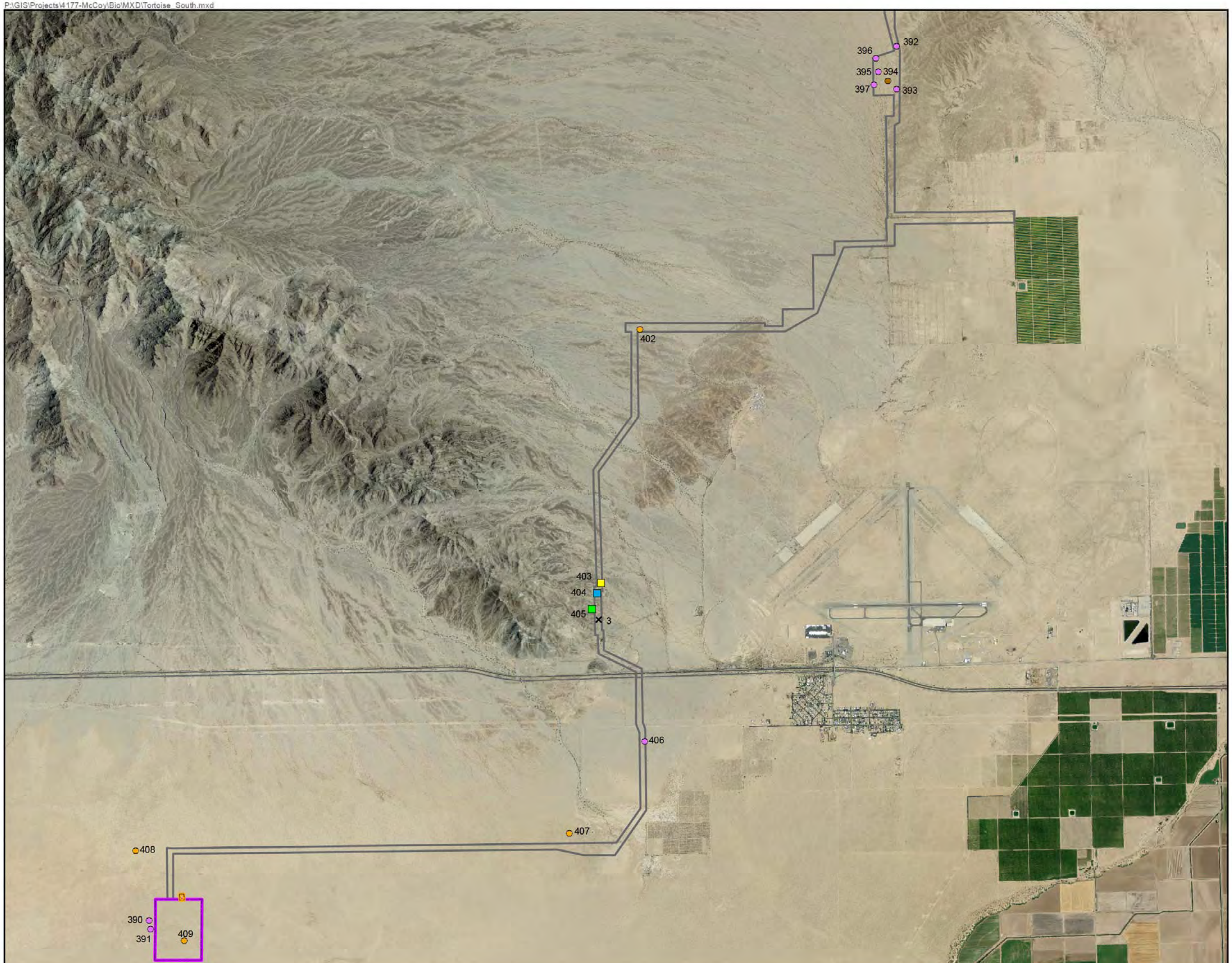

McCOY SOLAR
ENERGY PROJECT
RIVERSIDE COUNTY, CA

Legend

Tortoise Sign
- Tortoise
- Burrow - Class 1
- Burrow - Class 2
- Burrow - Class 3
- Burrow - Class 4
- Scat
- Carcass
- Egg Shells
- Shell fragment < 4 years old
- Shell fragment > 4 years old
- Shell fragment (permineralized)
- MSEP Solar Plant Site Boundary
- Solar Plant Site Survey Area
- Proposed Linear Corridor
- Proposed Colorado River Substation (SCE)
- Switchyard

N

0 0.5 1 2
Miles

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

APPENDIX H
DESERT TORTOISE SURVEY OBSERVATIONS
SPRING 2011

TETRA TECH EC, INC.

APPENDIX H

DESERT TORTOISE SIGN FOUND DURING SPRING 2011 FIELD SURVEYS

Number Corresponding to Figure	UTM NAD 83		Sign Type	Age	Comments
	E	N			
1	703357	3732758	Tortoise		Adult male located outside of burrow. Looks healthy, no evidence of disease.
2	701562	3732138	Tortoise		Tortoise inside caliche burrow, in wash bank. Burrow is <1 m deep.
3	707872	3721761	Tortoise		Tortoise in burrow found at sunset during Phase III burrowing owl surveys. Same burrow as Sign MS22B4.
147 7015	55	3731682	Tortoise	See comments	250 mm tortoise, 2 m inside 280 mm caliche cave (Class 1) in 2 m wash wall. Two other good caves nearby with no sign.
148	701634	3731540	Tortoise	Adult	245 mm male walking out in open, face looks good.
5	700500	3732689	Burrow	Class 3	370 mm; > 3 m deep (can't see back); in caliche edge of incised wash (5 m). Flat plastron mark on burrow floor, three scat (NTY 3).
6	700568	3733077	Burrow	Class 3	Class 3 caliche cave, 1 m wide (narrows inside) by 1.5 m deep; at edge of incised wash. One scat (25 mm).
7	700487	3733042	Burrow	Class 4	400 mm; > 1.5 m deep; caliche, very clean, flat floor; in wall of incised wash.
8	700452	3732687	Burrow	Class 3	Two burrows. Class 3 caliche caves, 300 mm. Tracked up by rodents. One burrow 1.5 m deep with two scats (NTY, 22 mm and 23 mm), other burrow 1 m deep.
9	701313	3733012	Burrow	Class 4	360 mm. Located in incised wash. 1.2 m deep. Clean. No other tortoise sign.
11	701982	3732921	Burrow	Class 4	300 mm. Caliche cave. No scat, clean.
12	701818	3732876	Burrow	Class 4	500 mm. Caliche cave. Good soil apron. Flat and clean. No scat. Five nice caves within 30 m.
14	703189	3732601	Burrow	Class 4	600 mm. High on caliche cutback. >2.5 m deep. Pack rat midden excavated. No tracks or scat.
15	702552	3732905	Burrow	Class 4	200-300 mm. Burrow located in deeply incised wash with two nice caliche caves.
16	702851	3732766	Burrow	Class 1	260 mm wide burrow. Dirt burrow in soil under *Larrea tridentata* near desert pavement; > three m in length. Very large mound. Scat TY1 (still moist) 2 m from entrance.

Number Corresponding to Figure	UTM NAD 83		Sign Type	Age	Comments
	E	N			
17	702927	3732660	Burrow	Class 2	490 mm. Large caliche cave near top edge of 5 m deep, large incised wash. No scat but clear footprints inside/near entrance. Distinct trail from rim down to burrow entrance. Burrow is 2.5 m deep.
26	703930	3732852	Burrow	Class 4	Side of shallow wash under *Bebbia juncea.*
45	706170	3732743	Burrow	Class 3	Located under *Encelia farinosa*. Nice shape, less than 0.5 m deep.
76	699924	3732151	Burrow	Class 3	Class 3, 280 mm-wide burrow; northwest facing on hillside. Two scat (NTY 3).
77	700044	3732164	Burrow	Class 2	Class 2 burrow (400 mm, 1 m deep). Seven scat: four are (NTY 3), three (NTY 2), average 23 cm.
78	701084	3732275	Burrow	Class 1	390 mm. Wash bank caliche cave. > 1 m deep (back not seen). Very recent tracks - 200 mm wide.
79	700867	3732269	Burrow	Class 1	410 mm. Wash bank caliche cave. >1 m deep (back not seen). Two scat (TY2). Floor entrance flat.
80	700924	3732187	Burrow	Class 2	Class 2 burrow; 510 mm; > 1 m deep; located in wash bank upper. Also second caliche burrow 5 m away with good cover; >10 scat on burrow and bib (19-22 mm wide). Possible tracks but substrate not good for tracks.
81	700846	3732163	Burrow	Class 2	Class 2 burrow 450 mm wide, 2 m deep (back seen). Caliche burrow with 7 scat (NTY and TY 2).
90	701758	3732124	Burrow	Class 4	360 mm. by 1.5 m deep. Caliche, clean, tortoise shaped.
91	701998	3732040	Burrow	Class 4	Two burrows. 310 mm. One burrow 1400 mm deep, other burrow 900 mm deep. Caliche, clean, tortoise shaped.
92	702378	3732464	Burrow	Class 3	340 mm wide by 360 mm deep; in incised wash.
93	702335	3732440	Burrow	Class 3	340 mm by > 800mm deep. Located under *Lycium sp*. in deep, incised wash.
94	702381	3732267	Burrow	Class 3	1 m caliche burrow in incised wash, one scat in burrow. Pack rat midden inside.
95	702342	3732130	Burrow	Class 4	360 mm. by 1.5 m deep. Caliche, clean, tortoise shaped.
98	703104	3732049	Burrow	Class 4	39 cm, caliche cave. No tracks or scat.
99	702951	3732064	Burrow	Class 4	35 cm, caliche cave. No tracks or scat.

Number Corresponding to Figure	UTM NAD 83		Sign Type	Age	Comments
	E	N			
101	703616	3732539	Burrow	Class 1	55 cm. Caliche cave in incised vegetated wash. 80 cm deep. Distinct, fresh, plastron track at back. Freshly scuffed soil of appropriate size for an adult tortoise as well as a few divots which might be tortoise tracks near front. An active Class 4 caliche cave is 3 m away.
131	707969	3732497	Burrow	Class 4	280 mm. In kit fox natal den.
145	700916	3731570	Burrow	Class 2	Class 2 burow, 600 mm by > 1 m deep. Caliche wall 2 m tall above wash. One scat.
146	701245	3731653	Burrow	Class 2	270 mm pallet located in soil on side of runnel.
218	702306	3731083	Burrow	Class 4	290 mm. In incised, bouldery wash. Nice looking caliche cave, flat bottom. No scat.
258	701569	3730411	Burrow	Class 3	Class 3 burrow with two entrances, larger is 750 mm, 3.5 m deep in caliche, broad overhang. Obvious rodent use. Two scat on mound, four inside (largest scat 23 mm, NTY 3). 10 m west, more caliche complexes on wash wall.
259	701138	3730789	Burrow	Class 3	Class 3 burrow, 0.5 m by 1.5 m deep in caliche. Two scat on apron (NTY3), dark scat.
273	703826	3730439	Burrow	Class 4	340 mm. Burrow located in wash bank, caliche gravel, north-facing. Depth >1 m, cannot see end. Classic tortoise shape. Only rodent scat inside. No recent activity.
274	703238	3730806	Burrow	Class 4	340 mm. Burrow located in wash bank, caliche, north-facing. Depth 0.5 m. No tortoise sign.
281	704325	3730664	Burrow	Class 4	280 mm. Burrow located in wash bank. 400 mm deep. Perfect tortoise shape but rodent tracks inside.
282	704308	3730588	Burrow	Class 4	380 mm. Burrow located in incipient wash. Round bottom trench at mouth of burrow may suggest nest. Deeper within the tunnel the bottom flattens out; much more tortoise shaped.
340	703943	3729993	Burrow	Class 4	270 mm., 1 m deep. In north bank of small wash connecting to larger wash. Caliche cave very tortoise shaped, flat floor. No other tortoise sign. (Inactive).
380	709140	3730475	Burrow	Class 3	230 mm. Located under *Pleuraphis rigida*.
403	707903	3722230	Burrow	Class 3	Two burrows: 316 mm, 350 mm. Under *Olneya tesota*; no scat, small amount of debris from *O. tesota*.
404	707858	3722103	Burrow	Class 1	294 mm; in gentle slope; no vegetation. Fresh tracks and digging.

Number Corresponding to Figure	UTM NAD 83		Sign Type	Age	Comments
	E	N			
405	707790	3721901	Burrow	Class 4	410 mm; in north bank of small wash; gravelly substrate; 0.8 m deep. Excellent form and clean but no recent use and no other sign.
13	703201	3733199	Carcass	2-3	275 mm, male.
18	702970	3733081	Carcass	>4	Adult. Evidence of cutaneous dyskeratosis. Plastron bone mostly intact. Several scutes, other fragments within 50 m.
29	704540	3732891	Carcass	>4	85 percent of plastron intact. >25 bones disarticulated.
30	704127	3732877	Carcass	>4	50 percent of plastron intact. >20 bones disarticulated.
36	704476	3732868	Carcass	>4	Adult. Scattered shell fragments, 1/2 plastron, and 1/4 carapace within a 30 m radius. Gular chewed when alive.
37	704333	3732787	Carcass	>4	Adult. Half plastron and disarticulated shell fragments and scutes. Gular chewed when alive.
82	701557	3732387	Carcass	>4	Adult male. 265 mm. 75 percent of carcass. Bullet hole in shell.
96	702268	3732515	Carcass	>4	240 mm. Female, 80 percent of shell intact.
100	703067	3732083	Carcass	2-3	Large adult male. Several large fragments, about 40 percent.
114	705648	3732464	Carcass	>4	Adult. Significant portion of disarticulated plastron.
143	700766	3731544	Carcass	>4	Adult. 65 percent of plastron.
151	702521	3731502	Carcass	>4	Adult. Male, 85 percent of shell, plastron intact, carapace partially disarticulated.
154	704134	3731761	Carcass	>4	Adult. Very large, just off road.
155	704732	3731976	Carcass	>4	Adult. Large plastron piece 70 m to west.
161	704765	3731823	Carcass	2-4	Adult. Half plastron, one scute. Remaining carcass disarticulated within approximately 20 m.
188	706947	3731586	Carcass	>4	Adult. 30 percent disarticulated.
213	700673	3731025	Carcass	>4	230 mm female. 60 percent disarticulated carcass in boulder field.
216	701417	3731322	Carcass	>4	Adult female, disarticulated. In runnel bottom.
226	703064	3731467	Carcass	>4	Adult. One half of carcass. Fragments scattered over approximately 40 meters.
231	703473	3731476	Carcass	>4	Adult; half tortoise.
235	704054	3731129	Carcass	>4	Adult. Disarticulated carcass.
236	704608	3731144	Carcass	>4	Adult. 75 percent of plastron.
239	705263	3731197	Carcass	>4	Adult male. Disarticulated.
255	708586	3731191	Carcass	>4	Adult. Most likely male. Old shell and plastron and old scutes (50 percent of carcass).

Number Corresponding to Figure	UTM NAD 83		Sign Type	Age	Comments
	E	N			
261	701556	3730445	Carcass	>4	Adult female; nearly 100 percent of shell present but disarticulated, scutes present.
262	701257	3730763	Carcass	>4	Adult female; 70 percent of shell remains, disarticulated.
263	701241	3730828	Carcass	>4	Adult; 30 percent of shell remains.
264	701116	3730873	Carcass	>4	Adult; 50 percent of plastron intact.
265	701205	3730917	Carcass	>4	Adult; 50 percent; disarticulated.
266	701724	3730470	Carcass	>4	Adult male; 30 percent of carcass on desert pavement.
268	702344	3730605	Carcass	>4	Adult male; 50 percent of carcass in wash/cobble.
270	702761	3730711	Carcass	>4	Adult; 15-20 percent of carcass. In runnel/wash.
271	702501	3730706	Carcass	>4	Adult female; 15-20 percent of carcass. In cobble outflow.
275	703951	3730924	Carcass	>4	Adult male; < 5 percent of carcass. Fragments also found up wash.
276	703400	3730865	Carcass	>4	Adult male; 60 percent of carcass. Fragment also found 70 m down wash.
278	704458	3730499	Carcass	>4	Adult, female. Disarticulated and scattered shell, most of plastron, many other bones.
279	704804	3730479	Carcass	>4	300 mm male. No obvious cause of death: intact, right side up, slight chewing on anterior right marginals and nuchal.
286	704649	3730702	Carcass	>4	Adult; 20 percent present; three scutes and fragments scattered over approximately 30 m.
291	705531	3730943	Carcass	>4	Adult male; 20 percent of carcass present. Three to four other pieces found in a 20 m radius. Gular present.
292	705481	3730903	Carcass	>4	Adult; 20 percent of carcass present. Gular present.
299	706308	3730589	Carcass	>4	Adult male. Approximately 30 fragments, 20 percent of shell. Fragments in runnel within 40 m.
304	706186	3730636	Carcass	>4	Adult. 25 percent of entire shell and two attached scutes. On desert pavement, scattered over 20 m.
305	706069	3730616	Carcass	>4	Small adult. 35 fragments, 20 percent of shell.
330	702352	3729996	Carcass	>1	Several juvenile scutes in coyote scat.
331	702297	3730029	Carcass	4	PLN 250 mm. Partially disarticulated male; shell broken in several pieces. Likely depredated.
334	701892	3730087	Carcass	4	230 MCL. Mostly intact carcass. Female, plastron intact. Carapace disarticulating. Carapace broken - likely cause of death depredation.

Number Corresponding to Figure	UTM NAD 83		Sign Type	Age	Comments
	E	N			
335	701712	3730093	Carcass	2-4	Probably male. Five plates disarticulated or broken.
337	702895	3730134	Carcass	>1	Hatchling scutes in >1 yr. old kit fox scat (or small coyote).
342	703886	3730265	Carcass	2-4	Plastron. PLN = 190 mm in wash bottom.
343	704574	3729938	Carcass	>4	Adult. Likely male. 60 percent shell bones, 40 percent scutes. Possible depredation (possibly mountain lion) or shell broken apart and spread around.
345	704475	3730194	Carcass	2-4	Adult. Six scutes, seven bones scattered over 20 m in wash bottom.
179	705646	3731899	Scute	>4	Several fragments spread over 60 m
19 7025	10	3732685	Shell fragment	>>4 One	fragment.
33 7046	11	3733014	Shell fragment	>4 One	fragment.
34 7047	74	3732989	Shell fragment	>4	One adult fragment.
38 7054	80	3733277	Shell fragment	>4	One adult fragment.
39 7049	66	3732914	Shell fragment	>>4	One adult fragment.
40 7054	98	3732918	Shell fragment	>4	One immature fragment.
41 7052	76	3732963	Shell fragment	>4 One	fragment.
42 7052	18	3732684	Shell fragment	>4 One	fragment.
46 7060	82	3733100	Shell fragment	>4 One	fragment.
47 7057	73	3733054	Shell fragment	>4 One	fragment.
48 7057	74	3732965	Shell fragment	>4 One	fragment.
49 7062	12	3732704	Shell fragment	>>4	One adult fragment.
50 7071	24	3233342	Shell fragment	<4 One	fragment.
52 7071	15	3733120	Shell fragment	>4	One disarticulated piece.
54 7066	73	3732831	Shell fragment	>4	One disarticulated piece.
55 7067	65	3732896	Shell fragment	>4	One disarticulated piece.
56 7065	25	3732931	Shell fragment	>4	One disarticulated piece.
58 7069	16	3733061	Shell fragment	>4	One disarticulated piece.
59 7070	12	3733107	Shell fragment	>4	One disarticulated piece.

Number Corresponding to Figure	UTM NAD 83		Sign Type	Age	Comments
	E	N			
60 7075	32	3733242	Shell fragment	>4	Subadult, one small fragment.
63 7079	34	3732716	Shell fragment	>4	Subadult, one plastron fragment.
64 7074	67	3732693	Shell fragment	>4	One disarticulated piece.
67 7072	82	3732947	Shell fragment	>4	One disarticulated piece.
68 7074	17	3733181	Shell fragment	>4	One disarticulated piece.
70 7072	91	3732756	Shell fragment	>4	Disarticulated piece; probably part of Sign 69.
72 7077	55	3732873	Shell fragment	>4	One disarticulated piece.
73 7074	42	3732870	Shell fragment	>4	One disarticulated piece; probably part of Sign 61.
74 7072	90	3732851	Shell fragment	>4	One disarticulated piece.
75 7081	08	3733023	Shell fragment	>4	One disarticulated piece.
97 7023	72	3732176	Shell fragment	>4	Adult. One marginal found in incised wash.
103 7047	38	3732277	Shell fragment	>4 One	fragment.
105 7049	53	3732372	Shell fragment	>4	One adult fragment.
106 7048	24	3732263	Shell fragment	>4	One adult fragment.
107 7053	09	3732372	Shell fragment	>4 One	fragment.
109 7058	04	3732634	Shell fragment	>4	One adult fragment.
111 7062	91	3732501	Shell fragment	>4 One	fragment.
113 7061	84	3732467	Shell fragment	>4 One	fragment.
115 7061	38	3732358	Shell fragment	>4	Juvenile; one fragment.
116 7061	60	3732334	Shell fragment	>4	Adult; one fragment.
117 7060	61	3732275	Shell fragment	>4	Adult; one fragment.
120 7067	99	3732475	Shell fragment	>>4	Subadult or greater; one fragment.
121 7069	58	3732183	Shell fragment	>>4	Adult; one fragment.
122 7068	46	3732148	Shell fragment	>>4 One	fragment.
124 7070	87	3732114	Shell fragment	>>4 One	fragment.
127 7065	87	3732275	Shell fragment	>>4	Probably adult; one fragment.

Number Corresponding to Figure	UTM NAD 83		Sign Type	Age	Comments
	E	N			
128 7069	28	3732252	Shell fragment	>>4	Adult; one fragment.
130 7072	59	3732562	Shell fragment	>>4	Adult; one fragment. Probable plastron fragment - may not be tortoise.
133 7076	90	3732252	Shell fragment	>4 One	fragment.
134 7079	04	3732215	Shell fragment	>4	Adult; one fragment.
135 7077	13	3732218	Shell fragment	>>4	Adult; one fragment.
136 7079	21	3732575	Shell fragment	>4 One	fragment.
139 7073	22	3732431	Shell fragment	>4 One	fragment.
140 7076	04	3732242	Shell fragment	>4 One	fragment.
141 7087	88	3732563	Shell fragment	>>4 One	fragment.
142 7082	68	3732218	Shell fragment	>>4	Adult; one fragment.
157 7042	36	3731896	Shell fragment	>4	Adult; one fragment.
160 7044	86	3731841	Shell fragment	>4	Adult; one fragment.
163 7048	45	3731633	Shell fragment	>4	Adult. Many fragments in a tight cluster.
166 7049	47	3731981	Shell fragment	>4	Adult. Single plastron fragment.
167 7049	52	3731646	Shell fragment	>4	Adult. One fragment n shallow wash.
169 7048	51	3731980	Shell fragment	>4	Adult; one fragment.
170 7048	16	3732041	Shell fragment	>4	Adult; one fragment; may be from same tortoise as Sign 169.
171 7052	37	3731693	Shell fragment	>4	Adult; one fragment in shallow wash.
174 7052	47	3731730	Shell fragment	>4	Adult; two fragments in shallow runnel. Probably part of Sign 171.
177 7050	92	3731767	Shell fragment	>4	Adult; one fragment in shallow runnel.
178 7054	16	3731846	Shell fragment	>4	Adult; one fragment in shallow runnel.
184 7065	20	3731975	Shell fragment	>4	Small adult; one fragment.
186 7068	89	3731961	Shell fragment	>>4	Adult; one fragment.
187 7072	03	3731915	Shell fragment	>>4	Adult; one fragment.
190 7075	93	3731595	Shell fragment	>4 One	fragment.
192 7076	23	3731888	Shell fragment	>4 One	fragment.

Number Corresponding to Figure	UTM NAD 83		Sign Type	Age	Comments
	E	N			
195 7072	52	3732019	Shell fragment	>4 One	fragment.
196 7073	07	3732107	Shell fragment	>4 One	fragment.
201 7078	54	3731838	Shell fragment	>>4 One	fragment.
204 7083	25	3731724	Shell fragment	>4	Adult; one fragment.
205 7087	23	3731824	Shell fragment	>4	Immature; one fragment.
206 7087	47	3731949	Shell fragment	>4	Adult; one fragment.
207 7080	46	3732058	Shell fragment	>4	Adult; one fragment.
208 7094	20	3731645	Shell fragment	>>4	Adult; one fragment.
209 7096	44	3731715	Shell fragment	>>4	Adult; one fragment.
210 7095	70	3731807	Shell fragment	>>4	Adult; one fragment.
211 7090	29	3731848	Shell fragment	>>4	Adult; one fragment.
212 7093	20	3732258	Shell fragment	>4	Adult; one fragment.
225 7027	61	3731473	Shell fragment	>4	Adult; one fragment.
227 7030	72	3730964	Shell fragment	>4	Adult; one fragment.
229 7038	07	3731094	Shell fragment	>4	Adult; one fragment.
230 7034	85	3731164	Shell fragment	>4	Adult; one fragment.
233 7047	53	3731247	Shell fragment	>4 One	fragment.
237 7046	74	3730997	Shell fragment	>4	Small piece of plastron; likely part of Sign 238.
238 7046	20	3730979	Shell fragment	>4	Adult. Large piece plastron bridge.
241 7051	25	3731088	Shell fragment	>4	Adult; one fragment.
242 7059	89	3731416	Shell fragment	>4	One vertebral shell piece.
247 7068	60	3731040	Shell fragment	>4	Adult; one fragment.
250 7078	98	3731238	Shell fragment	>4	Subadult; one fragment.
252 7073	78	3731100	Shell fragment	>4 One	fragment.
260 7015	73	3730406	Shell fragment	>4	Adult; one fragment.
267 7020	09	3730542	Shell fragment	>4	Adult; one fragment in cobble outflow.

Number Corresponding to Figure	UTM NAD 83		Sign Type	Age	Comments
	E	N			
269 7018	23	3730622	Shell fragment	>4	Adult; one fragment on ledge of wash.
272 7025	37	3730427	Shell fragment	>4	Adult; one fragment in wash.
285 7040	68	3730716	Shell fragment	>4	Adult; one fragment.
290 7053	53	3730530	Shell fragment	>4	Adult; one fragment.
293 7050	80	3730922	Shell fragment	>4	Adult; one fragment.
294 7052	32	3730831	Shell fragment	>4	Adult; one fragment.
295 7052	11	3730560	Shell fragment	>4 One	fragment.
300 7058	53	3730569	Shell fragment	>4	Adult; one fragment.
301 7061	76	3730955	Shell fragment	>4	Adult; three fragments over 60m.
302 7058	36	3730882	Shell fragment	>4	Adult; several broken and buried fragments. Very old.
306 7067	89	3730493	Shell fragment	>4	Adult; one fragment.
307 7066	29	3730735	Shell fragment	>4	Adult; one fragment.
308 7071	38	3730978	Shell fragment	>4	Adult; one fragment.
309 7069	84	3730554	Shell fragment	>4 One	fragment.
312 7064	54	3730672	Shell fragment	>4	Adult; one fragment.
313 7068	58	3730681	Shell fragment	>4	Adult; three fragments.
315 7076	78	3730727	Shell fragment	>4	Small adult; one fragment.
317 7084	04	3730813	Shell fragment	>4 One	fragment.
318 7081	53	3730764	Shell fragment	>4 One	fragment.
319 7085	32	3730741	Shell fragment	>4	Adult; one fragment.
321 7089	29	3730945	Shell fragment	>4	Adult; one fragment.
322 7091	89	3730861	Shell fragment	>4	Adult; one fragment.
323 7096	27	3730873	Shell fragment	>4	Adult; one fragment.
324 7088	71	3730837	Shell fragment	>4	Adult; one fragment.
325 7089	53	3730805	Shell fragment	>4	Adult; one fragment.
326 7101	99	3730801	Shell fragment	>4 One	fragment.

Number Corresponding to Figure	UTM NAD 83		Sign Type	Age	Comments
	E	N			
327 7098	53	3730583	Shell fragment	>>4	Adult; one fragment.
328 7099	65	3730569	Shell fragment	>>4	Adult; one fragment.
336 7026	52	3729946	Shell fragment	>4	Adult; one fragment.
338 7029	45	3730206	Shell fragment	>4	One vertebral bone fragment.
341 7039	23	3729952	Shell fragment	>1	Adult, probably male. One pygal scute.
347 7049	50	3730235	Shell fragment	>4	One fragment on edge of wash.
348 7058	85	3730023	Shell fragment	>4	Adult; one fragment.
350 7058	67	3730338	Shell fragment	>4	Adult; one fragment.
351 7064	86	3730138	Shell fragment	>4	Immature; one fragment.
353 7065	86	3729976	Shell fragment	>4	Adult; one fragment; may be part of Sign 56.
354 7066	06	3730051	Shell fragment	>>4	Adult; one fragment.
355 7071	81	3730041	Shell fragment	>>4	Adult; one fragment.
356 7065	09	3730063	Shell fragment	>>4	Adult; one fragment.
357 7068	82	3730105	Shell fragment	>4	Adult; one fragment.
358 7066	36	3730364	Shell fragment	>>4	Adult; one fragment.
359 7075	56	3730404	Shell fragment	>4	Adult; one fragment.
360 7075	81	3730382	Shell fragment	>4	Adult; one fragment.
361 7077	40	3730387	Shell fragment	>>4	Adult; one fragment.
362 7078	81	3730381	Shell fragment	>4	Adult; one fragment.
364 7078	45	3730415	Shell fragment	>>4	Adult; one fragment.
365 7076	74	3730397	Shell fragment	>>4 One	fragment.
368 7073	36	3730449	Shell fragment	>>4	Adult; one fragment.
369 7076	20	3729983	Shell fragment	>>4	Adult; one fragment.
370 7079	04	3730067	Shell fragment	>4	Immature; one fragment.
373 7080	72	3730295	Shell fragment	>4 One	fragment.
374 7078	78	3730306	Shell fragment	>4	One very old fragment.

Number Corresponding to Figure	UTM NAD 83		Sign Type	Age	Comments
	E	N			
375 7073	86	3730383	Shell fragment	>4	One very old fragment
378 7088	77	3730085	Shell fragment	>4	Immature; one small plastron fragment (anal area) 3 x 4 cm.
381 7088	85	3730150	Shell fragment	3	Subadult / immature; one fragment. Part of gular.
383 7099	32	3730311	Shell fragment	>4	Adult; one fragment.
384 7100	19	3730332	Shell fragment	>4	Adult; one fragment.
385 7102	52	3730050	Shell fragment	>4 One	fragment.
386 7100	59	3730048	Shell fragment	>4	Adult; one fragment.
388 7100	15	3730220	Shell fragment	>4 One	fragment.
389 7103	72	3730353	Shell fragment	>>4	Adult; one fragment.
390 7022	07	3717909	Shell fragment	>>4	Adult; one fragment.
391 7022	25	3717798	Shell fragment	>>4	Adult; one fragment.
392 7116	03	3729070	Shell fragment	>>4	Adult; one fragment.
393 7116	05	3728525	Shell fragment	>>4 One	fragment.
395 7113	73	3728748	Shell fragment	>>4 One	fragment.
396 7113	41	3728913	Shell fragment	>>4 One	fragment.
398 7036	65	3733550	Shell fragment	>4 One	fragment.
400 7075	54	3733813	Shell fragment	>>4	Adult; one fragment.
401 7075	54	3733813	Shell fragment	>>4	Adult; one fragment.
402 7083	73	3725453	Shell fragment	>4	Adult; one fragment.
406 7084	71	3720227	Shell fragment	>>4	Adult; one fragment.
408 7020	25	3718795	Shell fragment	>4 One	fragment.
4	708350	3730581	Shell fragments	>4	Adult; three fragments.
27 7038	33	3732654	Shell fragments	>4	Several fragments of adult tortoise.
32 7043	37	3732667	Shell fragments	>4 Three	fragments.
53 7067	91	3732737	Shell fragments	>4	Four disarticulated pieces.
57 7067	17	3732965	Shell fragments	>4	Adult; two disarticulated pieces.

Number Corresponding to Figure	UTM NAD 83		Sign Type	Age	Comments
	E	N			
61 7074	73	3732865	Shell fragments	>4	Adult; two fragments.
62 7076	90	3732812	Shell fragments	>4	Adult, one plastron fragment and another fragment.
65 7074	63	3732903	Shell fragments	>4	Three disarticulated pieces over 30 m; may be part of Sign 61.
69 7073	40	3732717	Shell fragments	>4	Two disarticulated pieces.
83 7012	51	3732290	Shell fragments	>4	Adult. 10 pieces.
102 7040	07	3732251	Shell fragments	>4 >10	small fragments.
108 7060	53	3732476	Shell fragments	>4	Adult; five fragments.
112 7063	58	3732464	Shell fragments	>>4	Adult; two fragments.
119 7064	61	3732526	Shell fragments	>4	Adult; several fragments.
123 7071	60	3732147	Shell fragments	>4	Adult. > 10 small to medium fragments.
125 7071	94	3732363	Shell fragments	>4	Large adult female. Several pieces of bone, very thin (osteoporotic).
126 7065	22	3732322	Shell fragments	>4	Adult; several fragments.
132 7073	07	3732617	Shell fragments	>4 Two	fragments.
138 7079	28	3732496	Shell fragments	>4	Immature or subadult; five fragments over 40 m.
152 7035	94	3731508	Shell fragments	>4	Adult; three fragments scattered within 50 foot radius.
156 7046	51	3731952	Shell fragments	>4	Adult; four fragments spread over 30 m.
158 7046	55	3731871	Shell fragments	>4 Two	fragments.
159 7045	45	3731860	Shell fragments	>4 Two	fragments.
162 7047	61	3731702	Shell fragments	>4	Adult; three fragments.
172 7055	44	3731681	Shell fragments	>4	Adult; several fragments out of wash. Very possibly part of Sign 175.
175 7054	93	3731734	Shell fragments	>4	Adult; several fragments out of runnel. Probably same tortoise as Sign 175.
183 7071	58	3731755	Shell fragments	>4	Adult. >15 highly disarticulated pieces. One marginal.
185 7068	15	3731931	Shell fragments	4	Adult; seven fragments.
191 7074	37	3731886	Shell fragments	>4	> 1 fragment scattered down runnel.
193 7078	74	3731875	Shell fragments	>4	Large adult; more than 10 years old; >1 fragment.
194 7079	40	3731998	Shell fragments	>4 >1	fragment.

Number Corresponding to Figure	UTM NAD 83		Sign Type	Age	Comments
	E	N			
197 7076	34	3731588	Shell fragments	>>4 >1	fragment.
198 7075	49	3731653	Shell fragments	>4	Several fragments within 20 m.
199 7073	66	3731688	Shell fragments	>4 >1	fragment.
202 7077	76	3731836	Shell fragments	>4	Adult; two fragments.
203 7083	80	3731695	Shell fragments	>4	Adult; approximately 20 fragments.
219 7021	32	3731035	Shell fragments	>4	Several fragments found in debris pile that had been pulled from caliche cave. Appears to be coyote excavation and fragments were brought in by pack rat.
228 7033	90	3731366	Shell fragments	>4	Several shell segments and fragments.
232 7043	82	3731187	Shell fragments	>4	Two fragments 10 m apart.
240 7049	67	3731151	Shell fragments	>4	Adult; two fragments.
245 7066	45	3731065	Shell fragments	>4	Adult; four fragments within 50 m.
246 7064	67	3731039	Shell fragments	>4	Adult. Three fragments within 20 m. One fragment was bridge piece.
248 7070	47	3731052	Shell fragments	>4 Three	fragments.
249 7079	02	3731424	Shell fragments	>4	Adult; eight fragments.
251 7073	21	3731123	Shell fragments	>4	Subadult; three fragments.
253 7082	82	3731476	Shell fragments	>4	Very old tortoise shell pieces; eight fragments (5 percent of carcass).
256 7087	95	3731288	Shell fragments	>4	Adult. Very old. Ten fragments (5 percent of carcass).
280 7044	58	3730700	Shell fragments	>>4	Several fragments at active kit fox natal den.
288 7054	79	3730909	Shell fragments	>>4	>1 fragment; 3-10 cm.
298 7059	72	3730558	Shell fragments	>4	Subadult; several fragments.
303 7060	76	3730873	Shell fragments	>4	Two fragments in runnel.
310 7067	40	3730627	Shell fragments	>4	Adult; three fragments.
311 7071	59	3730666	Shell fragments	>4 Four	fragments.
314 7072	22	3730701	Shell fragments	>4	Adult; three fragments
320 7084	68	3731020	Shell fragments	>4	Adult; two fragments, 30 m apart.
329 7098	60	3730521	Shell fragments	>4	Adult; two fragments.

Number Corresponding to Figure	UTM NAD 83		Sign Type	Age	Comments
	E	N			
332 7024	16	3730040	Shell fragments	>4	Adult, probably female (shell is thin); several fragments.
333 7023	11	3730128	Shell fragments	>4	Adult; several fragments.
344 7048	23	3730171	Shell fragments	>4	Three fragments within 20 m.
346 7054	98	3730366	Shell fragments	>>4	Adult. Four pieces within 2 m, 5th piece 20 m west in shallow swale of desert pavement.
349 7062	84	3730067	Shell fragments	>4	Adult; two fragments in 30 m.
352 7069	80	3730127	Shell fragments	>4	Adult; ten fragments.
363 7079	78	3730373	Shell fragments	>>4	Adult; three fragments within 50 m.
366 7074	38	3730433	Shell fragments	>4	Two fragments within 50 m.
367 7075	26	3730468	Shell fragments	>4	Three fragments within 5 m.
371 7074	44	3730097	Shell fragments	>4	Several fragments.
372 7077	09	3730120	Shell fragments	>>4	Adult. Two pieces within 40 m.
376 7087	85	3730076	Shell fragments	>4	Adult; five small fragments.
379 7085	73	3730180	Shell fragments	>4	Two fragments, <5 cm.
382 7093	89	3730075	Shell fragments	>>4	Adult; two fragments.
387 7101	00	3730199	Shell fragments	>4	Adult; four fragments.
394 7114	97	3728632	Shell fragments	3-4	Juvenile; two fragments.
397 7113	21	3728578	Shell fragments	>>4	Two fragments.
407 7075	26	3719050	Shell fragments	>4	Several scattered fragments.
409 7026	52	3717658	Shell fragments	>4	Small immature tortoise, about 15 percent of plastron.
10 7012	48	3733034	Scat	TY2	20 mm
20	703057	3732618	Scat	NTY3	Two dried scat; 22 mm.
21	702725	3733021	Scat	NTY4	20 mm. Large and mostly white.
22	702839	3732728	Scat	TY1	18 mm. Still moist.
23 7029	57	3732683	Scat	TY2	18 mm.
24	702852	3732638	Scat	NTY4	23 mm. Very old, almost white.
25 7032	00	3733032	Scat	NTY4	In open.
28	703187	3733032	Scat	NTY4	23 mm; located in runnel.
84	701016	3732096	Scat	NTY3	17 mm. One piece located on pavement. White, no odor.
85	700901	3732256	Scat	NTY2	22 mm; eight scat.
86	701094	3732239	Scat	TY2	19 mm; four scat.

Number Corresponding to Figure	UTM NAD 83		Sign Type	Age	Comments
	E	N			
87	701004	3732146	Scat	TY2	12 mm; one scat.
214	700402	3730910	Scat	TY2	18 mm. One scat in small runnel.
215	700704	3730897	Scat	TY1	17 mm. Two scat, still soft with sheen.
217	700899	3731160	Scat	NTY3	20 mm. In small runnel (*Chaenactis sp., Plantago ovata*).
144	700001	3731782	Scat	NTY4	19 mm; one scat.

APPENDIX I

FIGURE OF SPECIAL-STATUS BIRD OBSERVATIONS AND CORRESPONDING TABLE

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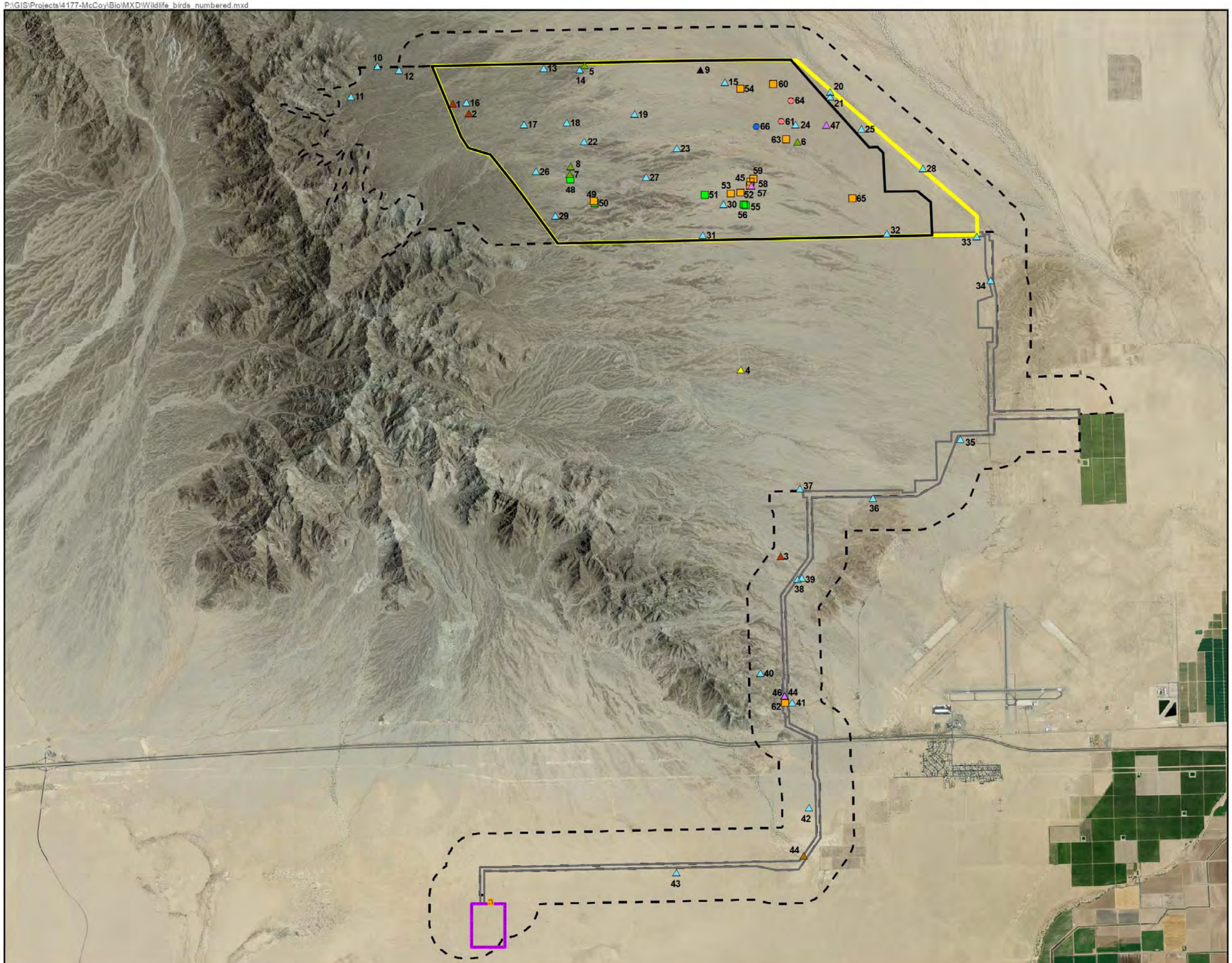

McCOY SOLAR ENERGY PROJECT RIVERSIDE COUNTY, CA

Legend

Species
- Brewer's sparrow
- Golden eagle
- Le Conte's thrasher
- Loggerhead shrike
- Prairie falcon
- Yellow Warbler

Phase II Burrowing Owl Survey Observations
- Bird
- Burrow
- Burrow (Inactive)
- White Wash
- White Wash and Pellets

- MSEP Solar Plant Site Boundary
- Solar Plant Site Survey Area
- Proposed Linear Corridor
- Proposed Colorado River Substation (SCE)
- Switchyard
- Extent of Area Surveyed

N

0 0.5 1 2

Miles

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

APPENDIX I SPECIAL-STATUS BIRDS OBSERVATIONS IN SPRING 2011

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APPENDIX I

SPECIAL-STATUS BIRD SPECIES OBSERVED DURING SPRING 2011 SURVEYS

Map Number	UTM NAD 83		Species		Sign Type	Comments
	E	N				
1	701944	3732434	Brewer's sparrow	*Spizella breweri*	Two individuals	Found feeding in *Acacia greggii.*
2	702227	3732262	Brewer's sparrow	*Spizella breweri*	Three individuals	Feeding in and out of *Acacia greggii.*
3	707793	3724371	Brewer's sparrow	*Spizella breweri*	Several individuals	Adults calling from *Cercidium floridum.*
44	707860	3721882	Burrowing owl	*Athene cunicularia*	Two individuals	Flushed to approx. 150 feet. Active burrow. Potential use by tortoise. Several holes possibly old kit fox.
45	707268	3730973	Burrowing owl	*Athene cunicularia*	One individual	Flying (landed nearby).
46	707858	3721876	Burrowing owl	*Athene cunicularia*	One individual	Eating mouse at entrance of burrow. Owl was flushed.
47	708609	3732056	Burrowing owl	*Athene cunicularia*	One individual	Flushed owl from roost site. It flew low and landed 50 m away - bobbed its head and left after a minute or so.
48	704038	3731093	Burrowing owl	*Athene cunicularia*	Burrow	Inactive. Some old pellets and whitewash in front of caliche cave.
49	704458	3730700	Burrowing owl	*Athene cunicularia*	Burrow	Whitewash at two entrances at an active kit fox natal den.
50	704472	3730665	Burrowing owl	*Athene cunicularia*	Burrow	Inactive. Old pellets and whitewash.
51	706434	3730812	Burrowing owl	*Athene cunicularia*	Burrow	Inactive. Kit fox den. whitewash.
52	706901	3730841	Burrowing owl	*Athene cunicularia*	Burrow	Not recent. Old. Old kit fox natal den (inactive) with moderate whitewash and old pellet at three entrances.
53	707070	3730857	Burrowing owl	*Athene cunicularia*	Burrow	Recent. Old kit fox natal den. Very recent burrowing owl sign (feathers, whitewash, pellets) abundant at six burrow entrances.
54	707070	3732708	Burrowing owl	*Athene cunicularia*	Burrow	Whitewash at two openings in an inactive kit fox natal den.
55	707135	3730642	Burrowing owl	*Athene cunicularia*	Burrow	Inactive. Less than 12 whitewash and one old pellet, not recent.
56	707162	3730628	Burrowing owl	*Athene cunicularia*	Burrow	Inactive.
57	707238	3730981	Burrowing owl	*Athene cunicularia*	Burrow	Not recent (?). Old kit fox natal den (inactive). Scant whitewash visible on five burrow entrances. No pellets observed.
58	707252	3731049	Burrowing owl	*Athene cunicularia*	Burrow	Used this year. whitewash and pellets and egg fragments.
59	707299	3731105	Burrowing owl	*Athene cunicularia*	Burrow	Used this year. Pellets and whitewash.
60	707655	3732789	Burrowing owl	*Athene cunicularia*	Burrow	Not recent. A lot of whitewash, two pellets. Old kit fox scat present.

Map Number	UTM NAD 83		Species		Sign Type	Comments
	E	N				
61	707798	3732127	Burrowing owl	*Athene cunicularia*	Burrow	Whitewash and pellets at one entrance of active kit fox natal den.
62	707872	3721761	Burrowing owl	*Athene cunicularia*	Burrow	Active. Old kit fox natal den. Whitewash with pellet (NTY). Tortoise burrow present is 390 mm; current tortoise use evidenced by tracks in one burrow (during evening burrowing owl surveys, tortoise was found in burrow).
63	707885	3731809	Burrowing owl	*Athene cunicularia*	Burrow	Recent whitewash and pellet.
64	707967	3732496	Burrowing owl	*Athene cunicularia*	Burrow	Whitewash and pellets present at three entrances of an active kit fox natal den.
65	709065	3730756	Burrowing owl (possible)	*Athene cunicularia*	Burrow	One speck of whitewash at one burrow at an inactive kit fox natal den.
66	707354	3732034	Burrowing owl	*Athene cunicularia*	Whitewash	Not this year.
4	707079	3727691	Golden eagle	*Aquila chrysaetos*	Two individuals	Observed soaring overhead along road (west side of Black Rock Rd.) above site at 0900 on March 28, 2011.
5	704292	3733122	Le Conte's thrasher	*Toxostoma lecontei*	Individual	Three individuals in dense vegetation of runnel.
6	708090	3731760	Le Conte's thrasher	*Toxostoma lecontei*	Individual	Adult walking and perching in low shrubs.
7	704024	3731181	Le Conte's thrasher	*Toxostoma lecontei*	Individual	Adult.
8	704047	3731319	Le Conte's thrasher	*Toxostoma lecontei*	Nest	Active nest with eggs.
10	700602	3733098	Loggerhead shrike	*Lanius ludovicianus*	Adult and nestlings	Adult flushed from nest in *Cercidium floridum*. Very small chicks in nest. Probably second clutch.
11	700132	3732566	Loggerhead shrike	*Lanius ludovicianus*	Fledgling	Recently fledged shrike flew across incised wash to *Cercidium floridum.*
12	700989	3733030	Loggerhead shrike	*Lanius ludovicianus*	Individual	Perched in *Cercidium floridum*. Flying from tree to tree.
13	703562	3733071	Loggerhead shrike	*Lanius ludovicianus*	Individual	Perched and in flight.
14	704206	3733045	Loggerhead shrike	*Lanius ludovicianus*	Individual and eggs	Flushed from *Cercidium floridum* and found nest with two eggs.
15	706795	3732822	Loggerhead shrike	*Lanius ludovicianus*	Individual	Adult flew by and perched on *Larrea tridentata.*
16	702185	3732456	Loggerhead shrike	*Lanius ludovicianus*	Two individuals	Perched on *Cercidium floridum* 50 m from each other.
17	703214	3732068	Loggerhead shrike	*Lanius ludovicianus*	Individual	Adult; heard calling.
18	703975	3732098	Loggerhead shrike	*Lanius ludovicianus*	Individual	Observed perching.
19	705182	3732253	Loggerhead shrike	*Lanius ludovicianus*	Individual	Perched on *Cercidium floridum*.
20	708675	3732644	Loggerhead shrike	*Lanius ludovicianus*	Individual	Adult; perched on *Olneya tesota* 30 m south.
21	708672	3732564	Loggerhead shrike	*Lanius ludovicianus*	Individuals	Two or more young in nest in *Olneya tesota*. Parent nearby.
22	704281	3731762	Loggerhead shrike	*Lanius ludovicianus*	Individual	Perched and flying.
23	705936	3731643	Loggerhead shrike	*Lanius ludovicianus*	Nest with young	Active nest with five young in *Cercidium floridum.*
24	708057	3732067	Loggerhead shrike	*Lanius ludovicianus*	Individual	Adult; perched on *Larrea tridentata.*
25	709231	3731988	Loggerhead shrike	*Lanius ludovicianus*	Individual	Adult; perched in *Olneya tesota* and flying.

Map Number	UTM NAD 83		Species		Sign Type	Comments
	E	N				
26 7034	28	3731234	Loggerhead shrike	*Lanius ludovicianus*	Two individuals	Adults.
27 7053	90	3731129	Loggerhead shrike	*Lanius ludovicianus*	Individual	Adult; perched and singing.
28 7103	25	3731281	Loggerhead shrike	*Lanius ludovicianus*	Individual	Adult; perched in *Olneya tesota.*
29 7037	71	3730433	Loggerhead shrike	*Lanius ludovicianus*	Individuals	Nest with three nestlings in *Cercidium floridum*. One adult flying.
30 7067	74	3730641	Loggerhead shrike	*Lanius ludovicianus*	Individual	Flying up washlet.
31 7063	99	3730094	Loggerhead shrike	*Lanius ludovicianus*	Adult and nest	Perched in *Cercidium floridum*. Stick nest with no eggs or chicks in same tree.
32 7096	81	3730123	Loggerhead shrike	*Lanius ludovicianus*	Individual Perched.	
33 7112	86	3730069	Loggerhead shrike	*Lanius ludovicianus*	Individual Flying.	
34 7115	39	3729290	Loggerhead shrike	*Lanius ludovicianus*	Two individuals	
35 7109	93	3726452	Loggerhead shrike	*Lanius ludovicianus*	Individual	Flying and perched in *Olneya tesota*.
36 7094	40	3725405	Loggerhead shrike	*Lanius ludovicianus*	Individuals	Pair of adults feeding fledged (two or more) young in an *Olneya tesota* (50 feet north of waypoint).
37 7081	32	3725579	Loggerhead shrike	*Lanius ludovicianus*	Individual	Perched on top of *Olneya tesota.*
38 7081	72	3723983	Loggerhead shrike	*Lanius ludovicianus*	Individuals	Perched in large *Olneya tesota* in wide wash; saw another adult and fledgling after.
39 7080	87	3723957	Loggerhead shrike	*Lanius ludovicianus*	Individual	
40 7074	33	3722286	Loggerhead shrike	*Lanius ludovicianus*	Two individuals	Adults: perched in *Olneya tesota.*
41 7080	00	3721761	Loggerhead shrike	*Lanius ludovicianus*	Individual	
42 7082	97	3719882	Loggerhead shrike	*Lanius ludovicianus*	Individual	Adult perched on *Olneya tesota.*
43 7059	30	3718729	Loggerhead shrike	*Lanius ludovicianus*	Individual In	*Larrea tridentata.*
9	706361	3733042	Prairie falcon	*Falco mexicanus*	Two individuals	Adults; in flight.
44 7082	04	3719027	Yellow warbler	*Dendroica petechia*	Individual	Observed during APC surveys

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APPENDIX J

AREAS SEARCHED AND RESULTS FOR PHASE III BURROWING OWL SURVEY OBSERVATIONS

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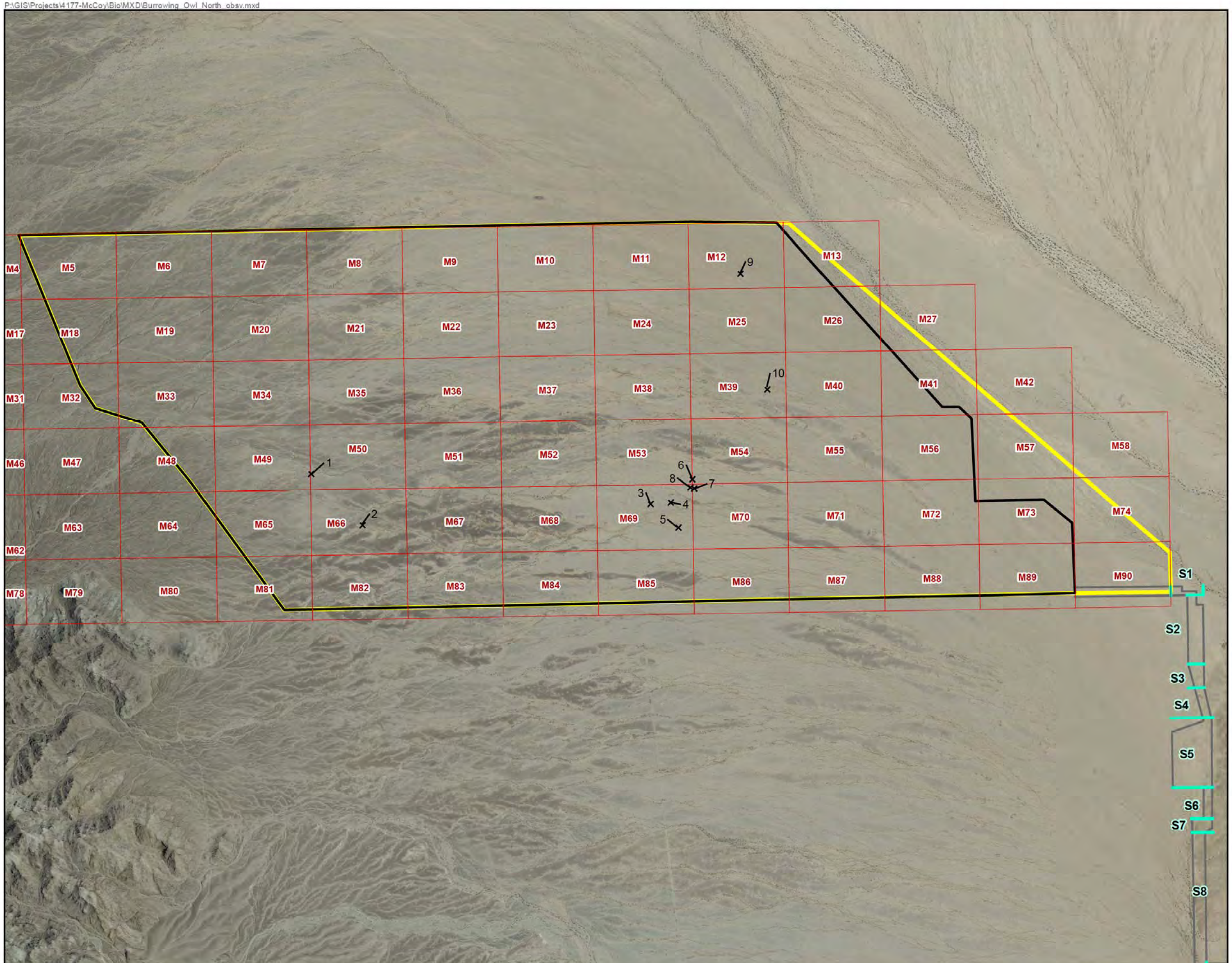


McCOY SOLAR ENERGY PROJECT RIVERSIDE COUNTY, CA

Legend

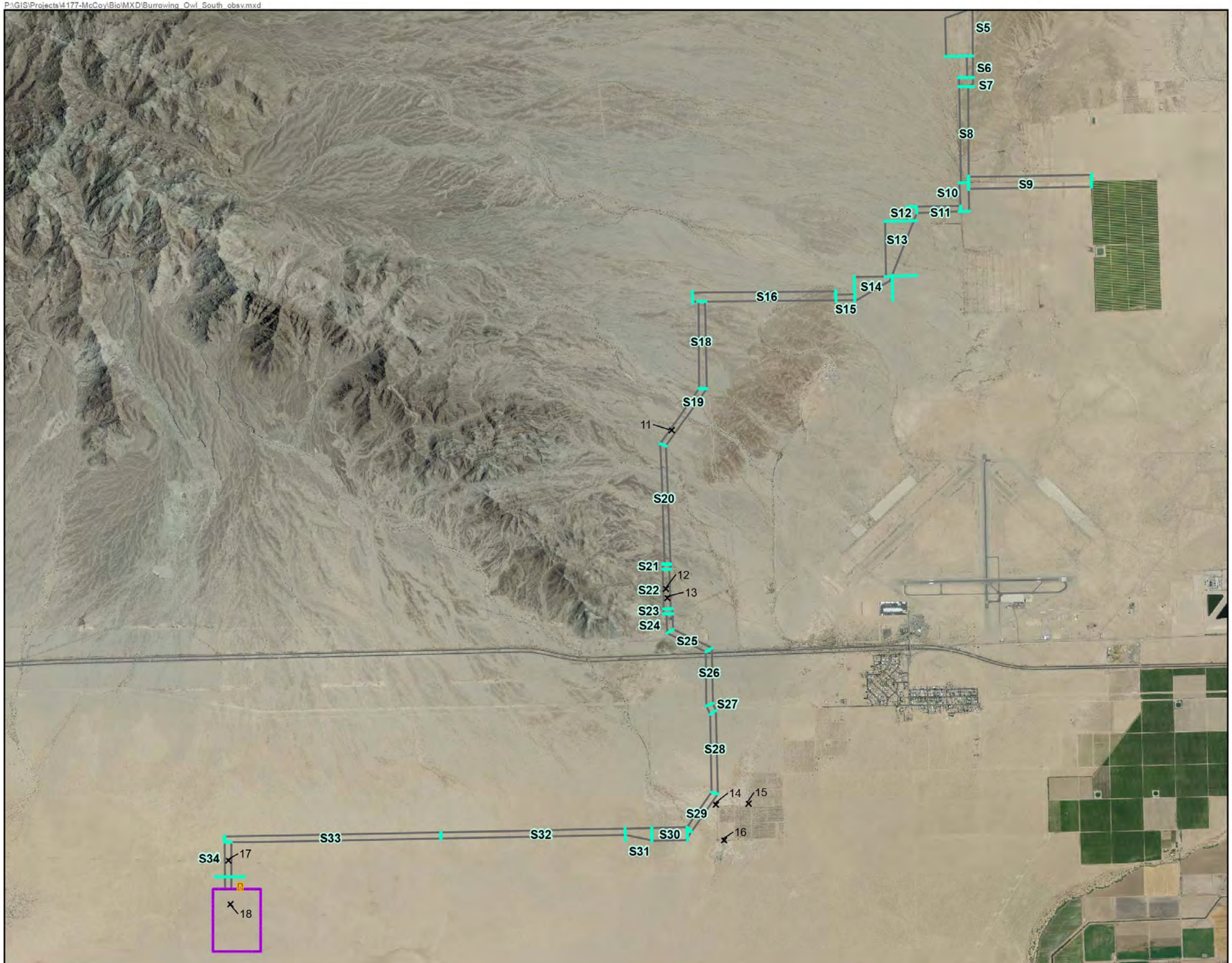
- × Burrows with Recent Burrowing Owl Sign
- MSEP Solar Plant Site Boundary
- Proposed Linear Corridor
- Solar Plant Site Survey Area
- Survey Grid
- Survey Segment Boundaries

0 1,000 2,000 4,000
Feet

Notes:
(a) UTM Zone 11, NAD 1983 Projection.
(b) Source data: ESRI, BLM, USGS 7.5' DRGs, TTEC

APPENDIX J
PHASE III BURROWING OWL OBSERVATIONS
SPRING 2011

TETRA TECH EC, INC.



McCOY SOLAR ENERGY PROJECT RIVERSIDE COUNTY, CA

Legend

- × Burrows with Recent Burrowing Owl Sign
- MSEP Solar Plant Site Boundary
- Proposed Linear Corridor
- Proposed Colorado River Substation (SCE)
- Switchyard
- Survey Segment Boundaries

N

0 2,000 4,000 8,000
Feet

Notes:
(a) UTM Zone 11, NAD 1983 Projection.
(b) Source data: ESRI, BLM, USGS 7.5' DRGs, TTEC

APPENDIX J
PHASE III BURROWING OWL OBSERVATIONS
SPRING 2011

TETRA TECH EC, INC.

APPENDIX J

AREAS SEARCHED AND RESULTS FOR PHASE III BURROWING OWL SURVEY OBSERVATIONS

Date	Observer	Time (Sunrise or Sunset)	Map Number	Areas Searched[1]	E	N	Phase III Observations / Comments
Part I April 18 - 21, 2011							
4/18/2011	Alexis Watts	Sunrise	4	M69 7070	70	3730856	Possible burrowing owl observed - unconfirmed. One bird flying low between *Larrea tridentata approx.* 75 meters beyond burrow complex to the east. Obscured by shrubs but size and flight would match burrowing owl.
			7	M69 7072	38	3730980	No activity. Very still and quiet.
			5	M69 7071	34	3730642	No activity. Very still and quiet.
			3	M69 7069	01	3730841	No activity. Very still and quiet.
			8	M70 7072	68	3730973	No activity. Very still and quiet.
4/18/2011	Alexis Watts	Sunset	9	M12 7076	60	3732786	Active. No activity at burrow. Eight pellets, old and new; twelve whitewash.
			10	M39 7078	86	3731808	Six old whitewash, few cobwebs on side of entrance. No pellets.
			6	M53 7072	52	3731049	No activity. Burrow has whitewash; no fresh pellets.
			5	M69 7071	34	3730642	Ten old whitewash. Cobwebs covering entrance.
			8	M70 7072	68	3730973	Old kit fox natal den with kit fox scat. Old whitewash, no new sign.
			3	M69 7069	01	3730841	Older burrow complex; whitewash visible. Too dark to see pellets.
			4	M69 7070	70	3730856	Active burrow complex. One owl flew from burrow complex. Not confirmed but probably owl due to flight and location.
4/18/2011	Shawn Lindey	Sunset	2	M66 7044	72	3730665	No burrowing owls observed old sign at burrow (whitewash and pellets). Burrow appears inactive.
			1	M49 7040	37	3731093	No burrowing owls observed old sign at burrow (whitewash and pellets). Burrow appears inactive.
4/19/2011	Shawn Lindey	Sunrise	2	M66 7044	72	3730665	No burrowing owls observed.
			1	M49 7040	37	3731093	No burrowing owls observed.
4/20/2011	Shawn Lindey Bill Hasskamp	Sunset	18	switchyard 7024	88	3717988	Sandy gravel flats, no burrowing owl sign observed.
			17	S34	702464	3718528	Dunes with no suitable burrowing owl habitat.
				Areas in and			No burrowing owls or sign observed.

Date	Observer	Time (Sunrise or Sunset)	Map Number	Areas Searched[1]	E	N	Phase III Observations / Comments
				adjacent to S26, S27, S28, S29			
			14	Berm adjacent to S29 near solar facility	708470	3719213	Too dark to see - listened for owls. No owls heard.
4/20/2011	Art Shaub	Sunset		S8 - S14 driving/walking surveys			No burrowing owls or sign observed.
4/20/2011	Corey Mitchell	Sunrise	12	S22	707858	3721875	Two adult burrowing owls present, perched near burrow.
			13	S22	707872	3721761	No activity, no recent sign. Tortoise facing out of one of the burrows.
				S19-S22 driving/walking surveys			No burrowing owls or sign observed.
			11	S19	707928	3723834	No activity observed.
4/21/2011	Corey Mitchell	Sunrise		S24-S26 driving/walking survey			No activity observed.
			12	S19	707858	3721875	Pair of burrowing owl adults on mound.
				S22-S22 driving/walking survey			No activity observed.
4/21/2011	Shawn Lindey, Bill Hasskamp, Jim Toney	Sunrise	15	Berm adjacent to S29 near solar facility	708874	3719229	No burrowing owls heard.
			16	7085	76	3718780	
				Walked in and adjacent to S29			No burrowing owls or sign observed.
				Walked area in and adjacent to S33			Dunes and sand, not much suitable habitat for burrowing owls. No burrowing owls or sign observed.
4/21/2011	Art Schaub, Carrie Warman	Sunrise		S9, S10, S13, S14, S16, S18 walking/driving surveys			No burrowing owls or sign observed.

Date	Observer	Time (Sunrise or Sunset)	Map Number	Areas Searched[1]	E	N	Phase III Observations / Comments
Part II June 14-16, 2011							
6/14/2011	Art Schaub	Sunset		M6, M7, M8, M19, M20, M21 walking surveys			No burrowing owls or sign observed.
6/14/2011	Nathan Mudry	Sunset 4		M69 7070	70	3730856	Two burrowing owls observed, possibly more.
				M71, M72, M73, M82, M88, M89 walking surveys			No burrowing owls or sign observed.
6/15/2011	Art Schaub	Sunrise 9		M12 7076	60	3732786	Inactive burrow. A lot of white wash still remains - no fresh sign.
				M9, M10, M22, M23, M36, M37 walking surveys			No burrowing owls or sign observed.
6/15/2011	Nathan Mudry	Sunrise		M26, M27, M40, M41, M55 , M56 walking surveys			No burrowing owls or sign observed.
6/15/2011	Nathan Mudry	Sunset		S1-S8 walking surveys			No burrowing owls or sign observed.
6/15/2011	Art Schaub	Sunset	12	S19	707858	3721875	Burrow no longer occupied - white wash and feather are still at burrow; cobwebs in front of hole; remains of a downy chick (likely burrowing owl) at front of burrow (dried and old); pile of adult burrowing owl feathers found four m from burrow - likely predated. When walking back through S22, one burrowing owl was observed flying low near this burrow, then disappeared. An adjacent hole was found with no burrowing owl sign but a clear entrance; could not see the back of this burrow. Returned to burrow after dusk; no sign observed.
			13	S22	707872	3721761	Inactive burrow - white wash and one pellet still present - no recent sign.
			11	S19	707928	3723834	Inactive burrow. No burrowing owl sign, but old kit fox scat present at entrance. Burrow located four m away has a lot of kit fox tracks and may be a natal den.
				S23, S24, S25 walking surveys			No burrowing owls or sign observed.

Date	Observer	Time (Sunrise or Sunset)	Map Number	Areas Searched[1]	E	N	Phase III Observations / Comments
6/16/2011	Art Schaub	Sunrise		S26, S27, S28, S29, S30, S31 walking surveys			No burrowing owls or sign observed.
6/16/2011	Nathan Mudry	Sunrise		S33, S34, switchyard			No burrowing owls or sign observed.

[1] "M" refer to cells on Solar Plant Site and S refers to segments on the Linear Corridor. See corresponding figure.

APPENDIX K

FIGURE OF SPECIAL-STATUS MAMMAL OBSERVATIONS AND CORRESPONDING TABLE

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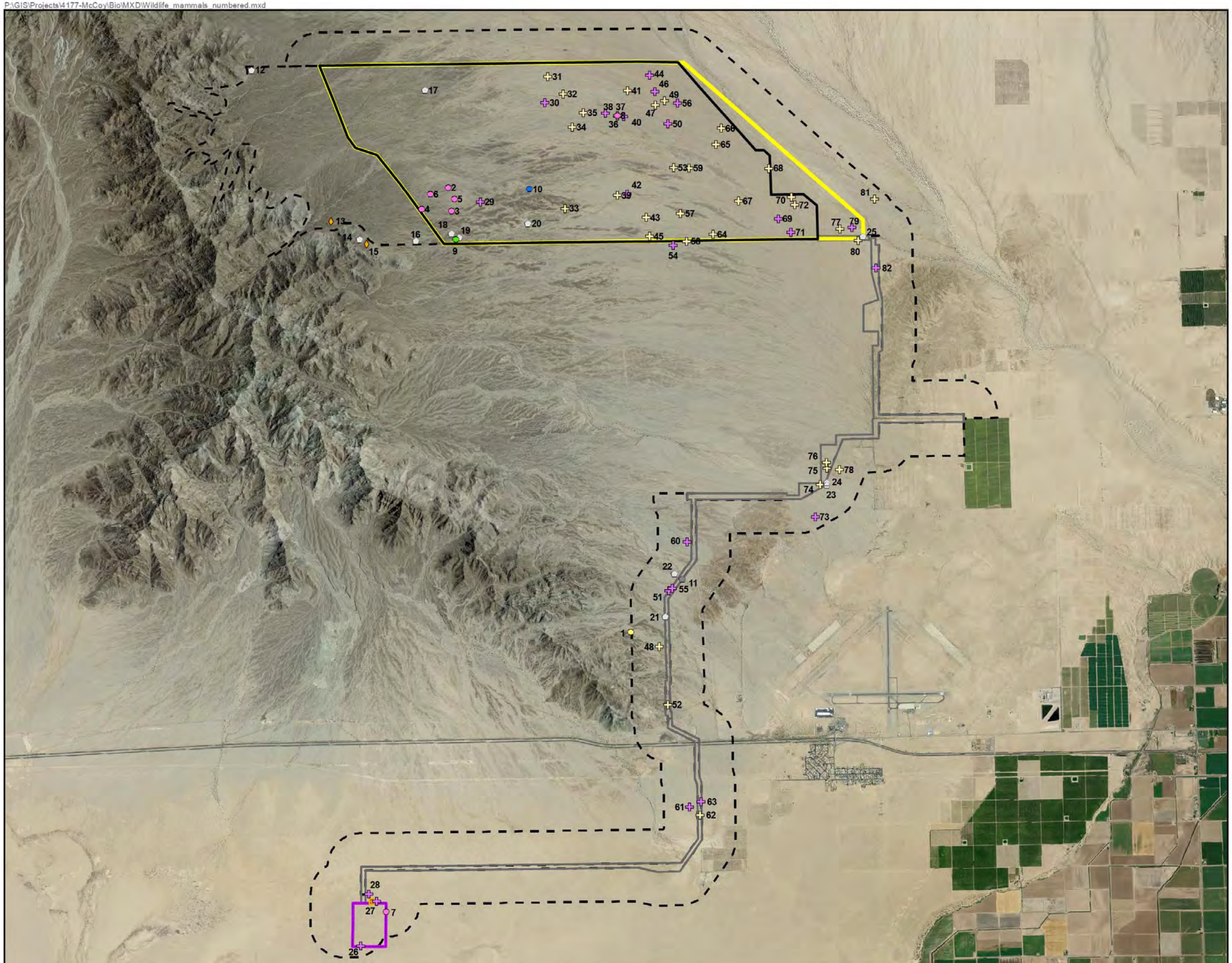

McCOY SOLAR ENERGY PROJECT RIVERSIDE COUNTY, CA

Legend

Species
- American badger
- American badger digs
- Burro deer hide
- Desert kit fox natal den (Active)
- Desert kit fox natal den (Inactive)
- Potential bat roost
- Mountain lion scat
- Wild burro scat
- Wild burro teeth

- MSEP Solar Plant Site Boundary
- Solar Plant Site Survey Area
- Proposed Linear Corridor
- Proposed Colorado River Substation (SCE)
- Switchyard
- Extent of Area Surveyed

0 0.5 1 2
Miles

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

APPENDIX K
SPECIAL-STATUS MAMMALS OBSERVATIONS IN SPRING 2011

TETRA TECH EC, INC.

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APPENDIX K

SPECIAL-STATUS MAMMAL SPECIES OR THEIR SIGN OBSERVED DURING SPRING 2011 SURVEYS

Map Number	UTM NAD 83		Species		Sign Type	Comments
	E	N				
1	707203	3723051	American badger	*Taxidea taxus*	Individual	One adult in mouth of burrow in cut bank.
2	703882	3730956	American badger	*Taxidea taxus*	Dig	Very fresh, 2 foot deep. Broken branches, claw marks. Under *Acacia greggii*.
3	703950	3730532	American badger	*Taxidea taxus*	Dig	Fresh. Multiple short (< 1 foot deep) digs in sandy wash bank. Obvious, deep claw marks.
4	703417	3730566	American badger	*Taxidea taxus*	Dig	Fresh. Rocks and cobbles moved from dig under *Krameria grayi*; < 1 foot deep. Also multiple fresh digs in drainage.
5	703997	3730752	American badger	*Taxidea taxus*	Dig	Fresh. Small (<1 foot x 1 foot) dig under *Encelia farinosa*. Another dig upstream in wash in pack rat nest under *Cercidium floridum*.
6	703565	3730833	American badger	*Taxidea taxus*	Dig	Fresh. Very small (0.5 feet) but very fresh with claw marks in sand under *Pleuraphis rigida*.
7	702871	3718033	American badger	*Taxidea taxus*	Dig	Recent badger dig.
8	706896	3732261	American badger	*Taxidea taxus*	Claw marks	Probable badger claw marks in inactive kit fox natal den.
9	704025	3730033	Bat	*Unknown*	Roost	Cave with guano. Cave in north caliche bank of large wash. One meter wide by 2 meter high with depth of > 2 m. Guano on walls and ledges. Owl pellets present.
10 7053	38	3730943	Burro deer	*Odocoileus hemionus eremicus*	Hide	Pieces of deer hide possibly skinned by hunter.
26 7024	21	3717417	Desert kit fox	*Vulpes macrotis*	Natal den	Active. In good condition; only a few tracks.
27 7025	67	3718347	Desert kit fox	*Vulpes macrotis*	Natal den	Active.
28 7027	02	3718216	Desert kit fox	*Vulpes macrotis*	Natal den	Active. Two openings.
29 7044	58	3730700	Desert kit fox	*Vulpes macrotis*	Natal den	One active fox entrance. Burrowing owl sign (whitewash) at two entrances plus permineralized tortoise shell - multiple fragments.
30 7056	01	3732488	Desert kit fox	*Vulpes macrotis*	Natal den	Active. Scat and tracks present. White bird shell fragments found at the entrance.
31 7056	48	3732946	Desert kit fox	*Vulpes macrotis*	Natal den	Inactive; approx. 8 entrances. Old scat.
32 7059	18	3732645	Desert kit fox	*Vulpes macrotis*	Natal den	Inactive; approx. 8 entrances. Old scat.
33 7059	71	3730597	Desert kit fox	*Vulpes macrotis*	Natal den	Inactive.
34 7060	87	3732049	Desert kit fox	*Vulpes macrotis*	Natal den	Inactive relative to foxes. Some fresh dirt ut no tracks, very little fox scat (old, not fresh). Unsure of species using site.

Map Number	UTM NAD 83		Species		Sign Type	Comments
	E	N				
35 7062	85	3732310	Desert kit fox	*Vulpes macrotis*	Natal den	Inactive. Good condition. Multiple openings.
36 7066	82	3732307	Desert kit fox	*Vulpes macrotis*	Natal den	Possibly active; approx. 10 entrances, one of which is fresh (not sure of species currently using).
37 7068	95	3732254	Desert kit fox	*Vulpes macrotis*	Natal den	Active. Adult and puppy tracks. Five entrances.
38 7068	96	3732261	Desert kit fox	*Vulpes macrotis*	Natal den	Inactive. Most entrances open and not collapsed, probable badger claw marks on one burrow.
39 7069	01	3730841	Desert kit fox	*Vulpes macrotis*	Natal den	Inactive.
40 7070	06	3732247	Desert kit fox	*Vulpes macrotis*	Natal den	Active with most entrances collapsed. One spot of whitewash.
41 7070	70	3732708	Desert kit fox	*Vulpes macrotis*	Natal den	Inactive. Burrowing owl whitewash near two openings.
42 7070	77	3730867	Desert kit fox	*Vulpes macrotis*	Natal den	One active, two inactive. Another inactive burrow east southeast.
43 7074	21	3730449	Desert kit fox	*Vulpes macrotis*	Natal den	Inactive. Partially filled in and eroded, no recent use. Very old scat.
44 7074	65	3732985	Desert kit fox	*Vulpes macrotis*	Natal den	Active. Scat, tracks.
45 7074	83	3730112	Desert kit fox	*Vulpes macrotis*	Natal den	Inactive. Old scat.
46 7075	57	3732699	Desert kit fox	*Vulpes macrotis*	Natal den	Active. Scat, tracks, fur.
47 7075	72	3732457	Desert kit fox	*Vulpes macrotis*	Natal den	Inactive.
48 7077	08	3722794	Desert kit fox	*Vulpes macrotis*	Natal den	Inactive. Multiple entrances in side of hill; old scat.
49 7077	35	3732534	Desert kit fox	*Vulpes macrotis*	Natal den	Inactive.
50 7077	98	3732127	Desert kit fox	*Vulpes macrotis*	Natal den	Active. Burrowing owl sign (whitewash, pellets) at one entrance.
51 7078	71	3723790	Desert kit fox	*Vulpes macrotis*	Natal den	Active. Fresh tracks at several entrances. Many scat.
52 7078	72	3721761	Desert kit fox	*Vulpes macrotis*	Natal den	Inactive. Current use by tortoise and burrowing owl.
53 7079	01	3731347	Desert kit fox	*Vulpes macrotis*	Natal den	Inactive.
54 7079	08	3729960	Desert kit fox	*Vulpes macrotis*	Natal den	Active. Tracks. Old and recent scat.
55 7079	30	3723835	Desert kit fox	*Vulpes macrotis*	Natal den	Active. Old natal den with lots of old scat but currently active. Fresh digging and prints.
56 7079	67	3732496	Desert kit fox	*Vulpes macrotis*	Natal den	Active. Burrowing owl sign (whitewash, pellets) at three entrances. Fresh kit fox tracks.
57 7080	31	3730521	Desert kit fox	*Vulpes macrotis*	Natal den	Inactive. Two openings.
58 7081	42	3730030	Desert kit fox	*Vulpes macrotis*	Natal den	Inactive. Four entrances.
59 7081	75	3731340	Desert kit fox	*Vulpes macrotis*	Natal den	Inactive. Very old. whitewash on one entrance.
60 7081	93	3724671	Desert kit fox	*Vulpes macrotis*	Natal den	Active. Coyote and kit fox sign. Kit fox tracks and recent activity at multiple entrances.
61 7082	68	3719938	Desert kit fox	*Vulpes macrotis*	Natal den	Active. Old; one active entrance.
62 7084	60	3719789	Desert kit fox	*Vulpes macrotis*	Natal den	Inactive.
63 7084	75	3720035	Desert kit fox	*Vulpes macrotis*	Natal den	Active.
64 7086	13	3730155	Desert kit fox	*Vulpes macrotis*	Natal den	Inactive. Three entrances.

Map Number	UTM NAD 83		Species		Sign Type	Comments
	E	N				
65 7086	58	3731764	Desert kit fox	*Vulpes macrotis*	Natal den	Inactive. Three entrances very deteriorated.
66 7087	45	3732057	Desert kit fox	*Vulpes macrotis*	Natal den	Inactive. Very old, no scat. Four out of five entrances filled in.
67 7090	65	3730756	Desert kit fox	*Vulpes macrotis*	Natal den	Inactive. One burrow opening with one speck of burrowing owl whitewash.
68 7096	03	3731344	Desert kit fox	*Vulpes macrotis*	Natal den	Inactive. Very old. Now occupied by rodents.
69 7097	75	3730444	Desert kit fox	*Vulpes macrotis*	Natal den	Active. Some tracks and recent scat but no highly active trails emerging from burrows.
70 7100	06	3730826	Desert kit fox	*Vulpes macrotis*	Natal den	Inactive.
71 7100	06	3730203	Desert kit fox	*Vulpes macrotis*	Natal den	Active. Tracks, scat, and recent discarded dove wing.
72 7100	69	3730689	Desert kit fox	*Vulpes macrotis*	Natal den	Inactive. Old natal den with fresh digging.
73 7104	75	3725129	Desert kit fox	*Vulpes macrotis*	Natal den	Active. Excellent condition; six of 14 openings active with fresh tracks.
74 7105	61	3725704	Desert kit fox	*Vulpes macrotis*	Natal den	Inactive.
75 7106	71	3726099	Desert kit fox	*Vulpes macrotis*	Natal den	Inactive.
76 7106	75	3726003	Desert kit fox	*Vulpes macrotis*	Natal den	Inactive.
77 7108	77	3730270	Desert kit fox	*Vulpes macrotis*	Natal den	Inactive. No recent sign. Deteriorated.
78 7109	02	3725978	Desert kit fox	*Vulpes macrotis*	Natal den	Inactive. Six entrances, some old white fox scat, no owl whitewash detected.
79 7110	93	3730297	Desert kit fox	*Vulpes macrotis*	Natal den	Active. Multiple entrances with fresh tracks and scat.
80 7112	00	3730070	Desert kit fox	*Vulpes macrotis*	Natal den	Inactive. Giant complex, possibly coyote, in stretch of desert pavement (at least 10 large entrances).
81 7114	93	3730802	Desert kit fox	*Vulpes macrotis*	Natal den	Inactive. Poor condition.
82 7115	23	3729582	Desert kit fox	*Vulpes macrotis*	Natal den	Active.
11	708109	3724002	Wild burro	*Equus asinus*	Teeth Partially	disintegrated.
21	707814	3723325	Wild burro	*Equus asinus*	Scat	NTY; two small piles of old burro scat, one found 60 m from first pile.
25 7112	92	3730137	Wild burro	*Equus asinus*	Scat	Not recent. On desert pavement.
24 7106	81	3725746	Wild burro	*Equus asinus*	Scat	NTY; old scat near road.
23 7106	80	3725695	Wild burro	*Equus asinus*	Scat	Old and dry.
22 7079	75	3724090	Wild burro	*Equus asinus*	Scat	Not recent. Scattered pile of scat in shallow runnel between desert pavement sections.
20 7053	12	3730319	Wild burro	*Equus asinus*	Scat	Old. None collected. One piece only in wash.
19 7040	91	3730069	Wild burro	*Equus asinus*	Scat	NTY. One pile in wash bottom.
18 7039	54	3730132	Wild burro	*Equus asinus*	Scat	Old; 10 pieces (one pile).
17 7034	57	3732693	Wild burro	*Equus asinus*	Scat	One old pile in middle of desert pavement.
16 7033	16	3729998	Wild burro	*Equus asinus*	Scat	One old pile. Three pieces on desert pavement.
14 7023	14	3730018	Wild burro	*Equus asinus*	Scat	NTY. In woodrat midden in rocks.
12 7003	61	3733024	Wild burro	*Equus asinus*	Scat	One pile; old, white.

Map Number	UTM NAD 83		Species		Sign Type	Comments
	E	N				
13 7018	03	3730341	Mountain lion	*Felis concolor*	Scat	
15 7024	42	3729942	Mountain lion	*Felis concolor*	Scat	Old. In rocks at base of mountain.

APPENDIX C

Biological Resources (continued)

C-2. Fall 2011 Plants and Supplemental Wildlife Survey Report

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Fall 2011
Plants and Supplemental Wildlife Survey Report

McCoy Solar Energy Project
Riverside County, CA

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December 2011

EXECUTIVE SUMMARY

McCoy Solar LLC, a subsidiary of NextEra Energy Resources LLC, proposes to construct, operate, maintain, and decommission an up to 750 megawatt (MW) photovoltaic (PV) solar energy generating facility, the McCoy Solar Energy Project (MSEP or Project), in unincorporated Riverside County, California. The Project, including Linear Facilities, would disturb approximately 4,938 acres. The majority of the MSEP would be developed on public land administered by the Bureau of Land Management (BLM). Approximately 477 acres of privately owned land would be included in the proposed Solar Plant Site boundary.

Surveys were conducted in Fall 2011 to determine the presence, distribution, and approximate abundance of special-status summer annual plants (plants that germinate in late summer or early fall in response to summer rains). These surveys were conducted to complete the comprehensive surveys for all special-status biological resources and their habitats that were conducted of the Project and surrounding area in Spring 2011 (see *McCoy Solar Energy Project Biological Resources Technical Report* [Tetra Tech and Karl 2011]).

Surveyors did not find any federally or state-threatened, endangered, or candidate plant species during surveys. However, surveyors did observe multiple populations of two fall-blooming California Native Plant Society Ranked plants within the Project Area: Abram's spurge (*Chamaesyce ambramsiana;* California Rare Plant Rank 2) and desert unicorn plant (*Proboscidea althaeifolia;* California Rare Plant Rank 4). One California Rare Plant Rank 3 plant, California ditaxis (*Ditaxis serrata* var.*californica)* was found to the west of the Solar Plant Site.

Separate from plant surveys, surveyors conducted protocol desert tortoise surveys of an alternate gen-tie route south of Interstate 10 and an area north of the proposed Colorado River Substation to accommodate potential future shifts in the generation tie line alignment. Surveyors also mapped and recorded incidental observations of all special-status wildlife during plant surveys. No special-status wildlife was observed that had not been previously reported from spring surveys, although burrowing owls (*Athene cunicularia*; California Species of Special Concern) and recent desert tortoise (*Gopherus agassizii*; federally and state-Threatened) sign was observed. An insect survey focusing on two species of cuckoo wasps was also conducted. No cuckoo wasps were encountered during the surveys.

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

APPENDICES

1.0 INTRODUCTION

McCoy Solar LLC, a subsidiary of NextEra Energy Resources LLC, proposes to construct, operate, maintain, and decommission an up to 750 megawatt (MW) photovoltaic (PV) solar energy generating facility, the McCoy Solar Energy Project (MSEP or Project), in unincorporated Riverside County, California. The Project, including Linear Facilities, would disturb approximately 4,938 acres. The majority of the MSEP would be developed on public land administered by the Bureau of Land Management (BLM). Approximately 477 acres of privately owned land would be included in the proposed Solar Plant Site boundary.

Surveys were conducted in Fall 2011 primarily to determine the presence, distribution, and approximate abundance of special-status summer annual plants (plants that germinate in late summer or early fall in response to summer rains). These surveys were conducted to complete the comprehensive surveys for all special-status biological resources and their habitats that were conducted of the Project and surrounding area in Spring 2011 (see *McCoy Solar Energy Project Biological Resources Technical Report* [Tetra Tech and Karl 2011]). Surveyors also mapped and recorded incidental observations of special-status wildlife during plant surveys. Additionally, separate from plant surveys, an insect survey was conducted, as well as protocol desert tortoise surveys of an alternate generation-tie (gen-tie) line route south of Interstate-10 (I-10) and an area north of the proposed Colorado River Substation (CRS), to accommodate potential future shifts in the gen-tie alignment.

The following terms will be used throughout this document:

- “Project” refers to the MSEP.
- “Project Area” is the footprint of all Project components, which includes the Solar Plant Site and Linear Facilities.
- “Solar Plant Site” is the area that includes the Unit 1 and Unit 2 solar fields, two substations, evaporation ponds, access road, O&M building, and other support facilities, water storage tanks, auxiliary systems, and open areas.
- “Solar Plant Site ROW Application Boundary” is the approximately 7,700-acre area included in the Right-of-Way (ROW) grant requested from the BLM for the Solar Plant Site.
- “Linear Facilities” includes the gen-tie line, access road, primary and secondary telecommunication lines, and distribution line. With the exception of the switchyard and a portion of the access road, the Linear Facilities will be mostly co-located inside the Linear ROW. The switchyard will lie at the southern terminus of the Linear ROW; a portion of the access road north of I-10 will be shared with Solar Trust of America’s Blythe Solar Power Project (BSPP).
- “Linear ROW” is the legal designation of the area that BLM would define in the final ROW grant for the Linear Facilities; this is likely to be around 100 feet wide.
- “Linear Corridor” is the area surveyed in 2011 within which all the Linear Facilities ultimately will be sited. The Linear Corridor was substantially wider than the ultimate area that will be included in the ROW to accommodate flexibility in the siting of Project elements.
- “Survey Area” is the total area that was surveyed in Fall 2011 (Figure 4). For plants, this area included the Solar Plant Site and Linear Corridor. For both plants and desert

tortoise, this area included an alternate gen-tie route south of I-10 and an area north of Southern California Edison's (SCE's) proposed CRS to accommodate potential future shifts in the gen-tie alignment.

- "Project vicinity" is intended to be a general term to describe the broader, surrounding area.

2.0 PROJECT SETTING

2.1 Project Location

The Project is located in the Sonoran Desert approximately 13 miles northwest of the City of Blythe, California (Figures 1).Surrounding mountain ranges include the McCoy Mountains to the west, the Little Maria Mountains to the north, and the Big Maria Mountains to the northeast. McCoy Wash, a broad wash system flowing into Palo Verde Valley, is located immediately east of the Solar Plant Site. Elevations range from 390 to 735 feet above mean sea level.The Project is located immediately north of Solar Trust of America's recently-permitted BSPP.

2.2 General Site Characteristics

A detailed description of site characteristics with photographs can be found in the McCoy Solar Energy Project Biological Resources Technical Report (Tetra Tech and Karl 2011); however, the following provides a summary of the Project's habitats (both natural and altered) and vegetation communities, also illustrated on Figures 2 and 3.

The Project Area north of I-10 lies along the bajada sloping out of the eastern side of the McCoy Mountains. The western portion of the Solar Plant Site is dominated by gently undulating terrain with broad patches of largely unvegetated, well-developed, highly oxidized gravel desert pavement. Widely spaced washes, generally less than approximately 10 feet deep, flow through the pavement plain; associated small runnels flow into these washes. The exception to this is in the southwestern corner of the Solar Plant Site, where there are several 20-25 feet deep drainages. As the bajada flattens to the east, drainages become shallow, braided runnels with a few swales (especially along Black Creek Road). There are patches of sheet flow near McCoy Wash. Consistent with the hydrology and distance from the mountains, substrates become finer toward the eastern portion of the Solar Plant Site, becoming only scattered fine and very fine gravels over soft to slightly hard sandy loam along the eastern side. There are scattered patches of fine gravel- and coarse gravel-desert pavement throughout the eastern, and especially the southeastern, portion of the Solar Plant Site.

Vegetation on the Solar Plant Site is described using alliances developed by Sawyer, Keeler-Wolf and Evens (2009) and used by the California Natural Diversity Data Base (CDFG 2010). Upland vegetation is characterized by associations (i.e., subsets) of the Creosote Bush-White Burr Sage (*Larrea tridentata-Ambrosia dumosa*) Scrub Alliance. However, even typical upland vegetation is largely confined to drainages on the Project Area, probably because most of the available water is in the drainages due to the low regional rainfall and substrate and soil quality. On the desert pavement plains in the west, there are essentially no shrubs outside of water courses. In the eastern approximately half of the site, the interstices have moderately low vegetation cover of mostly creosote bush – approximately 7-8 percent cover, but lower in several broad patches. This low cover and the small stature of the plants again points to low available water. Where sheet flow predominates, shrub cover is a little higher (<10 percent), and co-dominants include white burr sage, brittlebush (*Encelia farinosa*), and white rhatany (*Krameria grayii*).

Runnels and very small washes on the Solar Plant Site, including over most of the eastern Solar Plant Site, are dominated by creosote bush, white burr sage, brittlebush, and white rhatany; galleta grass (*Pleuraphis rigida*) is patchily common to co-dominant. In the more well-developed washes in the western portion of the site, the vegetation is characterized by the Desert Lavender (*Hyptis emoryi*) Scrub and Catclaw Acacia (*Senegalia* (= *Acacia greggii*) Thorn Scrub Alliances. Desert lavender, Anderson boxthorn (*Lycium andersonii*), catclaw acacia, creosote bush, white burr sage, brittlebush, chuckwalla bush (*Bebbia juncea*), and white rhatany and/or little-leaf rhatany (*Krameria erecta*; mostly upslope) are typical dominants; galleta grass is intermittently co-dominant. An occasional palo verde (*Parkinsonia florida* [=*Cercidium floridum*]) or ironwood (*Olneya tesota*), or patches of a few individuals, can also be found in some swales or in the more well-developed parts of some runnels where water volume is probably higher or water is more consistently available. Most plants are small (generally <15 ft in height), but there are occasional larger individuals. There are also a couple, several hundred foot stretches where palo verde is common, although many of the trees are only saplings. The most well-developed of these is an approximately 3,000-foot segment of one wash in the western half of the Solar Plant Site. It is dominated by relatively large palo verde, along with the common wash-shrub species and could be considered a Palo Verde-Ironwood Woodland Alliance.

The Linear Corridor exits the southeastern corner of the Solar Plant Site onto a barren, densely fine-gravelly, flat plain with little vegetation. As the corridor turns south, it travels through a relatively flat lower bajada with numerous small swales. Soils are generally fine, soft to consolidated loams lightly covered by fine to very fine gravels or none. The shrub cover is dominated by an approximately 10 percent cover of creosote bush and white burr sage; galleta grass is common in the swales, along with occasional ironwood trees. Much of the northern portion of the Linear Corridor runs along a distinctive alluvial deposit of rounded riverine gravel on a long, low ballena, or pebble terrace, standing 30-75 feet above the surrounding bajadas. A well-developed, large-arboreal wash resulting from the coalescence of several small washes meets and crosses the Linear Corridor just south of the pebble terrace. There, it becomes re-routed against a long east-west agricultural berm, where it forms a long swale of dense palo verde and ironwood infested with dense Russian thistle (*Salsola tragus*) and Sahara mustard (*Brassica tournefortii*). The Linear Corridor and adjacent area north and south of this swale is cleared for agriculture (currently not in crops), except in the northwestern half, where native creosote bush and white burr sage habitat, with brittlebush-white burr sage-galleta grass runnels, remains. An actively farmed citrus orchard lies at the eastern end of this portion of the Linear Corridor.

As the Linear Corridor nears the mountains the substrates generally become more gravelly and heavy sheeting and well-developed arboreal washes begin to cross the Linear Corridor. Vegetation in the interfluves is generally very sparse creosote bush-white burr sage scrub. Near the freeway, the Linear Corridor crosses a low depression adjacent to a mesa as well as a nearby borrow pit. Soils are fine and hard and there is potential for pockets of standing water. The borrow pit hosts a dense honey mesquite-palo verde bosque-ironwood bosque. South of I-10, the Linear Corridor traverses a flat bajada of low plant diversity (creosote bush and white burr sage) and cover (8 percent). West of the existing PV solar facility, intermittent, loose, shallow sand sheets and dunes and small, exposed basins intersect the Linear Corridor, and briefly ponding water is a potential in some of the basins. Well-developed, low dunes enter the route at the bend and remain characteristic of the Linear Corridor through and including most of the switchyard. This habitat contains widely spaced perennial shrubs (2-5 percent cover), with the dominant species including creosote bush, white burr sage, and galleta grass. Several sand-associates and other annuals are also abundant (e.g., sand verbena [*Abronia villosa*], birdcage primrose [*Oenothera deltoides*], desert marigold [*Baileya pauciradiata*], and narrow-leaved forget-me-not [*Cryptantha angustifolia*]). In the southern portion of the switchyard and south, the soil remains finely sandy, but fine gravel lightly covers the soil; creosote bush is dominant with white burr sage. Drainage is via sheet flow, small swales and runnels.

3.0 SURVEY METHODS

Special-status plant surveys for fall blooming species were conducted according to protocols that were reviewed and approved by the BLM, CDFG, and the FWS prior to field surveys (Tetra Tech and Karl 2010). These protocols were consistent with the CDFG Protocols for Surveying and Evaluating Impacts to Special Status Native Plant Populations and Natural Communities (CDFG 2009). They are also consistent with BLM's Survey Protocols Required for NEPA and ESA Compliance for BLM Special Status Plant Species (BLM 2009) for an intuitive controlled survey, wherein a full survey is completed (i.e., 100 percent visual examination) in habitats with the highest potential for rare plants, with sampling in the remaining areas. To this end, surveys focused on swales, washes, runnels, rocky outcrops, and dunes because of the affinity of the herbaceous species in Table 2 for those habitats and because areas where rainfall collects have the greatest potential for germination of most species. To achieve this focus and optimize sampling, the Project Area was divided into smaller sampling units (Cells and Segments) and into three survey categories:

- Full coverage (transects spaced no farther than 10 meters apart, covering 100 percent of the possible habitat) in the areas where the interdigitating mosaic of washes and runnels was too complex to survey at <100 percent. This comprised approximately three-fifths of the Solar Plant Site and 100 percent of the Linear Corridor. Transects were pre-programmed into Global Positioning System (GPS) units to ensure accurate and complete site coverage. Survey teams were generally limited to three people, including an experienced navigator who could simultaneously look for special species, to minimize the searching and focus inefficiencies that are common with larger teams.

- Full coverage in all vegetated drainages, from small runnels to larger washes. This occurred in the broad desert pavement plain in the west.

- Sampling in broad interfluve spaces.

The Survey Area included the Solar Plant Site and Linear Corridor as well as an alternate gen-tie route south of I-10 and an area north of the proposed CRS to accommodate potential future shifts in the gen-tie alignment (Figure 4). Subsequent to Fall 2011 surveys, McCoy Solar, in coordination with Solar Trust of America and EnXco, determined that the Linear Corridor shift to allow room for EnXco's proposed facilities. This resulted in portions of the Linear Corridor falling outside of the Survey Area. However, Solar Trust of America surveyed these areas for plants and desert tortoise for the BSPP in 2009 and 2010 (see AECOM 2010a, 2010b). The BSPP was approved for development by the BLM and California Energy Commission in late 2010.

A qualified botanical team (Appendix A) conducted surveys when plants were in optimum condition for identification (generally with blooms, fruits, and leaves). (Woody and succulent perennials in Table 2 are easily identified when not blooming and were surveyed in Spring 2011 and are not included in this report.) Prior to starting the surveys, the biological lead examined plant phenology almost weekly in the Project Area to optimize the survey timing; surveys were then further chronologically prioritized to insure that the areas/habitats that could host special-status plants were surveyed at the appropriate phenological time, when those species were available for identification. Surveys were conducted of the Linear Corridor south and immediately north of I-10 primarily on August 31 and September 1 and 12-16, because plants were growing there in response to storms in early and mid August that were limited to this portion of the Survey Area. The remainder of the Linear Corridor and the Solar Plant Site was surveyed on October 4-10, 2011, in response to a large storm on September 13-14 that affected this portion of the Survey Area.

The Blythe Airport weather station reported below average precipitation for August and September 2011 (WRCC 2011; Table 1). However, personal observation and communication with local residents determined that portions of the Linear Corridor south of I-10 received precipitation in early and mid-August. Additionally, the Solar Plant Site and Linear Corridor north of I-10 received substantial precipitation, causing puddling and some flow in channels, on September 13. These late-summer, patchy rain events resulted in germination and growth, and many species were present for observation in most of the Project Area.

Table 1. 2011 Monthly precipitation data (in inches), Blythe, CA airport

YEAR	Jan	Feb	Mar	Apr	May	June	Jul	Aug	Sept	Oct	Nov	Dec	Annual
2011	0.00	1.17	0.06	0.00	0.00	0.00	1.64	0.00	0.09	0.12	TBD	TBD	TBD
Average 1948-2010	0.49	0.44	0.36	0.15	0.02	0.02	0.25	0.61	0.35	0.26	0.19	0.41	3.54

Source: Western Regional Climate Center (WRCC) (2010); J. Ashby pers. comm. (2010); WRCC pers. comm. (2011)
TBD: To Be Determined – Data not currently available for these months

Surveyors targeted every special-status plant that could be reasonably expected to occur, but employed a comprehensive floristic survey approach, identifying all plants observed to ensure that unexpected special-status plants were also found. Surveyors were very experienced with plant species in the arid southwest, but were also equipped with plant descriptions, keys to identify plants to the subspecies level, and pictures of each special-status plant species with the potential to occur within the Survey Area. All species observed were identified microscopically using relevant publications (e.g., Baldwin et al. 2002, Felger 2000, Jepson eFlora 2011); special-status species were photographed and vouchered.

One species observed in Spring 2011, Utah cynanchum (*Funastrum utahense*), was found to be very common and therefore was not re-surveyed during the fall. Similarly, Las Animas colubrina (*Colubrina californica*), a woody perennial that was fully mapped on the site in Spring 2011, was not re-mapped. Finally, for desert unicorn plant (*Proboscidea althaeifolia*) only live plants, not fruits, were mapped. (Fruits are long-lasting and many were mapped in Spring 2011.)

Prior to conducting surveys, surveyors reviewed the target species (descriptions, photographs of live or herbarium specimens, microhabitat associations) and visited reference populations of species that had not been previously observed, to enhance search images of plants and microhabitats, determine distinctions among similar genera, and identify current phenology and plant vigor. This visit was limited to Abram's spurge (*Chamaesyce abramsiana*), because other fall-growing species either had been observed already, no reference populations were reasonably close, and/or the species were highly unlikely due to lack of habitat or geographic range.

Surveyors described and mapped all populations of special-status fall blooming plant species (except as noted above). Populations were recorded using Global Positioning System (GPS) units, and population size, associated biotic and abiotic features, phenology, plant size (vigor), and threats to the population were noted.

3.1 Focused and Incidental Wildlife

Separate from plant surveys, surveyors conducted protocol desert tortoise surveys (FWS 2010) on September 13-15, 2011 of an alternate gen-tie route south of I-10 and an area north of the proposed CRS (Figure 4). Surveys achieved 100 percent coverage of these areas (the Linear Corridor was 240 feet wide), plus buffer transects within 500 feet, with transects spaced every 100 feet. Additionally, surveyors mapped and recorded incidental observations of special-status wildlife during plant surveys.

Two visits were made to habitats in and around the MSEP to survey for insects on August 31 and October 8, 2011 by entomologists Dr. David K. Faulkner and Jeanne M. Bellemin M.S. The primary focus was to establish the presence of two species of cuckoo wasp, *Hedychridium argenteum* and *Ceratochrysis bradleyi*, and to inventory invertebrates. Both species are ranked in the California Natural Diversity Database (California Department of Fish and Game) as G1 S1, but with questions about their rarity. The surveys focused on the proposed switchyard and vicinity and the Solar Plant Site. However, there had been no rain on the Solar Plant Site, so identical habitat nearby, which had received a little rain, was sampled as a reasonable surrogate. Aerial nets were used for the collection of specimens needing to be identified. Blacklighting (ultraviolet light traps) was attempted on one occasion to sample night-flying insects, but with little success due to strong winds. Since cuckoo wasps are diurnal, they would not be expected to be attracted to blacklights.

Table 2. Special-status summer- and fall-growing herbaceous species potentially occurring within the McCoy Solar Energy Project. Note: Other special-status species that grow only in late winter or spring, and woody species, were not included because they were surveyed in Spring 2011. See Tetra Tech and Karl (2011) for complete Project special-status plant species list.

Species		Status[1] Federal	State	CNDDB Rank	CNPS/ Other	Habitat	Blooming Time	Likelihood of Occurrence on the Project Site[2]
Abronia villosa var.*aurita*	Chaparral Sand Verbena	---	---	G5T3T4/S2	1B.1	Loose to aeolian sands; chaparral and coastal sage scrub; below 2,000 feet	January-September	Highly unlikely; not observed
Chamaesyce abramsiana	Abrams's Spurge	---	---	G4/S1.2	2.2	Sandy sites in Mojavean and Sonoran Desert scrubs in eastern California; 0 to 3,000 feet	September-November	Observed Fall 2011
Chamaesyce parryi	Parry's Spurge	---	---	G5/S1.3	2.3	Dunes an Aeolian soils in Mojavean Desert Scrub; in California, known only from Kelso; 1,300-2,400 feet	May-November	Unlikely due to limited range; not observed
Chamaesyce platysperma	Flat-seeded Spurge	BLM Sensitive	---	G3/S1.2?	1B.2	Sandy flats and dunes in Sonoran Desert Scrub; below 350 feet	February-September	Possible; not observed
Cuscuta californica var. *apiculata*	Pointed Dodder	---	---	G5T3?/S2S3	3	Sonoran and Mojavean Desert Scrubs in San Bernardino County (one record in western Riverside County), to Nevada and Baja, California; 0 – 1,650 feet	February-September	Possible; not observed
Digitaria californica	Arizona Cottontop	---	---	G5/S1.3	2.3	Rocky Sonoran and Mojavean Desert Scrubs; three consortium records in California; 950 to 4,900 feet	July-November	Unlikely due to rocky association; not observed
Ditaxis claryana	Glandular Ditaxis	---	---	G4G5/S1	2.2	Sandy flats in Mojavean and Sonoran Creosote Bush Scrubs in Imperial, San Bernardino, and Riverside counties; below 1,500 feet	Mostly December to May, rarely August-October	Possible; not observed
Ditaxis serrata var. *californica*	California Ditaxis	---	---	G5T2T3/S2	3.2	Sonoran Creosote Bush Scrub from 100 to 3,000 feet	All year	Observed Fall 2011 outside of Solar Plant Site
Funastrum utahense	Utah Cynanchum	---	---	G4/S3.2	4.2	Sandy and gravelly areas in Mojavean and Sonoran Creosote Bush Scrub; 490 – 4,700 feet	Spring, Fall	Abundant on site-observed in Spring 2011; observed in Fall 2011 also, but not recorded due to extensive mapping in Spring 2011

Table 2. Special-status summer annual plants potentially occurring within the McCoy Solar Energy Project

Species		Status[1] Federal	State	CNDDB Rank	CNPS/ Other	Habitat	Blooming Time	Likelihood of Occurrence on the Project Site[2]
Helianthus niveus tephrodes	Algodones Dunes Sunflower	---	E	G4T2/S1.2	1B.2	Desert dunes, especially Algodones Dunes	March-May, October-January	Unlikely; not observed
Horsfordia alata	Pink Velvet Mallow	---	---	G4/S3.3	4.3	Rocky areas in Sonoran Desert Scrub, 328-1,640 feet	December-April, although Consortium records are from January to December	Unlikely - not observed in rocky areas in Spring or Fall 2011
Horsfordia newberryi	Newberry's Velvet-mallow	---	---	G4/S3.3	4.3	Mostly rocky canyons and toeslopes in Sonoran Desert Scrub; 10 – 2,650 feet	March-April and November-December	Possible; not observed in Spring or Fall 2011
Hymenoxys odorata	Bitter Hymenoxys	---	---	G5/S2	2	Riparian scrub and Sonoran Desert Scrub, sandy flats near Colorado River, known only from the Colorado River alluvial plain, 150- 495 feet	February-May and October-November	Unlikely because of species association with the Colorado River floodplain; not observed
Imperata brevifolia	California Satintail	---	---	G2/S2.1	2.1	Wet springs, meadows, and flood plains in Chaparral, Coastal Scrub, Mojavean Desert Scrub; 0 – 1,650 feet	September-May, but Consortium records are for entire year	Highly unlikely due to lack of habitat; not observed
Physalis lobata	Lobed Ground Cherry	---	---	G5/S1.3?	2.3	Mojave Desert Scrub, playas, granitic soils, 1,640-2,625 feet	April-November	Unlikely. All known locations well to north of Project and at higher elevations. Not observed.
Portulaca halimoides	Desert Portulaca	---	---	G5/S3	4.2	Sandy areas and flats in Joshua tree woodland and desert mountains; 3,280-3,937 feet	April, August-October	Highly unlikely due to lack of habitat and elevational constraints; not observed
Proboscidea althaeifolia	Desert Unicorn Plant	---	---	G5/S3.3	4.3	Sandy areas in Sonoran Desert Scrub throughout southeastern California, below 3,300 feet.	(April-) May-August	Observed Fall 2010, Spring and Fall 2011
Selaginella eremophila	Desert Spike Moss	---	---	G4/S2.2?	2.2	Shaded rocky habitats in the Sonoran Desert, to Arizona and northern Mexico; below 3,600 feet	December-April, July-October	Unlikely due to lack of habitat; not observed
Teucrium cubense depressum	Dwarf Germander	---	---	G4G5T3T4/S2	2.2	Sandy soils, washes, fields; below 1,300 feet	March-May, and September-November	Possible; not observed

Table 2. Special-status summer annual plants potentially occurring within the McCoy Solar Energy Project

Species		Status[1]				Habitat	Blooming Time	Likelihood of Occurrence on the Project Site[2]
		Federal	State	CNDDB Rank	CNPS/ Other			
Wislizenia refracta palmeri	Palmer's Jackass Clover	---	---	G5T2T4/S2?	2.2	Sandy washes and dunes in Sonoran Desert Scrub, to northwestern Mexico; potentially Mojave Desert (unverified); <430 feet.	March-November	Possible; not observed
Wislizenia refracta var. *refracta*	Jackass Clover	—	—	G5T5?/S1.2?	2.2	Sandy washes, roadsides, flats; 1,900 to 2,700 feet	April-December	Unlikely due to elevational constraints; not observed

Sources: Unless noted, information is from *The Jepson Manual* (Baldwin et al. 2002), California Native Plant Society (CNPS) Online Inventory (CNPS 2011), and Jepson Flora Project (http://ucjeps.berkeley.edu/)

[1] Status:

BLM Sensitive: Species under review, rare, with limited geographic range or habitat associations, or declining. BLM policy is to provide the same level of protection as FWS candidate species

CNDDB 2011: CDFG Special Vascular Plants, Bryophytes, and Lichens List, October 2011(www.dfg.ca.gov/biogeodata/cnddb/pdfs/SPPlants.pdf).

Global Rank:
- G1 = Critically Imperiled
- G2 = Imperiled
- G3 = Vulnerable
- G4 = Apparently Secure
- G5 = Secure

State Rank:
- S1 = Critically Imperiled
- S2 = Imperiled
- S3 = Vulnerable
- S4 = Apparently Secure
- S5 = Secure
- SX= All California sites are extirpated

Subspecies or Variety Rank and Other Symbols
- T1-T5: same definition as global and state ranks, except that rank only applies to the particular variety or subspecies.
- X: species is considered extirpated

CNPS. 2011:
- Rank 1A - Plants presumed extinct in California
- Rank 1B - Plants rare and endangered in California and elsewhere
- Rank 2 - Plants rare and endangered in California but more common elsewhere
- Rank 3 -Plants about which CNPS needs more information
- Rank 4 -Plants of limited distribution (Watch List)
- (Note: California Rare Plant Rank 1 and 2 require CEQA consideration. List 3 and 4 plants that must be surveyed per the Northern and Eastern Colorado Desert Management Plan (BLM and CDFG 2002) were also included for surveying)

Threat Ranks:
- 0.1-Seriously threatened in California (high degree/immediacy of threat)
- 0.2-Fairly threatened in California (moderate degree/immediacy of threat)
- 0.3-Not very threatened in California (low degree/immediacy of threats or no current threats known)

[2]Species that are unlikely or were not observed but are herbaceous and may not have germinated or had aboveground growth, were noted as "Not Observed", but were not excluded from possibly being on the site.

4.0 SURVEY RESULTS AND DISCUSSION

4.1 Special-status Plants

Surveyors did not find any federally or state-threatened, endangered, or candidate plant species during surveys. However, surveyors did observe populations of two California Rare Plant Ranked species within the Project Area: Abram's spurge (*Chamaesyce abramasiana*) and desert unicorn plant (*Proboscidea althaeifolia*). California ditaxis (*Ditaxis serrata* var. *californica*) was found outside of the Project Area. Results are presented on Figures 5A and 5B; a comprehensive table of results with corresponding figures is presented in Appendix B; and a comprehensive list of plants observed during surveys is in Appendix C.

Due to the shift in the Linear Corridor subsequent to fall surveys, portions of the Linear Corridor fall outside of the Survey Area. These areas were surveyed in Fall 2010 (see AECOM 2010b) for the BSPP. No special-status plants were observed during those surveys; however, rainfall in Summer 2010 was below average which precluded germination of summer annuals.

Abram's Spurge (California Rare Plant Rank 2; S1.2/G4)

This member of the Euphorbiaceae family is an annual herb native to California at elevations ranging between sea level and 915 feet in Imperial, Riverside, San Bernardino, and San Diego Counties (CNPS 2011). This species is reported to be found in creosote bush scrub community in sandy soils and blooms from September to November (CNPS 2011), although we found it in very fine and often compacted soils, with low sand composition, that hold moisture. The Consortium of California Herbaria (Consortium) has 18 records in California, only two of which occur in Riverside County, one record in the Coachella Valley from 1968 and one recent record from 2000 south of I-10, about 22 miles west of Blythe (Consortium 2011).

Abram's spurge (photo A. Karl)

During Fall 2011 surveys, Abram's spurge was found on MSEP primarily within the central portion of the Solar Plant Site with an additional population along the Linear Corridor north of I-10. Abram's spurge was not found south of I-10. The total population size in the Survey Area was estimated to be approximately 4,000+ individuals. It was found almost exclusively in shallow depressions and runnels and was patchily common in these areas.

While widespread in southern Arizona and northwestern Sonora, Mexico, and often an agricultural and urban weed, only one location for Abram's spurge had been documented in the

Blythe region prior to the MSEP surveys. However, this is most likely because Abram's spurge has been undersampled in California. It grows in the fall and few fall plant surveys have been conducted in the MSEP region, especially of the geographic size of a solar facility[1]. Furthermore, most fall surveys focus on areas with higher rainfall than Blythe. Based on the relatively marginal habitat for Abram's spurge on the Project Area, we surmised that this species was probably far more common in the region where the habitat was better. We conducted a short search of likely habitats (swales and playas) in the Blythe area and Chuckwalla Valley and found tens of thousands of plants along Ford Dry Lake and also on Hayfield Dry Lake, approximately 20 and 60 miles west of MSEP, respectively. Abram's spurge was the dominant or co-dominant understory species in both locations. So, although the species occurs on MSEP, it is neither restricted to that site nor does it reach its highest abundance there. It is more widespread and far more common in the Blythe region than formerly known.

California Ditaxis (California Rare Plant Rank 3; S2/G5T2T3)

This member of the Euphorbiaceae family is a perennial herb endemic to California within the United States (CNPS 2011). This species is found at elevations ranging between 30 and 1,000 feet in sandy soils of creosote bush scrub (CNPS 2011). It grows in spring and fall, in response to rain, with aboveground portions dying back in dry periods. The Consortium has twenty-eight records from Riverside County from 1905 to 2009, with at least five records located near the I-10 corridor (Consortium 2011). CNPS reports twenty occurrences with several records near the I-10 corridor between approximately Palm Desert and Desert Center (CNPS 2011). It is fairly common in the Desert Center vicinity (Eagle Crest Energy 2009) and west (Karl and Uptain 1985), about 50 miles west of MSEP (Eagle Crest Energy 2009).

California ditaxis (Photo: A. Karl)

Four plants were found to the west of the Solar Plant Site boundary during Fall 2011 surveys. There were two plants at each location, approximately 465 feet apart. This species also blooms in spring; however, none was observed during MSEP Spring 2011 surveys. At the BSPP, no

[1] AECOM conducted fall surveys in 2010 on the BSPP, immediately south of MSEP, but there had been little rainfall that summer, and subsequently no germination of summer herbaceous species.

specimens of California ditaxis were detected during spring or fall surveys (AECOM 2010a, AECOM 2010b).

As a California Rare Plant Rank 3 plant, more information is needed on this plant to determine its abundance in California and elsewhere. It does not require consideration in CEQA unless sufficient information is available to assess potential impacts to the species (CDFG 2009), or under NEPA. It is included here to provide data to the resource agencies (in addition to submitted CNDDB forms). The plants are located outside of the Project Area and will not be affected by development.

Desert Unicorn Plant (California Rare Plant Rank 4; Rank S3.3/G5)

This perennial herb grows on deep, alluvial sands in Sonoran desert scrub habitat (Reiser 1994), at elevations below 3,300 feet. While thought to be uncommon in California (Baldwin et al. 2002), during surveys it was patchily common on the MSEP Solar Plant Site. Desert unicorn plant has a fleshy root system that can remain dormant in dry years. It typically grows and flowers between July and September after substantial summer rains. However, some individuals have aboveground growth in spring, and fruits (seed pods) from the previous year are large and moderately visible.

Desert unicorn plant in flower (Photo E. Mix)

This species was observed mostly throughout the central part of the Solar Plant Site and in portions of the Linear Corridor. Surveyors observed approximately 622 plants within the Project Area, primarily in swales that held water for a short time. Results are consistent with Spring 2011 MSEP observations of seed pods within the central portion of the Solar Plant Site (see Tetra Tech and Karl 2011). The consistency of plants in appropriate swales was also observed elsewhere in the region, including the Genesis Solar Energy Project (Tetra Tech and Karl 2010) and BSPP (AECOM 2010a).

As a California Rare Plant Rank 4 plant, it requires CEQA consideration if the population has local or regional significance (CDFG 2009). Based on the abundance and distribution within the MSEP and nearby project areas, the MSEP population is not considered locally or regionally significant.

4.2 Focused and Incidental Wildlife Observations

Eight special-status wildlife species, including desert tortoise (*Gopherus agassizii*; federally and state-listed as Threatened) sign and burrowing owl (*Athene cunicularia;* California Species of Special Concern), were detected during supplemental desert tortoise surveys and incidentally to plant surveys (Tables 3 and 4, Figures 6A and 6B). All species were previously observed during Spring 2011 surveys and their presence and distribution are generally consistent with Spring 2011 results (Tetra Tech and Karl 2011). Comprehensive results are located in Appendix D and correspond to Figures 6A and 6B. For a detailed discussion of each species, please see the *McCoy Solar Energy Project Biological Resources Technical Report* (Tetra Tech and Karl 2011).

Table 3. Fall 2011 Non-listed Wildlife Observations

Species	Sign Type	Number of Sign	Comments
Mojave fringe-toed lizard	Individuals	188	Within sand dunes along Linear Corridor south of I-10
Burrowing Owl	Individuals	8	
	Burrow (not associated with an individual)	5	Recently used or active
Loggerhead Shrike	Individuals	12	Seven observations
Yellow Warbler	Individuals	3	Three observations
Brewer's Sparrow	Individuals	3	One observation
Wild Burro	Mandible	1	Old
Desert Kit Fox	Den	3	Active

4.2.1 Desert Tortoise

No desert tortoise sign was observed during focused surveys in the supplemental survey areas; however, desert tortoise activity was detected incidentally during fall plant surveys. Five recent (since spring surveys) scat and a set of tracks were detected, as well as four burrows (Figure 6A, 6B). The burrows and three of the scat were in areas within the Solar Plant Site and Linear Corridor that were determined in the spring to be occupied by tortoise. Two of the five scat were found farther in the center of the Solar Plant Site (Map numbers 25 and 26 in Figure 6A), where no recent sign (scat, tracks, Class 1 and 2 burrows) was detected during spring surveys. In spring, two Class 3 burrows (tortoise burrows not used this season) and one Class 4 (possibly tortoise) burrow were detected in the eastern Solar Plant Site, suggesting minor transient use of the lower bajada. The two recent scat detected in the center of the Solar Plant Site this fall, with no accompanying burrows, support the conclusion that the entire Solar Plant Site is tortoise habitat, although mostly receives only minor use.

Table 4. Fall 2011 Desert Tortoise Observations

Sign Type	Age	Comments
Tracks	-	380 mm burrow in hillside
Burrow	Class 2	260 mm, in side of small slope
Burrow	Class 1	320 mm, in hillside
Burrow	Class 3	300 mm & 330 mm, 2 pallets under *Olneya tesota* (on opposite sides)
Scat	TY1	10 mm, in incised wash bottom
Scat	TY2	25 mm, on desert pavement on edge of incised wash
Scat	TY2	15 mm, in incised wash bottom
Scat	TY2	16 mm
Sign Type	Age	Comments
Scat	TY2	16 mm

TY – This Year
Class 1 – Definitely tortoise; fresh
Class 2 – Definitely tortoise; this season
Class 3 – Definitely tortoise; not used this season

4.2.2 Burrowing Owl

Eight burrowing owls were observed incidentally to fall plant surveys, all within the Solar Plant Site Survey Area (Table 3; Figure 6A). Seven of the eight owls were in the western half of the Solar Plant Site Survey Area, five of which were clustered west of the Solar Plant Site boundary (Map numbers 1 – 5 on Figure 6A). Their proximity to each other may suggest they were from the same family, and included dispersing young. Several were flushed from wash banks in incised washes. Three of the five burrows were observed in identical locations or close to burrows or owls previously documented. The other two burrows this fall were new burrows.

4.2.3 Insects

No cuckoo wasp specimens were encountered during the surveys, in large part because it is innately difficult to survey for rare insect species, and harder still if little or nothing is known of the insect's life history, such as cuckoo wasps. The short survey and timing also contributed to the results. Although both species are active during the fall, the spring season has more flowering annuals that the cuckoo wasps visit for nectar; the plants are also a resource for the bees and wasps that the cuckoo wasps parasitize. Perceived species rarity often may be a result of collecting bias and not a reflection on the insect's actual abundance. An example would be the moth lacewing (*Oliarces clara)*, known from a few specimens until it was discovered that adults emerge in huge numbers every two-three years, but remain active just a few days. Populations were also found to be quite localized. So, the moth lacewing previously had been undersampled, but also presents a distinct sampling difficulty because of its limited and unpredictable activity period.

Appendix D lists the insect species recorded primarily from the two sampling areas. Most of the species would be anticipated as permanent residents of the area while a few are introduced from agricultural areas nearer the Colorado River and Blythe.

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FIGURES

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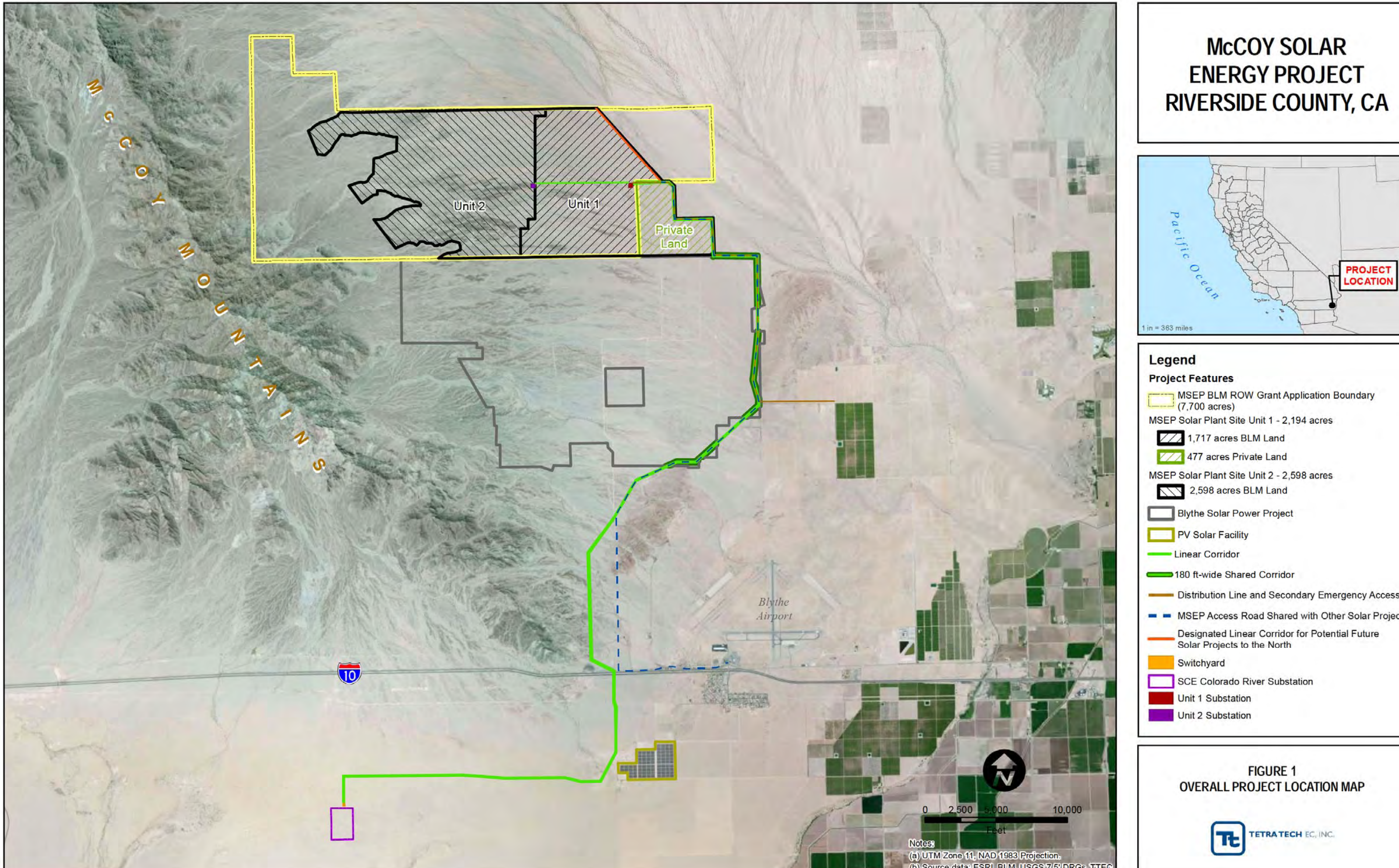

McCOY SOLAR ENERGY PROJECT RIVERSIDE COUNTY, CA

Legend

Project Features

- MSEP BLM ROW Grant Application Boundary (7,700 acres)
- MSEP Solar Plant Site Unit 1 - 2,194 acres
  - 1,717 acres BLM Land
  - 477 acres Private Land
- MSEP Solar Plant Site Unit 2 - 2,598 acres
  - 2,598 acres BLM Land
- Blythe Solar Power Project
- PV Solar Facility
- Linear Corridor
- 180 ft-wide Shared Corridor
- Distribution Line and Secondary Emergency Access
- MSEP Access Road Shared with Other Solar Projects
- Designated Linear Corridor for Potential Future Solar Projects to the North
- Switchyard
- SCE Colorado River Substation
- Unit 1 Substation
- Unit 2 Substation

FIGURE 1
OVERALL PROJECT LOCATION MAP

TETRA TECH EC, INC.

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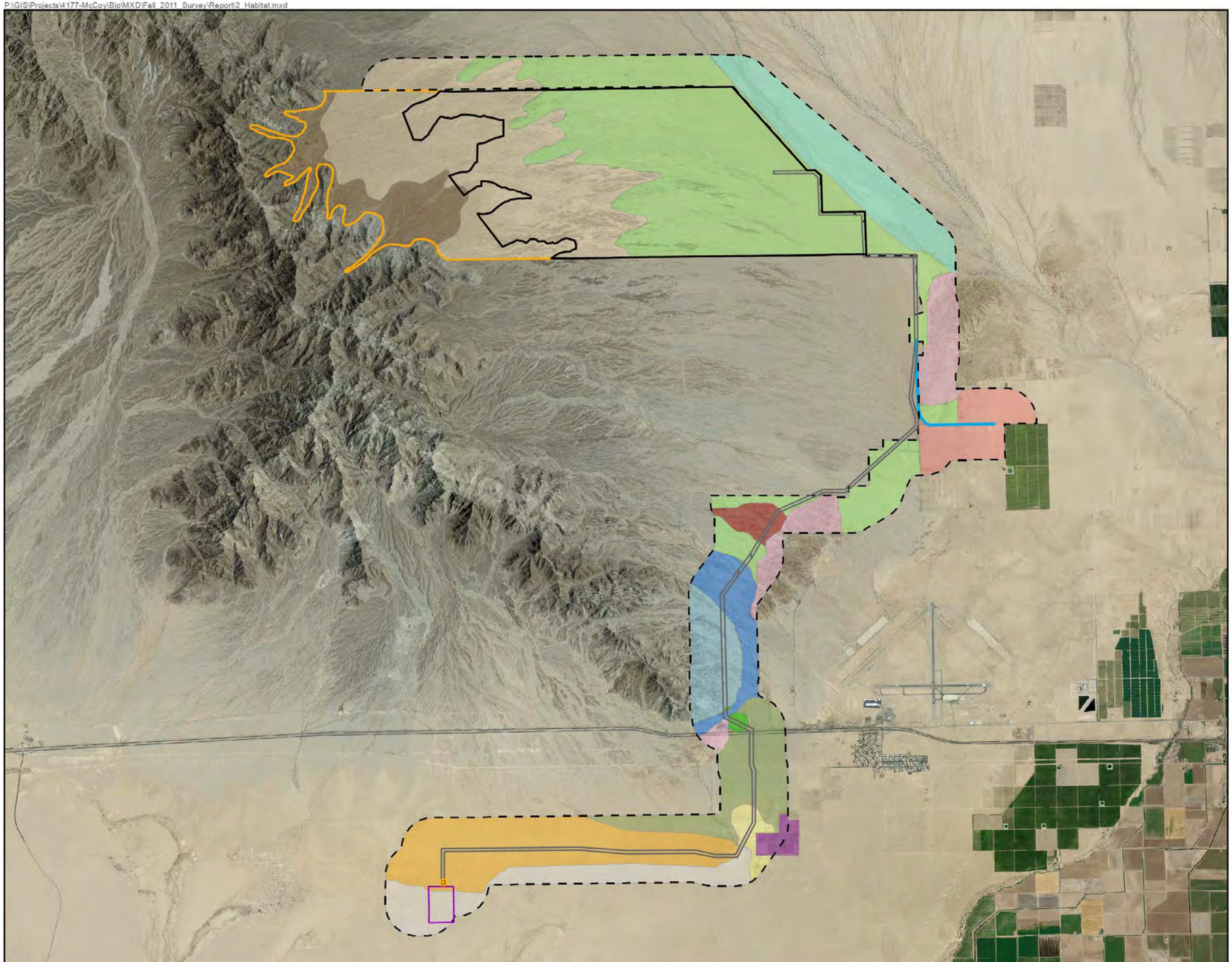

McCOY SOLAR ENERGY PROJECT RIVERSIDE COUNTY, CA

Notes:
(a) UTM Zone 11, NAD 1983 Projection.
(b) Source data: A. Karl, USDA.

FIGURE 2
PROJECT AREA HABITATS

TETRA TECH EC, INC.

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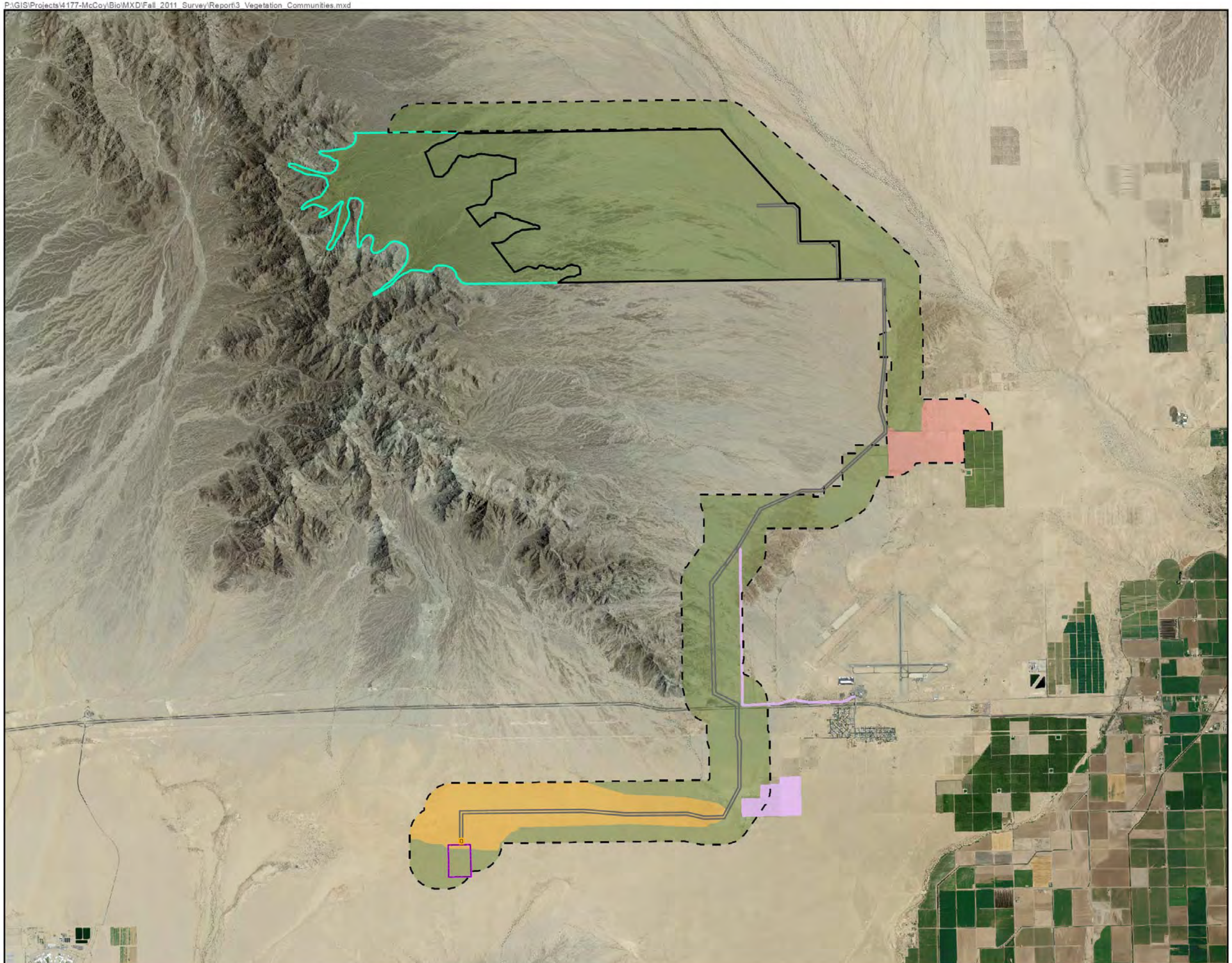


McCOY SOLAR ENERGY PROJECT RIVERSIDE COUNTY, CA

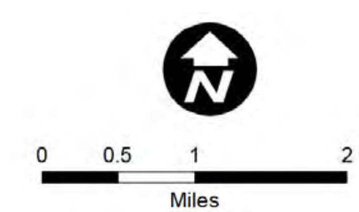
Legend

- MSEP Solar Plant Site Boundary
- Linear Corridor
- Colorado River Substation (SCE)
- Switchyard
- Extent of Area Surveyed
- Potential Primary Tortoise Recipient Area

Vegetation

- Creosote Bush - White Burr Sage Scrub
- Creosote Bush - White Burr Sage - Galleta Grass
- Ruderal Vegetation or Bare Ground
- No Vegetation (Developed)

Habitat data for the portions of the Linear Corridor that falls outside of the extent of the area surveyed were taken from AECOM 2010.



Notes:
(a) UTM Zone 11, NAD 1983 Projection.
(b) Source data: A. Karl, USDA.

FIGURE 3
VEGETATION COMMUNITIES

TETRA TECH EC, INC.

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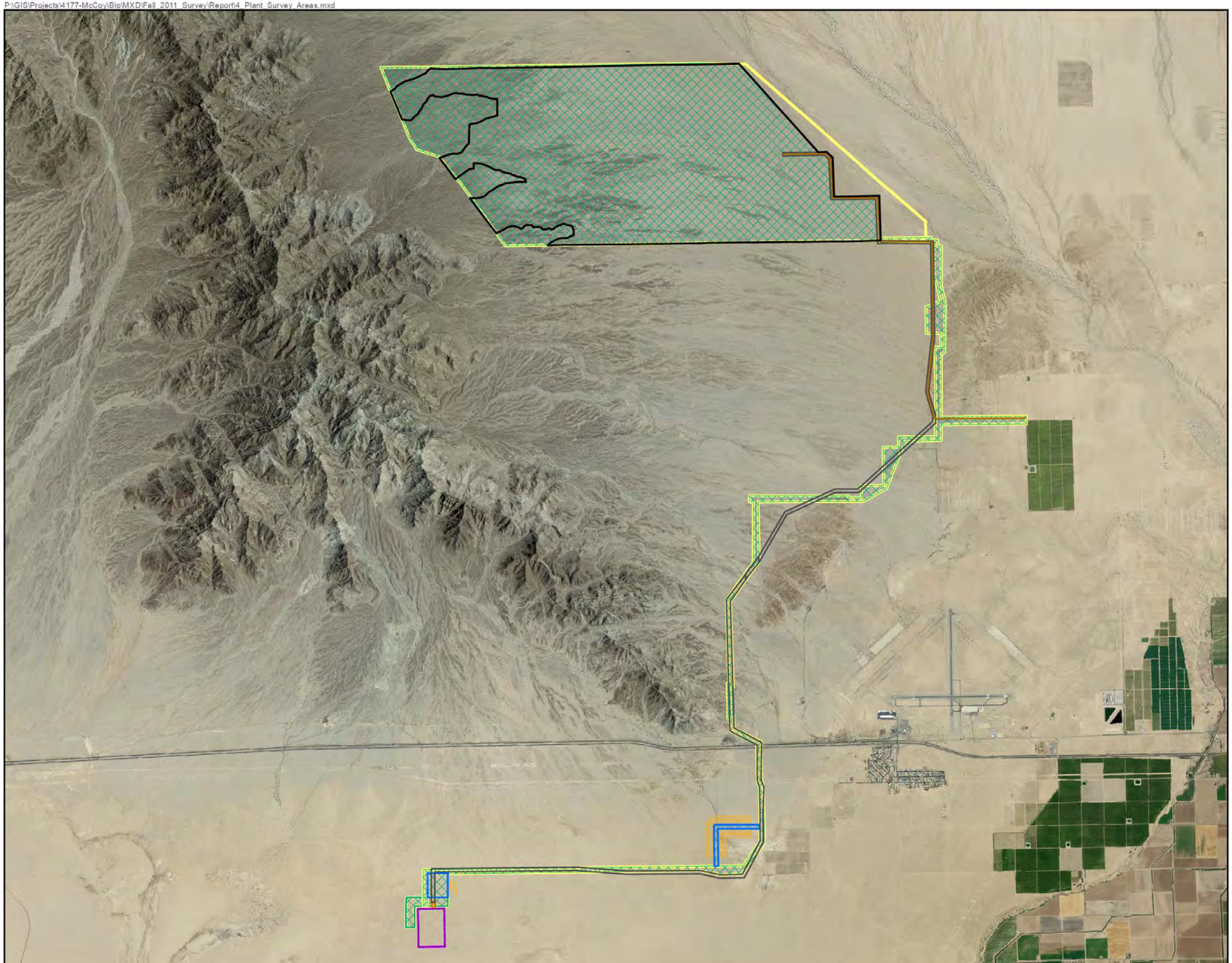

McCOY SOLAR
ENERGY PROJECT
RIVERSIDE COUNTY, CA

Legend

- MSEP Solar Plant Site Boundary
- Proposed Colorado River Substation (SCE)
- Switchyard
- Linear Corridor
- Distribution Line and Secondary Emergency Access
- Fall 2011 Plant Survey Area
- Fall 2011 Desert Tortoise Surveys (100% Coverage)
- 100 to 500 ft Buffer and Burrowing Owl Transects
- Spring 2011 Survey Area

The portions of the Linear Corridor that fall outside of the survey area were surveyed in 2010 (see AECOM 2010).

0 0.5 1 2
Miles

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

FIGURE 4
SPRING AND FALL 2011 SURVEY AREAS

TETRA TECH EC, INC.

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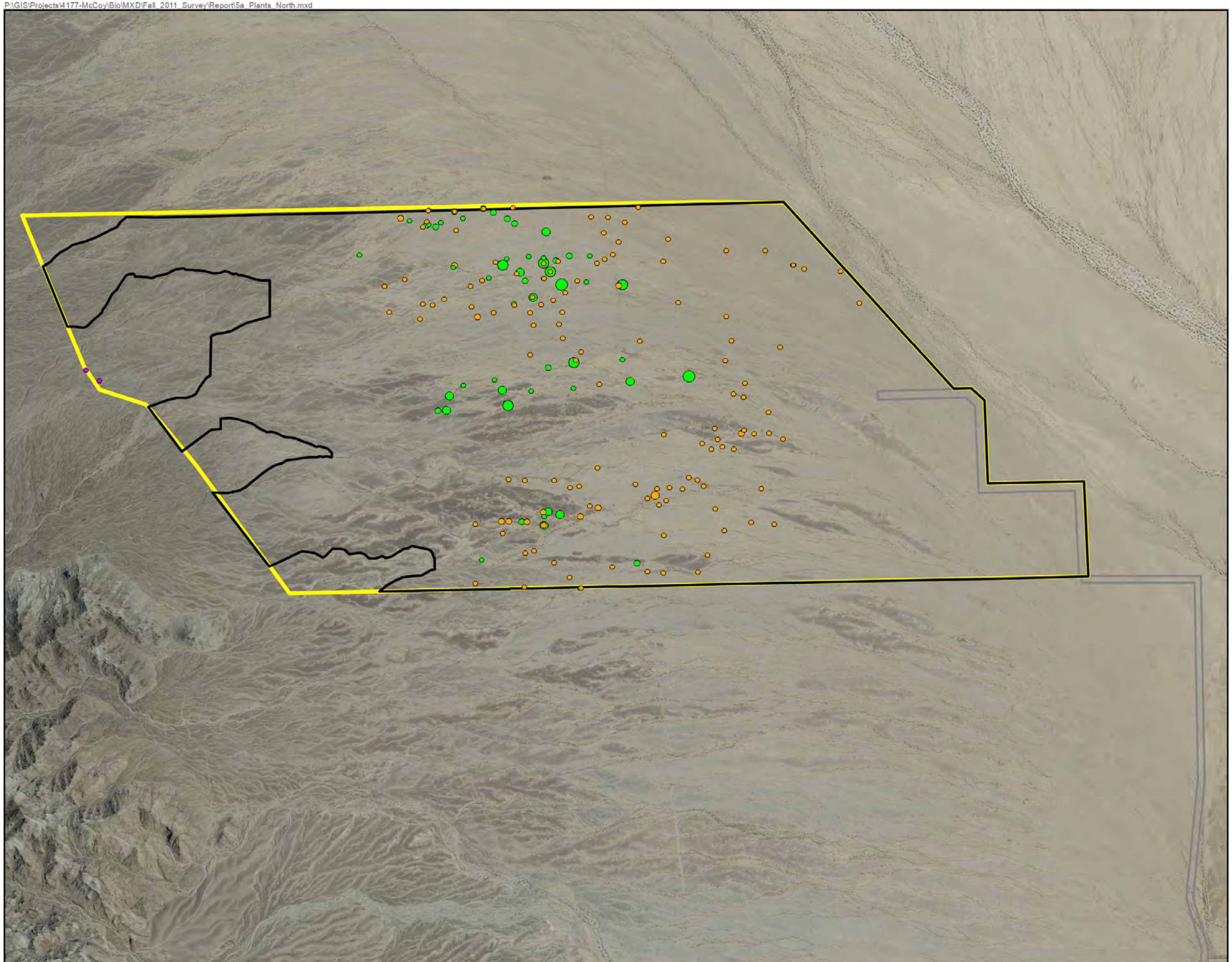


McCOY SOLAR ENERGY PROJECT RIVERSIDE COUNTY, CA

Legend

Common Name
- Abram's Spurge
- California Ditaxis
- Desert Unicorn Plant

Population Size
- 1-10 Plants
- 11-50 Plants
- 51-100 Plants
- 101-500 Plants
- 501-1,000 Plants

- MSEP Solar Plant Site Boundary
- Proposed Linear Corridor
- Solar Plant Site Survey Area

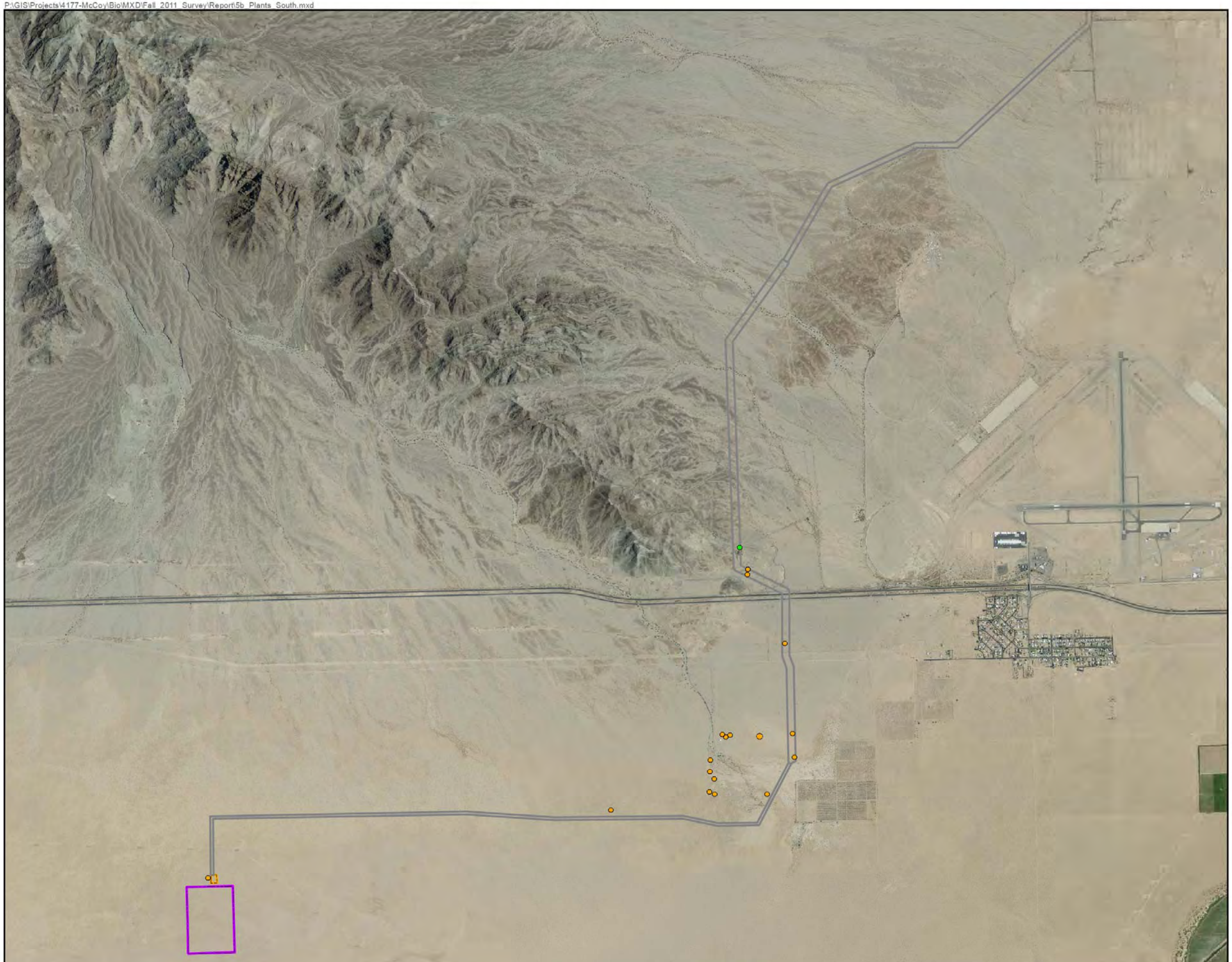
0 1,500 3,000 6,000
Feet

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

FIGURE 5A
SPECIAL-STATUS PLANTS OBSERVED DURING FALL 2011 SURVEYS

TETRA TECH EC, INC.

P:\GIS\Projects\4177-McCoy\Bio\MXD\Fall_2011_Survey\Report\5b_Plants_South.mxd



McCOY SOLAR ENERGY PROJECT RIVERSIDE COUNTY, CA

Legend

Common Name

- Abram's Spurge
- California Ditaxis
- Desert Unicorn Plant

Population Size

- 1-10 Plants
- 11-50 Plants
- 51-100 Plants
- 101-500 Plants
- 501-1,000 Plants

- Proposed Linear Corridor
- Proposed Colorado River Substation (SCE)
- Switchyard

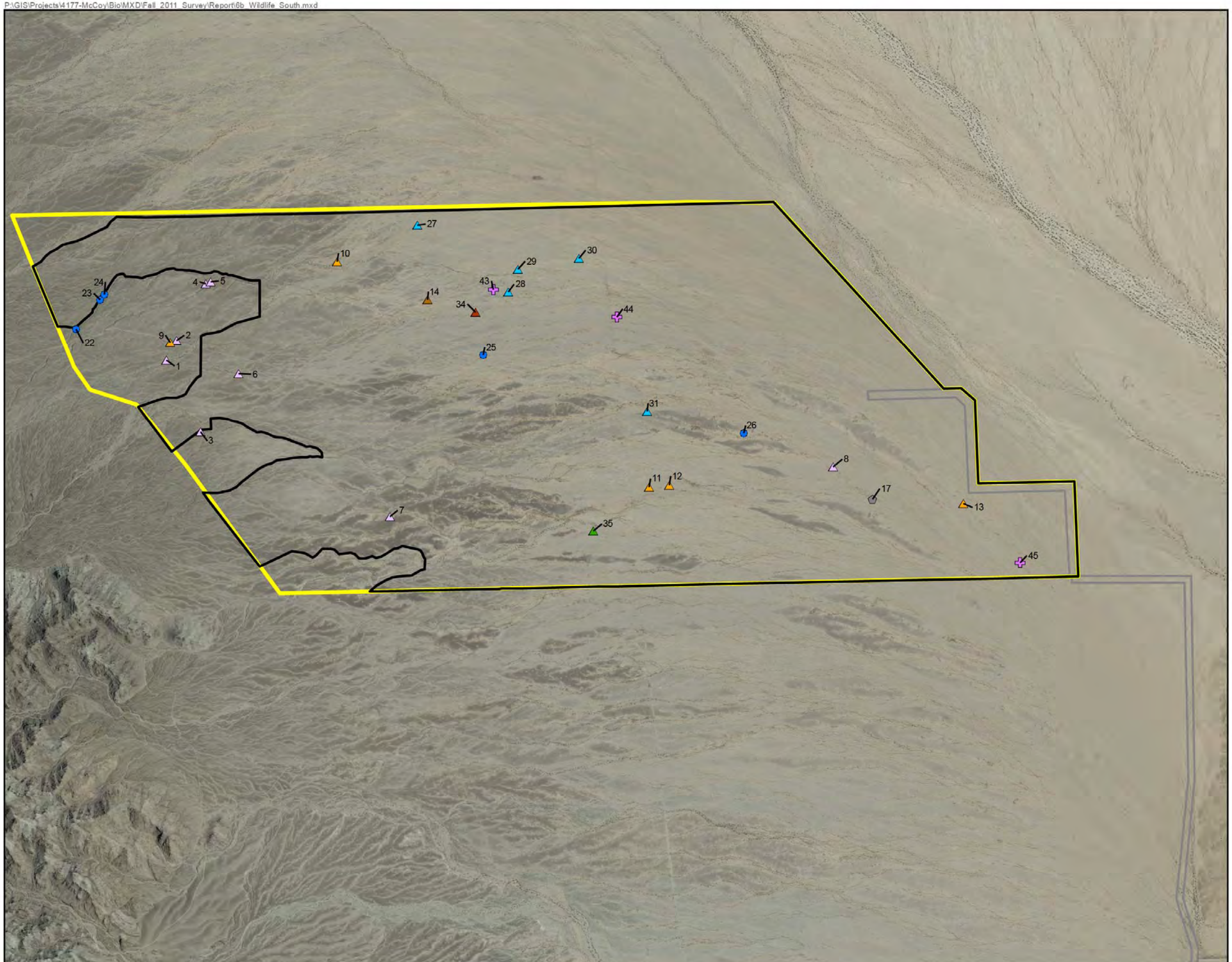
0 2,000 4,000 8,000
Feet

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

FIGURE 5B SPECIAL-STATUS PLANTS OBSERVED DURING FALL 2011 SURVEYS

TETRA TECH EC, INC.

P:\GIS\Projects\4177-McCoy\Bio\MXD\Fall_2011_Survey\Report\6b_Wildlife_South.mxd



McCOY SOLAR ENERGY PROJECT RIVERSIDE COUNTY, CA

Legend

Birds
- Brewer's Sparrow
- Burrowing Owl
- Burrowing Owl Burrow
- Le Conte's Thrasher
- Loggerhead Shrike
- Yellow Warbler

Reptiles
- Desert Tortoise Tracks
- Desert Tortoise Burrow
- Desert Tortoise Pallet
- Desert Tortoise Scat
- Mojave Fringe-toed lizard

Mammals
- Kit Fox Den
- Wild Burro Mandible

Numbers correspond to Appendix D

- MSEP Solar Plant Site Boundary
- Proposed Linear Corridor
- Solar Plant Site Survey Area

N

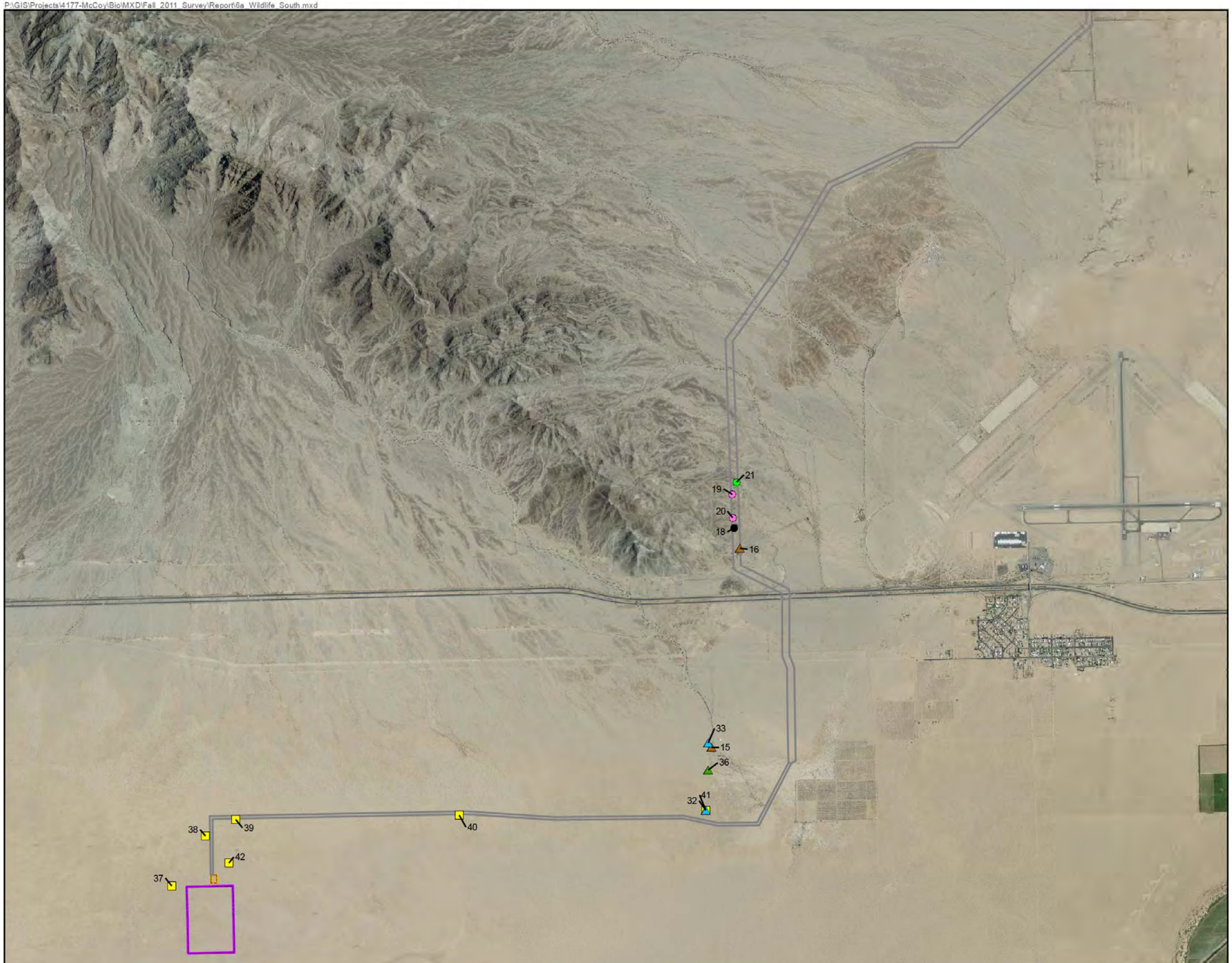
0 1,500 3,000 6,000

Feet

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

FIGURE 6A
SPECIAL-STATUS WILDLIFE OBSERVED DURING FALL 2011 SURVEYS

TETRA TECH EC, INC.



McCOY SOLAR ENERGY PROJECT RIVERSIDE COUNTY, CA

Legend

Birds
- Brewer's Sparrow
- Burrowing Owl
- Burrowing Owl Burrow
- Le Conte's Thrasher
- Loggerhead Shrike
- Yellow Warbler

Reptiles
- Desert Tortoise Tracks
- Desert Tortoise Burrow
- Desert Tortoise Pallet
- Desert Tortoise Scat
- Mojave Fringe-toed lizard

Mammals
- Kit Fox Den
- Wild Burro Mandible

Numbers correspond to Appendix D

- Proposed Linear Corridor
- Proposed Colorado River Substation (SCE)
- Switchyard

0 2,000 4,000 8,000
Feet

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

FIGURE 6B
SPECIAL-STATUS WILDLIFE OBSERVED DURING FALL 2011 SURVEYS

TETRA TECH EC, INC.

APPENDIX A
Fall 2011 Field Biologists

Field Biologists	Fall Plant Surveys	Supplemental Desert Tortoise Surveys	Insect Surveys
Alice Karl, Ph.D.*	X	X	
Art Schaub	X	X	
Emily Mix *	X	X	
David Faulkner			X
Glenn Rink	X		
Jeanne M. Bellemin			X
Kent Hughes	X		
Marc Baker, Ph.D.	X		
Michael Honer	X		
Michelle Cloud Hughes	X		
Neal Kramer	X		
Paul Frank	X	X	
Tasya Herskovits	X		
Tim Thomas	X	X	

*Report Preparers

APPENDIX B

Comprehensive Fall 2011 Special-status Plant Survey Results

Map Number Corresponds to Figures 5A and 5B	UTM (NAD 83)		Species		Population Size (Number of Plants or Abundance)	Area (square meters)
	Easting	Northing				
1	704394	3732779	*Chamaesyce abramsiana*	Abram's spurge	1	< 1
2	704741	3733087	*Chamaesyce abramsiana*	Abram's spurge	15	12
3	704812	3733066	*Chamaesyce abramsiana*	Abram's spurge	5	2
4	704952	3733026	*Chamaesyce abramsiana*	Abram's spurge	20	50
5	704971	3733032	*Chamaesyce abramsiana*	Abram's spurge	10	150
6	704972	3733155	*Chamaesyce abramsiana*	Abram's spurge	2	< 1
7	705033	3733012	*Chamaesyce abramsiana*	Abram's spurge	50	15
8	705054	3731476	*Chamaesyce abramsiana*	Abram's spurge	20	4
9	705075	3733049	*Chamaesyce abramsiana*	Abram's spurge	5	10
10	705123	3731483	*Chamaesyce abramsiana*	Abram's spurge	60+	1025
11	705144	3731603	*Chamaesyce abramsiana*	Abram's spurge	77	70
12	705179	3732675	*Chamaesyce abramsiana*	Abram's spurge	10	10
13	705192	3733140	*Chamaesyce abramsiana*	Abram's spurge	25	600
14	705258	3733084	*Chamaesyce abramsiana*	Abram's spurge	6	15
15	705262	3731692	*Chamaesyce abramsiana*	Abram's spurge	1	< 1
16	705414	3730229	*Chamaesyce abramsiana*	Abram's spurge	3	10
17	705432	3733167	*Chamaesyce abramsiana*	Abram's spurge	20	30
18	705476	3732587	*Chamaesyce abramsiana*	Abram's spurge	3	Not noted
19	705516	3733135	*Chamaesyce abramsiana*	Abram's spurge	30	60
20	705523	3731734	*Chamaesyce abramsiana*	Abram's spurge	10	15
21	705587	3731650	*Chamaesyce abramsiana*	Abram's spurge	60	60
22	705592	3732695	*Chamaesyce abramsiana*	Abram's spurge	100+	200
23	705623	3732748	*Chamaesyce abramsiana*	Abram's spurge	4	60
24	705633	3733082	*Chamaesyce abramsiana*	Abram's spurge	17	100
25	705635	3731521	*Chamaesyce abramsiana*	Abram's spurge	125+	585
26	705684	3732372	*Chamaesyce abramsiana*	Abram's spurge	3	1
27	705692	3733042	*Chamaesyce abramsiana*	Abram's spurge	15	75
28	705735	3732634	*Chamaesyce abramsiana*	Abram's spurge	55	400
29	705753	3730547	*Chamaesyce abramsiana*	Abram's spurge	23	6
30	705781	3732563	*Chamaesyce abramsiana*	Abram's spurge	50	20
31	705809	3732769	*Chamaesyce abramsiana*	Abram's spurge	1	< 1

Map Number Corresponds to Figures 5A and 5B	UTM (NAD 83)		Species		Population Size (Number of Plants or Abundance)	Area (square meters)
	Easting	Northing				
32	705829	3731641	*Chamaesyce abramsiana*	Abram's spurge	7	1
33	705844	3732428	*Chamaesyce abramsiana*	Abram's spurge	55	360
34	705933	3732754	*Chamaesyce abramsiana*	Abram's spurge	2	20
35	705934	3732713	*Chamaesyce abramsiana*	Abram's spurge	200	30000
36	705934	3732584	*Chamaesyce abramsiana*	Abram's spurge	2	5
37	705936	3730591	*Chamaesyce abramsiana*	Abram's spurge	10	25
38	705938	3730521	*Chamaesyce abramsiana*	Abram's spurge	60	45
39	705954	3732973	*Chamaesyce abramsiana*	Abram's spurge	60	40
40	705972	3730632	*Chamaesyce abramsiana*	Abram's spurge	50-75	20
41	705973	3731836	*Chamaesyce abramsiana*	Abram's spurge	33	60
42	705992	3732640	*Chamaesyce abramsiana*	Abram's spurge	202	2250
43	706039	3732731	*Chamaesyce abramsiana*	Abram's spurge	20	40
44	706069	3730610	*Chamaesyce abramsiana*	Abram's spurge	50-75	2500
45	706088	3732529	*Chamaesyce abramsiana*	Abram's spurge	850	600
46	706149	3732772	*Chamaesyce abramsiana*	Abram's spurge	25	200
47	706184	3731668	*Chamaesyce abramsiana*	Abram's spurge	7	1
48	706189	3731881	*Chamaesyce abramsiana*	Abram's spurge	222	1000
49	706240	3729993	*Chamaesyce abramsiana*	Abram's spurge	2	1
50	706293	3732556	*Chamaesyce abramsiana*	Abram's spurge	5	Not noted
51	706321	3732771	*Chamaesyce abramsiana*	Abram's spurge	6	20
52	706595	3732531	*Chamaesyce abramsiana*	Abram's spurge	150	6750
53	706595	3731904	*Chamaesyce abramsiana*	Abram's spurge	1	< 1
54	706658	3731721	*Chamaesyce abramsiana*	Abram's spurge	75	4200
55	706719	3730201	*Chamaesyce abramsiana*	Abram's spurge	40	2
56	707154	3731764	*Chamaesyce abramsiana*	Abram's spurge	1000	125
57	707930	3721565	*Chamaesyce abramsiana*	Abram's spurge	10	4
58	702108	3731815	*Ditaxis serrata* var. *californica*	California ditaxis	2	1
59	702219	3731726	*Ditaxis serrata* var. *californica*	California ditaxis	2	1
60	702556	3718224	*Proboscidea althaeifolia*	Desert unicorn plant	1	< 1
61	704605	3732518	*Proboscidea althaeifolia*	Desert unicorn plant	2	20 m (linear)
62	704643	3732302	*Proboscidea althaeifolia*	Desert unicorn plant	8	300

Map Number Corresponds to Figures 5A and 5B	UTM (NAD 83)		Species		Population Size (Number of Plants or Abundance)	Area (square meters)
	Easting	Northing				
63	704740	3733086	*Proboscidea althaeifolia*	Desert unicorn plant	12	1000
64	704772	3732576	*Proboscidea althaeifolia*	Desert unicorn plant	3	100
65	704899	3732244	*Proboscidea althaeifolia*	Desert unicorn plant	2	Not noted
66	704923	3732370	*Proboscidea althaeifolia*	Desert unicorn plant	8	100
67	704926	3733013	*Proboscidea althaeifolia*	Desert unicorn plant	3	130
68	704957	3733057	*Proboscidea althaeifolia*	Desert unicorn plant	1	< 1
69	704967	3733150	*Proboscidea althaeifolia*	Desert unicorn plant	4	10
70	705007	3732360	*Proboscidea althaeifolia*	Desert unicorn plant	2	5
71	705100	3732410	*Proboscidea althaeifolia*	Desert unicorn plant	4	5
72	705192	3733140	*Proboscidea althaeifolia*	Desert unicorn plant	1	< 1
73	705192	3732692	*Proboscidea althaeifolia*	Desert unicorn plant	26	30000
74	705201	3732985	*Proboscidea althaeifolia*	Desert unicorn plant	1	< 1
75	705323	3732517	*Proboscidea althaeifolia*	Desert unicorn plant	2	200
76	705329	3732346	*Proboscidea althaeifolia*	Desert unicorn plant	4	250
77	705361	3730030	*Proboscidea althaeifolia*	Desert unicorn plant	9	70
78	705364	3730530	*Proboscidea althaeifolia*	Desert unicorn plant	6	175
79	705383	3732262	*Proboscidea althaeifolia*	Desert unicorn plant	15	250
80	705418	3732567	*Proboscidea althaeifolia*	Desert unicorn plant	1	< 1
81	705432	3733167	*Proboscidea althaeifolia*	Desert unicorn plant	3	30
82	705517	3732298	*Proboscidea althaeifolia*	Desert unicorn plant	6	2500
83	705531	3732720	*Proboscidea althaeifolia*	Desert unicorn plant	2	50
84	705584	3730553	*Proboscidea althaeifolia*	Desert unicorn plant	28	6240
85	705591	3730454	*Proboscidea althaeifolia*	Desert unicorn plant	7	3
86	705641	3730901	*Proboscidea althaeifolia*	Desert unicorn plant	2	1
87	705644	3730551	*Proboscidea althaeifolia*	Desert unicorn plant	11	4
88	705678	3733176	*Proboscidea althaeifolia*	Desert unicorn plant	1	< 1
89	705690	3732361	*Proboscidea althaeifolia*	Desert unicorn plant	2	50
90	705707	3732624	*Proboscidea althaeifolia*	Desert unicorn plant	1	< 1
91	705774	3730001	*Proboscidea althaeifolia*	Desert unicorn plant	1	< 1
92	705779	3730896	*Proboscidea althaeifolia*	Desert unicorn plant	2	30
93	705782	3730287	*Proboscidea althaeifolia*	Desert unicorn plant	1	< 1

Map Number Corresponds to Figures 5A and 5B	UTM (NAD 83)		Species		Population Size (Number of Plants or Abundance)	Area (square meters)
	Easting	Northing				
94	705798	3730549	*Proboscidea althaeifolia*	Desert unicorn plant	11	3920
95	705820	3731945	*Proboscidea althaeifolia*	Desert unicorn plant	2	20
96	705822	3732297	*Proboscidea althaeifolia*	Desert unicorn plant	2	2
97	705840	3732428	*Proboscidea althaeifolia*	Desert unicorn plant	1	< 1
98	705850	3732192	*Proboscidea althaeifolia*	Desert unicorn plant	1	< 1
99	705852	3730309	*Proboscidea althaeifolia*	Desert unicorn plant	1	< 1
100	705914	3732364	*Proboscidea althaeifolia*	Desert unicorn plant	2	50
101	705932	3730630	*Proboscidea althaeifolia*	Desert unicorn plant	32	20000
102	705935	3732709	*Proboscidea althaeifolia*	Desert unicorn plant	3	60
103	705936	3732585	*Proboscidea althaeifolia*	Desert unicorn plant	3	300
104	705938	3730521	*Proboscidea althaeifolia*	Desert unicorn plant	17	90
105	705992	3732639	*Proboscidea althaeifolia*	Desert unicorn plant	2	Not noted
106	706013	3732401	*Proboscidea althaeifolia*	Desert unicorn plant	1	< 1
107	706021	3730896	*Proboscidea althaeifolia*	Desert unicorn plant	1	< 1
108	706023	3730208	*Proboscidea althaeifolia*	Desert unicorn plant	1	0.01
109	706056	3732728	*Proboscidea althaeifolia*	Desert unicorn plant	1	< 1
110	706061	3732200	*Proboscidea althaeifolia*	Desert unicorn plant	4	3
111	706089	3732301	*Proboscidea althaeifolia*	Desert unicorn plant	10	30
112	706095	3732083	*Proboscidea althaeifolia*	Desert unicorn plant	1	< 1
113	706115	3732465	*Proboscidea althaeifolia*	Desert unicorn plant	2	50
114	706151	3730084	*Proboscidea althaeifolia*	Desert unicorn plant	1	< 1
115	706156	3730834	*Proboscidea althaeifolia*	Desert unicorn plant	2	1
116	706204	3731901	*Proboscidea althaeifolia*	Desert unicorn plant	3	50
117	706216	3732563	*Proboscidea althaeifolia*	Desert unicorn plant	1	< 1
118	706231	3730847	*Proboscidea althaeifolia*	Desert unicorn plant	4	40 m (linear)
119	706244	3730592	*Proboscidea althaeifolia*	Desert unicorn plant	37	240
120	706246	3729993	*Proboscidea althaeifolia*	Desert unicorn plant	3	20 m (linear)
121	706249	3731968	*Proboscidea althaeifolia*	Desert unicorn plant	2	1
122	706318	3730682	*Proboscidea althaeifolia*	Desert unicorn plant	8	3660
123	706332	3733096	*Proboscidea althaeifolia*	Desert unicorn plant	1	< 1
124	706381	3732712	*Proboscidea althaeifolia*	Desert unicorn plant	6	600

Map Number Corresponds to Figures 5A and 5B	UTM (NAD 83)		Species		Population Size (Number of Plants or Abundance)	Area (square meters)
	Easting	Northing				
125	706385	3730998	*Proboscidea althaeifolia*	Desert unicorn plant	1	0.005
126	706391	3730667	*Proboscidea althaeifolia*	Desert unicorn plant	11	66 m (linear)
127	706399	3731698	*Proboscidea althaeifolia*	Desert unicorn plant	3	1
128	706435	3732965	*Proboscidea althaeifolia*	Desert unicorn plant	1	< 1
129	706444	3732744	*Proboscidea althaeifolia*	Desert unicorn plant	2	55
130	706472	3733092	*Proboscidea althaeifolia*	Desert unicorn plant	3	50
131	706510	3730172	*Proboscidea althaeifolia*	Desert unicorn plant	2	15
132	706512	3732784	*Proboscidea althaeifolia*	Desert unicorn plant	7	5
133	706560	3732890	*Proboscidea althaeifolia*	Desert unicorn plant	1	< 1
134	706565	3732524	*Proboscidea althaeifolia*	Desert unicorn plant	25	3000
135	706612	3733055	*Proboscidea althaeifolia*	Desert unicorn plant	1	< 1
136	706626	3718909	*Proboscidea althaeifolia*	Desert unicorn plant	1	< 1
137	706702	3730861	*Proboscidea althaeifolia*	Desert unicorn plant	1	< 1
138	706725	3733177	*Proboscidea althaeifolia*	Desert unicorn plant	2	77
139	706739	3732060	*Proboscidea althaeifolia*	Desert unicorn plant	1	< 1
140	706803	3730745	*Proboscidea althaeifolia*	Desert unicorn plant	4	10
141	706804	3730132	*Proboscidea althaeifolia*	Desert unicorn plant	2	40
142	706866	3730769	*Proboscidea althaeifolia*	Desert unicorn plant	56	200
143	706884	3730828	*Proboscidea althaeifolia*	Desert unicorn plant	1	< 1
144	706898	3730691	*Proboscidea althaeifolia*	Desert unicorn plant	2	20 m (linear)
145	706934	3732728	*Proboscidea althaeifolia*	Desert unicorn plant	2	1
146	706936	3730120	*Proboscidea althaeifolia*	Desert unicorn plant	1	< 1
147	706940	3730435	*Proboscidea althaeifolia*	Desert unicorn plant	1	< 1
148	706941	3731275	*Proboscidea althaeifolia*	Desert unicorn plant	1	< 1
149	706958	3730726	*Proboscidea althaeifolia*	Desert unicorn plant	1	< 1
150	706976	3732913	*Proboscidea althaeifolia*	Desert unicorn plant	2	1
151	706986	3730834	*Proboscidea althaeifolia*	Desert unicorn plant	1	< 1
152	707059	3732382	*Proboscidea althaeifolia*	Desert unicorn plant	3	15
153	707096	3730822	*Proboscidea althaeifolia*	Desert unicorn plant	5	1000
154	707148	3730919	*Proboscidea althaeifolia*	Desert unicorn plant	1	1
155	707220	3730899	*Proboscidea althaeifolia*	Desert unicorn plant	4	Not noted

Map Number Corresponds to Figures 5A and 5B	UTM (NAD 83)		Species		Population Size (Number of Plants or Abundance)	Area (square meters)
	Easting	Northing				
156	707225	3730126	*Proboscidea althaeifolia*	Desert unicorn plant	1	< 1
157	707260	3731202	*Proboscidea althaeifolia*	Desert unicorn plant	8	50
158	707272	3730848	*Proboscidea althaeifolia*	Desert unicorn plant	6	30
159	707303	3730272	*Proboscidea althaeifolia*	Desert unicorn plant	1	< 1
160	707336	3731157	*Proboscidea althaeifolia*	Desert unicorn plant	1	< 1
161	707365	3731328	*Proboscidea althaeifolia*	Desert unicorn plant	1	0.5
162	707368	3730658	*Proboscidea althaeifolia*	Desert unicorn plant	1	< 1
163	707390	3731236	*Proboscidea althaeifolia*	Desert unicorn plant	3	10
164	707431	3731177	*Proboscidea althaeifolia*	Desert unicorn plant	1	< 1
165	707447	3730475	*Proboscidea althaeifolia*	Desert unicorn plant	1	0.04
166	707452	3731897	*Proboscidea althaeifolia*	Desert unicorn plant	1	< 1
167	707461	3732817	*Proboscidea althaeifolia*	Desert unicorn plant	1	< 1
168	707463	3732264	*Proboscidea althaeifolia*	Desert unicorn plant	1	< 1
169	707507	3732063	*Proboscidea althaeifolia*	Desert unicorn plant	1	< 1
170	707522	3731620	*Proboscidea althaeifolia*	Desert unicorn plant	5	40
171	707528	3731154	*Proboscidea althaeifolia*	Desert unicorn plant	2	0.5
172	707592	3731286	*Proboscidea althaeifolia*	Desert unicorn plant	13	630
173	707608	3731589	*Proboscidea althaeifolia*	Desert unicorn plant	2	10
174	707609	3731311	*Proboscidea althaeifolia*	Desert unicorn plant	5	40
175	707619	3731706	*Proboscidea althaeifolia*	Desert unicorn plant	1	< 1
176	707624	3719092	*Proboscidea althaeifolia*	Desert unicorn plant	6	600
177	707629	3719296	*Proboscidea althaeifolia*	Desert unicorn plant	1	< 1
178	707634	3719411	*Proboscidea althaeifolia*	Desert unicorn plant	1	< 1
179	707670	3730544	*Proboscidea althaeifolia*	Desert unicorn plant	1	< 1
180	707673	3719224	*Proboscidea althaeifolia*	Desert unicorn plant	1	< 1
181	707676	3719069	*Proboscidea althaeifolia*	Desert unicorn plant	7	200
182	707695	3731283	*Proboscidea althaeifolia*	Desert unicorn plant	9	10
183	707756	3719671	*Proboscidea althaeifolia*	Desert unicorn plant	3	100
184	707757	3730826	*Proboscidea althaeifolia*	Desert unicorn plant	5	75
185	707787	3732815	*Proboscidea althaeifolia*	Desert unicorn plant	1	< 1
186	707788	3719644	*Proboscidea althaeifolia*	Desert unicorn plant	1	< 1

Map Number Corresponds to Figures 5A and 5B	UTM (NAD 83)		Species		Population Size (Number of Plants or Abundance)	Area (square meters)
	Easting	Northing				
187	707816	3731464	*Proboscidea althaeifolia*	Desert unicorn plant	1	< 1
188	707819	3731287	*Proboscidea althaeifolia*	Desert unicorn plant	3	10
189	707834	3719664	*Proboscidea althaeifolia*	Desert unicorn plant	3	200
190	707862	3730527	*Proboscidea althaeifolia*	Desert unicorn plant	1	< 1
191	707911	3732010	*Proboscidea althaeifolia*	Desert unicorn plant	1	< 1
192	707935	3731239	*Proboscidea althaeifolia*	Desert unicorn plant	1	< 1
193	708005	3721291	*Proboscidea althaeifolia*	Desert unicorn plant	1	< 1
194	708014	3721343	*Proboscidea althaeifolia*	Desert unicorn plant	2	15
195	708014	3721343	*Proboscidea althaeifolia*	Desert unicorn plant	2	15
196	708022	3732697	*Proboscidea althaeifolia*	Desert unicorn plant	1	< 1
197	708024	3732695	*Proboscidea althaeifolia*	Desert unicorn plant	1	< 1
198	708113	3732665	*Proboscidea althaeifolia*	Desert unicorn plant	3	200
199	708134	3719650	*Proboscidea althaeifolia*	Desert unicorn plant	12	500
200	708206	3719066	*Proboscidea althaeifolia*	Desert unicorn plant	2	5
201	708387	3720594	*Proboscidea althaeifolia*	Desert unicorn plant	1	1
202	708418	3732645	*Proboscidea althaeifolia*	Desert unicorn plant	1	< 1
203	708463	3719680	*Proboscidea althaeifolia*	Desert unicorn plant	1	1
204	708485	3719440	*Proboscidea althaeifolia*	Desert unicorn plant	1	1
205	708576	3732378	*Proboscidea althaeifolia*	Desert unicorn plant	1	< 1

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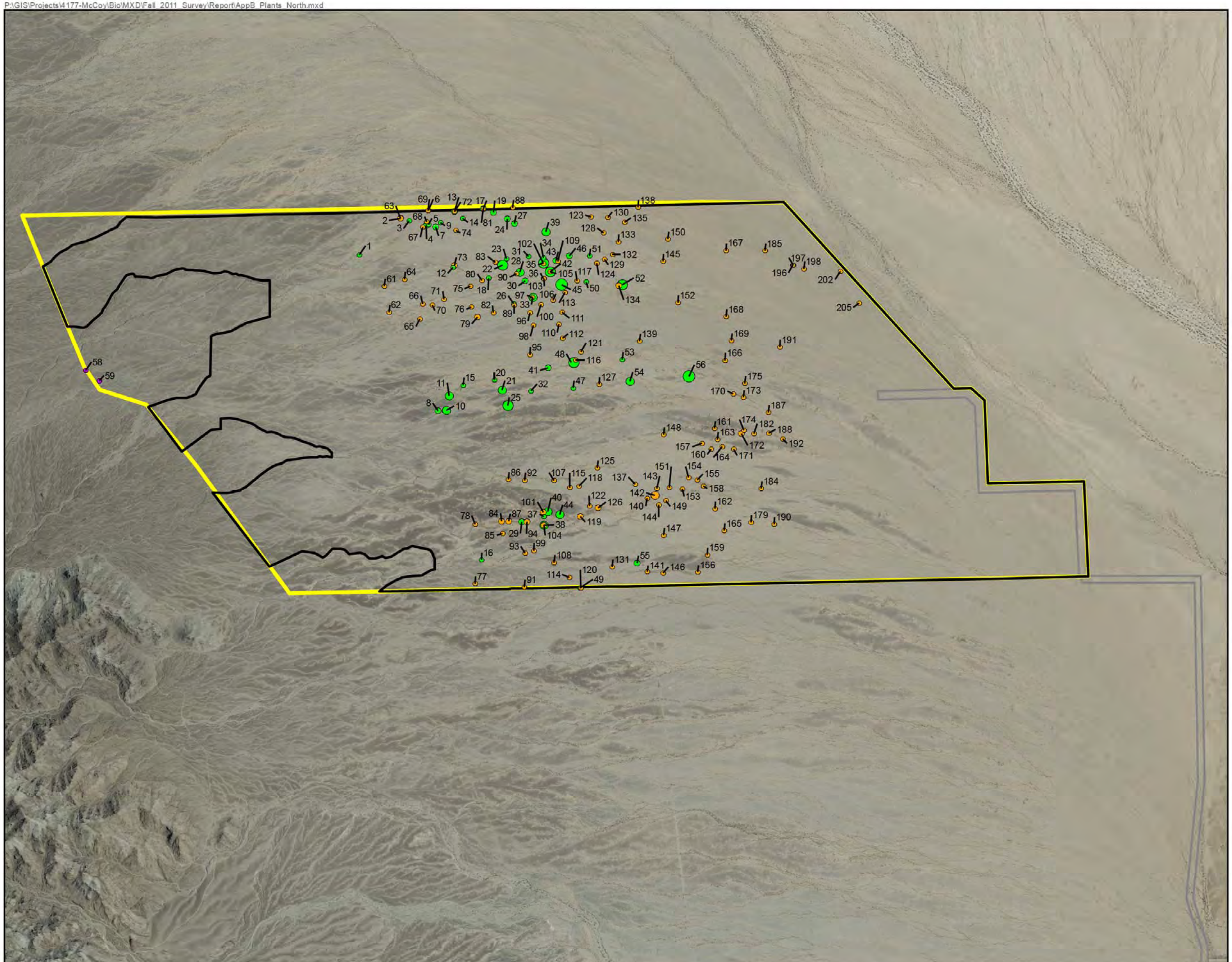

McCOY SOLAR ENERGY PROJECT RIVERSIDE COUNTY, CA

Legend

Common Name
- Abram's Spurge
- California Ditaxis
- Desert Unicorn Plant

Population Size
- 1-10 Plants
- 11-50 Plants
- 51-100 Plants
- 101-500 Plants
- 501-1,000 Plants

Numbers Correspond to Appendix B

- MSEP Solar Plant Site Boundary
- Proposed Linear Corridor
- Solar Plant Site Survey Area

N

0 1,500 3,000 6,000
Feet

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

APPENDIX B SPECIAL-STATUS PLANTS OBSERVED DURING FALL 2011 SURVEYS

TETRA TECH EC, INC.

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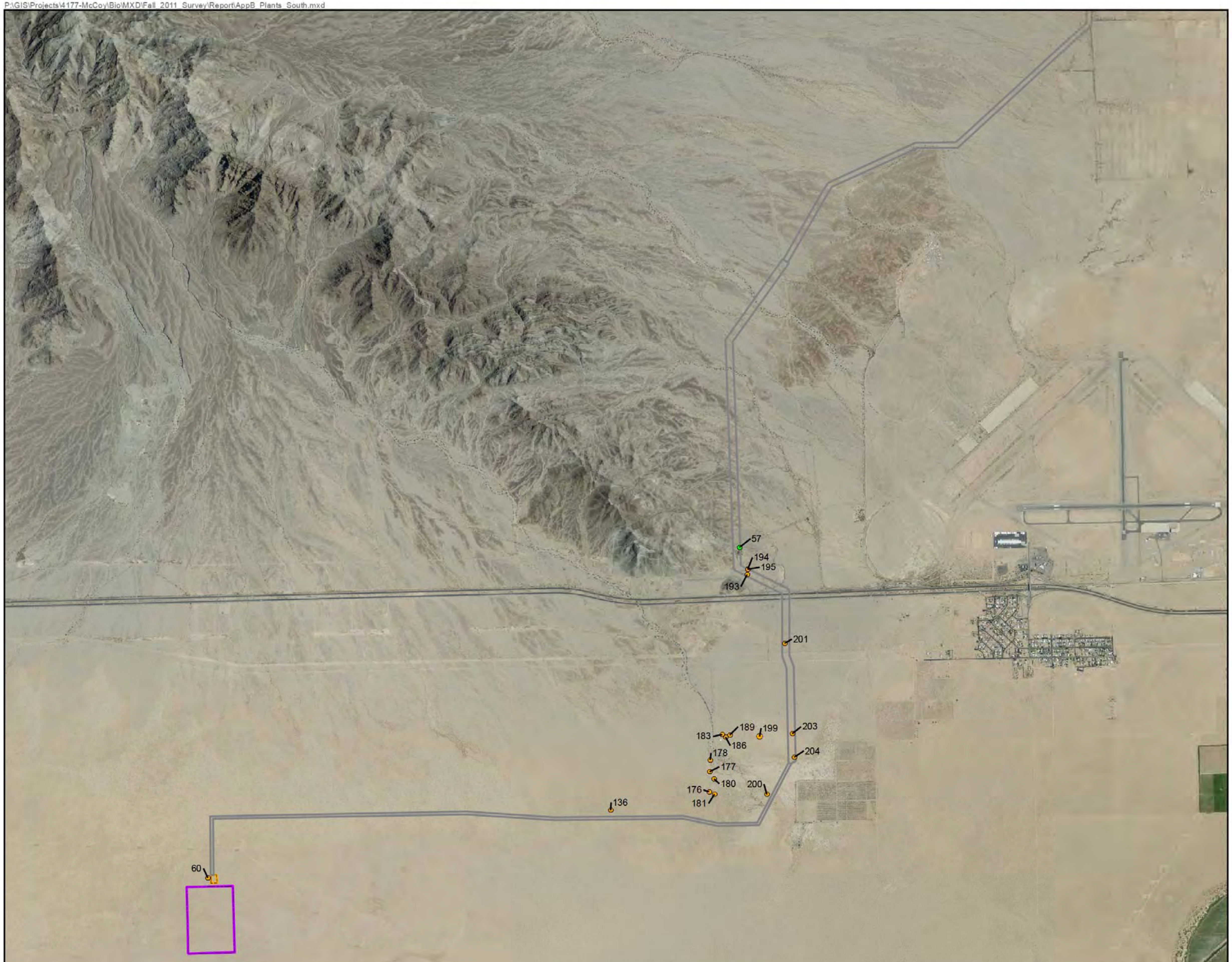

McCOY SOLAR ENERGY PROJECT RIVERSIDE COUNTY, CA

Legend

Common Name
- Abram's Spurge
- California Ditaxis
- Desert Unicorn Plant

Population Size
- 1-10 Plants
- 11-50 Plants
- 51-100 Plants
- 101-500 Plants
- 501-1,000 Plants

Numbers Correspond to Appendix B

- Proposed Linear Corridor
- Proposed Colorado River Substation (SCE)
- Switchyard

0 2,000 4,000 8,000
Feet

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

APPENDIX B
SPECIAL-STATUS PLANTS OBSERVED DURING FALL 2011 SURVEYS

TETRA TECH EC, INC.

APPENDIX C

Comprehensive List of All Plant Species Observed during 2010 and 2011 Field Surveys

Plant Species Observed at the McCoy Solar Energy Project, including the Proposed Translocation Area, during Spring and Fall 2011 Surveys	
Abronia villosa var. *villosa*	sand verbena
Achyronychia cooperi	frost-mat
Adenophyllum porophylloides	adenophyllum
Allionia incarnata	windmills
Ambrosia dumosa	white bursage
A. (=Hymenoclea) salsola	cheesebush
Amsinckia menziesii	fiddleneck
Amsinckia menziesii var. intermedia	fiddleneck
Aristida adscencionis	three-awn
A. californica	three-awn
A. purpurea	purple three-awn
Asclepias albicans	buggywhip milkweed
A. subulata	rush milkweed
Astragalus acutirostris	keel-beak
Astragalus aridus	astragalus
A. insularis var. *harwoodii*	Harwood's milkvetch
A. nuttallianus	Nuttall locoweed
Atrichoseris platyphylla	gravel-ghost
Atriplex elegans	wheelscale
Baileya pauciradiata	desert marigold
Baccharis brachyphylla	short-leaved baccharis
Bahiopsis (= Viguiera) parishii	viguiera
Bebbia juncea	chuckwalla bush
Boerhavia coulteri	spiderling
B. wrightii	spiderlings
Bouteloua aristidoides	needle grama
B. barbata	six-weeks grama
Brandegea bigelovii	desert starvine
**Brassica tournefortii*	Sahara mustard
**Bromus madritensis* var. *rubescens*	red brome
Calycoseris wrightii	white tackstem
Camissonia boothii ssp. *condensata*	bottlebrush primrose
C. boothii ssp. *desertorum*	bottlebrush primrose
C. brevipes	yellow-cups
C. cardiophylla	heart-leaved primrose
C. claviformiss ssp. *aurantiaca*	brown-eyed primrose
C. refracta	narrow-leaved primrose
Casuarina sp.	beach sheoak
Cercidium floridum (=Parkinsonia florida)	blue paloverde
Chaenactis carphoclinia	pebble pincushion
C. stevioides	desert pincushion
Chamaesyce abramsiana	Abram's spurge
C. micromera	spurge
C. polycarpa	spurge
C. setiloba	spurge
**Chenopodium album*	pigweed
**C. murale*	goosefoot
Chorizanthe brevicornu	brittle spine-flower
C. corrugate	spineflower
C. rigida	rigid spinyherb
Colubrina californica	Las Animas colubrina

Plant Species Observed at the McCoy Solar Energy Project, including the Proposed Translocation Area, during Spring and Fall 2011 Surveys	
Crossidiium seriatum	moss
Cryptantha angustifolia	narrow-leaved forget-me-not
C. barbigera	bearded cryptantha
C. costata	ribbed cryptantha
C. dumetorum	flexuous forget-me-not
C. maritima	white-haired forget-me-not
C. micrantha	purple-rooted forget-me-not
C. nevadensis	Nevada forget-me-not
C. pterocarya	wing-nut forget-me-not
Cylindroputia (=Opuntia) echinocarpa	silver cholla
C. (=Opuntia) ramosissima	pencil cholla
Daleamollis	silk dalea
D. mollissima	silk dalea
Dicoria canescens	desert dicoria
Ditaxis lanceolata	lance-leafed ditaxis
D. neomexicana	ditaxis
D. serrata var. *californica*	California ditaxis
Dithyrea californica	spectacle-pod
Echinocactus polycephalus	cottontop cactus
Encelia farinosa var. *farinosa*	brittlebush
E. farinosa var. *phenicodonta*	brittlebush
E. frutescens	rayless encelia
Ephedra aspera	joint fir
E. californica	California joint fir
Eremalche rotundifolia	desert five-spot
Eriastrum diffusum	phlox
E. harwoodii	Harwood's phlox
Eriogonum deflexum	skeleton-weed
E. inflatum	desert trumpet
E. reniforme	kidney-leaved buckwheat
E. thomasii	Thomas' buckwheat
E. trichopes	little trumpet
Erodium texanum	storksbill
Erioneuron pulchellum	fluff grass
Eschscholtzia glyptosperma	gold-poppy
E. minutiflora	small-flowered gold-poppy
Eucrypta micrantha	small-flowered eucrypta
Euphorbia eriantha	beetle spurge
Fagonia laevis	California fagonbush
Ferocactus cylindraceus	barrel cactus
Funastrum (=Sarcostemma) hirtellum	hairy milkweed
F. (=S.) cyanchoides hartwegii	climbing milkweed
F. (= Cynanchum) utahense	Utah cynanchum
Fouquieria splendens	ocotillo
Geraea canescens	desert sunflower
Gilia latifolia	broad-leaved gilia
G. stellata	star gilia
Grayia spinosa	spiny hopsage
Guillenia (=Thelypodium) lasiophylla	California mustard
Hesperocallis undulata	desert lily
Hibiscus denudatus	rock hibiscus

Plant Species Observed at the McCoy Solar Energy Project, including the Proposed Translocation Area, during Spring and Fall 2011 Surveys	
Hyptis emoryi	desert lavender
Kallstroemia californica	kallstroemia
Krameria erecta	little-leaf rhatany
K. grayi	white rhatany
Lactuca serriola	prickly lettuce
Langloisia setosissima ssp. *setosissima*	bristly langloisia
Larrea tridentata	creosote bush
Lepidium lasiocarpum	pepper grass
Linanthus jonesii	Jones' linanthus
Loeseliastrum mathewsii	desert calico
L. schottii	Schott gilia
Logfia (= Filago) arizonica	Arizona filago
L. depressa	dwarf filago
Lotus strigosus	hairy lotus
Lupinus arizonicus	Arizona lupine
Lycium andersonii	Anderson boxthorn
L. pallidum var. *oligospermum*	boxthorn
Malacothrix glabrata	desert dandelion
**Malva parviflora*	cheeseweed
Mammillaria tetrancistra	fish-hook cactus
Marina parryi	parry dalea
Mentzelia affinis	blazing star
M. albicaulis	white-stemmed blazing star
M. involucrata	sand blazing star
M. multiflora var. *longiloba*	blazing star
Mirabilis bigelovii var. *retrorsa*	four-o'clock
Mohavea confertifolia	ghost flower
Monoptilon bellioides	Mojave desert-star
Nama demissum	purple mat
N. hispidum var. *spathulatum*	hispid nama
Nicotiana obtusifolia	tobacco
Oenothera deltoides	dune primrose
O. primiveris	yellow desert primrose
Oligomeris linifolia	mignonette
Olneya tesota	ironwood
Opuntia basilaris	beavertail cactus
Orobanche cooperi	broom-rape
Palafoxia arida (= linearis)	Spanish needle
**Panicum antidotale*	blue panicgrass
Pectis papposa	chinchweed
Pectocarya heterocarpa	hairy-leaved comb-bur
P. platycarpa	broad-nutted comb-bur
P. recurvata	arch-nutted comb-bur
Perityle emoryi	Emory rock daisy
Peucephyllum schottii	desert fir
Phacelia crenulata var. *ambigua*	notchleaf phacelia
P.crenulata var. *minutiflora*	notchleaf phacelia
P. neglecta	alkali phacelia
Phoradendron californicum	mistletoe
Physalis crassifolia	ground cherry
Plagiobothrys jonesii	Jones' popcornflower

Plant Species Observed at the McCoy Solar Energy Project, including the Proposed Translocation Area, during Spring and Fall 2011 Surveys	
Plantago ovata	plantain
Pleuraphis (=Hilaria) rigida	big galleta grass
Pleurocoronis pluriseta	arrow-leaf
Pluchea sericea	arrow weed
Porophyllum gracile	odora
Prenanthella (= *Lygodesmia*) *exigua*	brightwhite
Proboscidea althaeifolia	desert unicorn plant
Prosopis glandulosa	honey mesquite
Prunus fasciculata	desert almond
Psathyrotes ramosissima	turtleback
Psorothamnus emoryi	Emory dalea
P. spinosus	smoke tree (immediately adjacent to plant site)
Rafinesquia neomexicana	desert chicory
**Salsola tragus*	Russian thistle, tumbleweed
**Schismus arabicus*	Mediterranean grass
Senecio mohavensis	Mojave ragwort
Senegalia (= Acacia) greggii	catclaw acacia
**Sisymbrium irio*	London rocket
**Sonchus oleraceous*	sow thistle
Sphaeralcea ambigua	globe mallow
S. emoryi	Emory globe mallow
Stephanomeria exigua	annual mitra
S. parryi	Parry rock-pink
S. pauciflora	Wire-lettuce
Stillingia spinulosa	broad-leaved stillingia
Streptanthella longirostris	mustard
**Tamarixa phylla*	tamarisk
Tidestromia oblongifolia	Arizona honeysweet
Tiquilia plicata	plicate coldenia
Tortula acaulon	moss
**Tribulus terrestris*	caltrops, puncture vine
Trianthema portulacastrum	horse purslane
Trichoptilium incisum	yellow-head
Trixis californica	trixis
Vulpia octoflora	vulpia
Ziziphus obtusifolia var. *canescens*	graythorn

APPENDIX D

Comprehensive Fall 2011 Special-status Wildlife and Insect Observations

Table A. Comprehensive Fall 2011 Special-status Wildlife Observations

Table B. Insect Species Observed in 2011 Field Surveys

Table A. Comprehensive Fall 2011 Special-status Wildlife Observations

Map Number Corresponds to Figures 6A and 6B	UTM (NAD 83)		Species		Sign Type	Comments
	Easting	Northing				
1	702863	3731898	*Athene cunicularia*	Burrowing owl	1 Individual	Flushed from draw, no burrow located
2	702951	3732065	*Athene cunicularia*	Burrowing owl	1 Individual	Caliche burrow with pellets, feathers
3	703150	3731300	*Athene cunicularia*	Burrowing owl	1 Individual	Flew from cavity in concreted ground of 2 m incised wash bank, feathers, 1 pellet, whitewash, used a few days a week
4	703196	3732538	*Athene cunicularia*	Burrowing owl	1 Individual	Burrow in bank of 4 m incised wash, near top, no pellets or whitewash
5	703234	3732554	*Athene cunicularia*	Burrowing owl	1 Individual	Flushed from under a shrub in an incised wash, no associated burrow found
6	703468	3731785	*Athene cunicularia*	Burrowing owl	1 Individual	Incidental observation, flew in wash, inspected several holes but no burrows found
7	704736	3730594	*Athene cunicularia*	Burrowing owl	1 Individual	Flushed from shade of *Ambrosia dumosa*, no burrow located
8	708443	3731007	*Athene cunicularia*	Burrowing owl	1 Individual	No burrow found
9	702897	3732049	*Athene cunicularia*	Burrowing owl	Burrow	Feathers, pellets, whitewash, perch
10	704292	3732722	*Athene cunicularia*	Burrowing owl	Burrow	Whitewash and pellets
11	706900	3730839	*Athene cunicularia*	Burrowing owl	Burrow	In old kit fox natal den, whitewash and pellets, one entrance currently in use
12	707071	3730856	*Athene cunicularia*	Burrowing owl	Burrow	Recently used with much whitewash at several entrances and a few pellets
13	709532	3730703	*Athene cunicularia*	Burrowing owl	Burrow	Whitewash and pellets
14	705048	3732408	*Dendroica petechia*	Yellow warbler	1 Individual	
15	707646	3719542	*Dendroica petechia*	Yellow warbler	1 Individual	
16	707935	3721555	*Dendroica petechia*	Yellow warbler	1 Individual	In mesquite bosque
17	708772	3730739	*Equus asinus*	Wild burro	Mandible	Old
18	707874	3721761	*Gopherus agassizii*	Desert tortoise	Tracks	Class 1; 380 mm burrow in hillside
19	707858	3722102	*Gopherus agassizii*	Desert tortoise	Burrow	Class 2; 260 mm, in side of small slope
20	707863	3721865	*Gopherus agassizii*	Desert tortoise	Burrow	Class 1; 320 mm, in hillside
21	707902	3722223	*Gopherus agassizii*	Desert tortoise	Pallet	Class 3; 300 mm & 330 mm, 2 pallets under *Olneya tesota* (on

Map Number Corresponds to Figures 6A and 6B	UTM (NAD 83) Easting	Northing	Species		Sign Type	Comments
						opposite sides)
22	702109	3732161	*Gopherus agassizii*	Desert tortoise	Scat	TY1: 10 mm, in incised wash bottom
23	702309	3732405	*Gopherus agassizii*	Desert tortoise	Scat	TY2; 25 mm, on desert pavement on edge of incised wash
24	702345	3732452	*Gopherus agassizii*	Desert tortoise	Scat	TY2; 15 mm, in incised wash bottom
25	705513	3731942	*Gopherus agassizii*	Desert tortoise	Scat	TY2; 16 mm
26	707695	3731287	*Gopherus agassizii*	Desert tortoise	Scat	TY2; 16 mm
27	704963	3733028	*Lanius ludovicianus*	Loggerhead shrike	1 Individual	
28	705723	3732469	*Lanius ludovicianus*	Loggerhead shrike	1 Individual	
29	705802	3732660	*Lanius ludovicianus*	Loggerhead shrike	1 Individual	
30	706314	3732752	*Lanius ludovicianus*	Loggerhead shrike	1 Individual	
31	706885	3731473	*Lanius ludovicianus*	Loggerhead shrike	1 Individual	In *Cercidium floridum*
32	707587	3718904	*Lanius ludovicianus*	Loggerhead shrike	4 Individuals	
33	707612	3719585	*Lanius ludovicianus*	Loggerhead shrike	3 Individuals	
34	705448	3732302	*Spizella breweri*	Brewer's Sparrow	3 Individuals	
35	706436	3730474	*Toxostoma lecontei*	Le Conte's thrasher	1 Individual	
36	707615	3719310	*Toxostoma lecontei*	Le Conte's thrasher	1 Individual	Perched and calling
37	702188	3718138	*Uma scoparia*	Mojave fringe-toed lizard	7 Individuals	3 Adults, 4 Juveniles
38	702528	3718644	*Uma scoparia*	Mojave fringe-toed lizard	36 Individuals	22 Adults, 18 Juveniles; observed among 36 transects, 60-70% north of road and in deeper sand
39	702838	3718811	*Uma scoparia*	Mojave fringe-toed lizard	36 Individuals	20 adults, 16 juveniles
40	705096	3718855	*Uma scoparia*	Mojave fringe-toed lizard	74 Individuals	32 adults, 28 juveniles, 14 unknown age
41	707587	3718904	*Uma scoparia*	Mojave fringe-toed lizard	20 Individuals	10 adults, 10 juveniles
42	702766	3718372	*Uma scoparia*	Mojave fringe-toed lizard	15 Individuals	9 adults, 6 juveniles observed among 36 transects, 60-70% north of road and in deeper sand
43	705598	3732489	*Vulpes macrotis*	Kit fox	Den	Active; tracks
44	706630	3732263	*Vulpes macrotis*	Kit fox	Den	Active. 3 entrances plus large site 54 m to NE with ~6 entrances
45	710005	3730205	*Vulpes macrotis*	Kit fox	Den	Active. Large complex with tracks and many holes

Table B. Insect Species Observed in 2011 Surveys

Order	Family	Genus	Species		Solar Plant Site	Switchyard and Linear Corridor
Blattodea	Polyphagidae	*Arenivaga*				x
Orthoptera	Acrididae	*Trimerotropis*	*pallidipennis*		x	x
Neuroptera	Chrysopidae	*Chrysoperla*				x
	Myrmeliontidae	*Myrmeleon*				x
Coleoptera	Buprestidae	*Acmaeodera*	*ephedrae*			x
		Acmaeodera	*tuta*		x	x
		Acmaeodera				
	Cleridae	*Trichodes*	*ornatus*	omate checkered beetle	x	
	Meloidae	*Cysteodemus*	*armatus*	inflated beetle	x	
		Epicauda				x
		Lytta	*morrisoni*	blister beetle	x	
		Lytta				x
		Phodaga	*alticeps*	blister beetle		x
		Pleuropasta	*mirabilis*	blister beetle	x	
	Tenebrionidae	*Asbolus*	*verrucosus*	desert irondad beetle	x	
		Cryptoglossa	*muricata*	death-feigning beetle		x
		Eleodes				x
Lepidoptera	Pieridae	*Pieris*	*rapae*			x
	Noctuidae	*Spodoptera*				x
		Trichoplusia	*ni*			x
	Sphingidae	*Hyles*	*lineata*		x	x
	Lebullulidae	*Sympetrum*	corruptum	variegated meadowhawk	x	
Hymenoptera*	Anthophoridae	*Centris*				x
	Braconidae					x

Order	Family	Genus	Species	Solar Plant Site	Switchyard and Linear Corridor
	Formicidae	*Pogonomyrmex*			x
		Veromessor			
	Pompilidae	*Pepsis*	tarantula hawk	x	x
Diptera	Asilidae	*Efferia*			x
	Bombyliidae	*Chrysanthrax*			x
		Lordotus			x
		Phythiria			x
		Toxophora			x

**Hedychridium argenteum, Ceratochrysis bradleyi* not recorded.

x

x

APPENDIX C

Biological Resources (continued)

C-3. Golden Eagle Risk Assessment

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Golden Eagle Risk Assessment

McCoy Solar Energy Project
Riverside County, CA

Prepared By:

TETRA TECH EC, INC.
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Portland, OR 97201

Prepared For:
McCoy Solar, LLC

August 2011

TABLE OF CONTENTS

LIST OF FIGURES

APPENDICES

1.0 INTRODUCTION

McCoy Solar, LLC (McCoy Solar) is proposing to develop the McCoy Solar Energy Project (MSEP or Project), a photovoltaic (PV) solar power plant, in Riverside County, California (Figure 1). The MSEP is an up to 750 megawatt (MW) PV solar power plant that will provide renewable energy to the California electrical grid through an interconnection at Southern California Edison's proposed Colorado River Substation. McCoy Solar has applied for an approximately 7,700-acre right-of-way (ROW) grant from the BLM for development of the MSEP. Once constructed, the Project would permanently occupy approximately 5,363 acres (4,893 acres of BLM land; 470 acres of private land in unincorporated Riverside County) for the Solar Plant Site, plus approximately 176 acres for Linear Facilities. The total permanent Project footprint would be approximately 5,539 acres (collectively referred to as the Project Area).

During discussions among BLM, US Fish and Wildlife Service (USFWS), and McCoy Solar, USFWS expressed concerns about potential Project-related impacts to golden eagles (*Aquila chrysaetos*), which are known to breed in the mountains surrounding the Project. The golden eagle is protected by the Bald and Golden Eagle Protection Act (BGEPA). This law provides for the protection of the bald eagle and the golden eagle by prohibiting the take, possession, sale, purchase, barter, offer to sell, purchase or barter, transport, export or import, of any bald or golden eagle, alive or dead, including any part, nest, or egg, unless allowed by permit (16 U.S.C. 668(a); 50 CFR 22). "Take" includes pursue, shoot, shoot at, poison, wound, kill, capture, trap, collect, molest or disturb (16 U.S.C. 668c; 50 CFR 22.23). “Disturb” means to agitate or bother an eagle to a degree that causes, or is likely to cause, 1) injury to an eagle, 2) a decrease in its productivity, by substantially interfering with normal breeding, feeding, or sheltering behavior, or 3) nest abandonment, by substantially interfering with normal breeding, feeding, or sheltering behavior. In 2009, the USFWS published a notice in the Federal Register that incidental take permits would be available for eagles, and in February 2011, the USFWS published draft implementing guidance for public comment.

Until the implementation guidelines are finalized, USFWS has asked that eagle risk assessments be conducted for projects that may impact golden eagles to evaluate whether an avian and bat protection plan is needed for the project. Specifically, this document provides a risk assessment of Project development impacts on golden eagles based on Project-specific facilities, a literature review, input from eagle biologists, and the results of two consecutive years of helicopter nest surveys. The surveys used to evaluate the potential impacts of the Project extend up to 10 miles from the Project based on the USFWS golden eagle survey protocol (Pagel et al. 2010). Therefore, all potential impacts are evaluated in the context of the 10-mile buffer.

2.0 PROJECT DESCRIPTION

The proposed Project is located in Riverside County, CA, approximately 13 miles northwest of the City of Blythe, California (Figure 2). The MSEP is located immediately to the north of Solar Millennium's recently-permitted thermal solar Blythe Solar Power Project (BSPP). Surrounding mountain ranges include the McCoy Mountains to the west, the Little Maria Mountains to the north, and the Big Maria Mountains to the northeast. A broad wash system flowing into Palo Verde Valley, called McCoy Wash, is located immediately to the east of the Solar Plant Site, and Interstate 10 (I-10) is located 5.5 miles south of the southernmost border of the ROW.

The MSEP will consist of the Solar Plant Site and Linear Facilities (collectively the Project Area). The Solar Plant Site is the area that includes the solar fields, substation, perimeter road, fencing, drainage, operations and maintenance (O&M) facilities. The Linear Facilities will include the generation-tie (gen-tie) line, access road, primary and secondary telecommunication lines, distribution line, and switchyard. With the exception of the switchyard and a portion of the access road, the Linear Facilities will be mostly co-located inside the Linear Corridor. The switchyard will lie at the southern terminus of the Linear Corridor; a portion of the access road north of I-10 will be shared with Solar Millennium's BSPP.

The MSEP will be constructed in sequential phases. The first phase, which is anticipated to be completed in August 2014, will include the first 250 MWs, the access road, water treatment system, initial gen-tie (consisting of the support towers and first circuit), telecommunications lines, O&M building, and parking area. Construction of the second phase will provide the additional MW to reach up to 750 MW total.

Project water use during operation is anticipated to be only 60 acre-feet per year to support potable supply and periodic cleaning of the PV panels. Water use during construction is expected to be between 650 to 750 acre-feet over about a three-year construction period. The Project will obtain its water supply from groundwater underlying the site using a minimum of two water supply wells located within the eastern half of the Solar Plant Site.

3.0 ENVIRONMENTAL SETTING

The Project Area lies along the bajada sloping out of the eastern side of the McCoy Mountains. Summer temperatures routinely reach above 100ºF (June–September) and annual average precipitation in the Blythe, California area is less than 4 inches. On average, August receives the most rainfall (WRCC 2008). The Project is in the watershed of the McCoy Mountains; site drainage is by sheet flow and percolation. Topography is relatively level, with elevations between approximately 390 and 735 feet above mean sea level.

3.1 Solar Plant Site

The western portion of the Solar Plant Site is dominated by gently undulating terrain with broad patches of largely unvegetated, well-developed, highly oxidized gravel desert pavement (Tetra Tech and Karl 2011). Widely spaced washes, generally less than 10 feet deep, flow through the pavement plain; associated small runnels flow into these washes. The exception to this is in the southwestern corner of the Solar Plant Site, where there are several 20 to 25-foot-deep drainages. As the bajada flattens to the east, drainages become shallow, braided runnels with a few swales. There are patches of sheet flow near McCoy Wash. Consistent with the hydrology and distance from the mountains, substrates become finer toward the eastern portion of the Solar Plant Site, becoming only scattered fine and very fine gravels over soft to slightly hard sandy loam along the eastern side. There are scattered patches of fine gravel- and coarse gravel-desert pavement throughout the eastern, and especially the southeastern, portion of the Solar Plant Site.

Vegetation on the Solar Plant Site is described in this report using alliances developed by Sawyer, Keeler-Wolf and Evens (2009) and used by the California Natural Diversity Data Base (California Department of Fish and Game [CDFG] 2010). Upland vegetation is characterized by associations (i.e., subsets) of the Creosote Bush-White Burr Sage (*Larrea tridentata-Ambrosia dumosa*) Scrub Alliance. However, even typical upland vegetation is largely confined to drainages on the Project Area, probably because most of the available water is in the drainages due to the low regional rainfall and substrate and soil quality. On the desert pavement plains in the west, shrubs are rare outside of water courses. In the eastern half of the site, the interstices have moderately low vegetation cover of mostly creosote bush (7-8 percent or lower). This low percent coverage by plants and the small stature of the plants further supports the conclusion that water availability is low. Where sheet flow predominates, shrub cover is a little higher (<10 percent), and co-dominants include white burr sage, brittlebush (*Encelia farinosa*), and white rhatany (*Krameria grayii*).

Runnels and very small washes on the Solar Plant Site, including over most of the eastern Solar Plant Site, are dominated by creosote bush, white burr sage, brittlebush, and white rhatany; galleta grass (*Pleuraphis rigida*) is patchily common to co-dominant. An occasional palo verde *(Parkinsonia florida* [=*Cercidium floridum*]) or ironwood (*Olneya tesota*), or patches of a few individuals, can also be found in some swales or in the more well-developed parts of some runnels where water volume is probably higher or water is more consistently available. In the more well-developed washes in the western portion of the site, the vegetation is characterized by the Desert Lavender (*Hyptis emoryi*) Scrub and Catclaw Acacia (*Senegalia* (= *Acacia greggii*) Thorn Scrub Alliances. Desert lavender, Anderson boxthorn (*Lycium andersonii*), catclaw acacia, creosote bush, white burr sage, brittlebush, chuckwalla bush (*Bebbia juncea*), and white rhatany and/or little-leaf rhatany (*Krameria erecta*; mostly upslope) are typical dominants; galleta grass is intermittently co-dominant.

In some of these washes, there are occasional, generally relatively short (mostly under 15 feet in height) palo verde and ironwood. There are rare patches of a few of these moderately sized trees that may also have a small number of larger trees. In total, while important to wildlife because of their elevated structure, trees are not a common feature of the Solar Plant Site's washes, nor do they (with a few exceptions) attain the mature, robust size of individuals found in drainages that receive higher flow volume, such as McCoy Wash.

McCoy Wash is a broad wash system east of the Solar Plant Site, the main channel of which is approximately a mile from the Solar Plant Site border. A small distributary lies just east of the Solar Plant Site border. This wash system is characterized by multiple broad, sandy arboreal washes as well as numerous smaller washes and runnels. Large, robust ironwood is the aspect-dominant species; palo verde is a common subdominant tree. Dominant shrubs include creosote bush and white burr sage; white rhatany, big galleta, and Anderson boxthorn are common.

3.2 Linear Corridor

The Linear Corridor exits the southeastern corner of the Solar Plant Site onto a barren, densely fine-gravelly, flat plain with little vegetation. As the Linear Corridor turns south, it travels through a relatively flat lower bajada with numerous small swales. Soils are generally fine, soft to consolidated loams lightly covered by fine to very fine gravels or none. The shrub cover is dominated by creosote bush and white burr sage (10 percent cover); galleta grass is common in the swales, along with occasional ironwood trees. At one point along the Linear Corridor, a well-developed, large-arboreal wash resulting from the coalescence of several small washes meets and crosses the Linear Corridor. There, it becomes re-routed against a long east-west agricultural berm, where it forms a long swale of dense palo verde and ironwood infested with dense Russian thistle *(Salsola tragus*) and Sahara mustard (*Brassica tournefortii*). The Linear Corridor and adjacent area north and south of this swale is cleared for agriculture (currently not in crops), except in the northwestern half, where native creosote bush and white burr sage habitat, with brittlebush-white burr sage-galleta grass runnels, remains. An actively farmed citrus orchard lies at the eastern end of this portion of the Linear Corridor.

The Linear Corridor continues across a flat bajada with habitat similar to that in the southeastern Solar Plant Site. Desert pavement patches and a second pebble terrace intersect the Linear Corridor as it nears the mountains and the substrates generally become more gravelly. Heavy sheeting and well-developed arboreal washes begin to cross the Linear Corridor, with numerous arboreal washes where the Linear Corridor travels over the toeslopes of the McCoy Mountains. Vegetation in the interfluves is generally very sparse creosote bush-white burr sage scrub. Near the freeway, the Linear Corridor crosses a low depression adjacent to a mesa. Both this depression and a nearby borrow pit on the Linear Corridor have been very disturbed in the past by grading and stockpiling dirt, gravel and concrete. Soils are fine and hard and there is potential for pockets of standing water. The borrow pit hosts a dense honey mesquite-palo verde bosque-ironwood bosque.

South of I-10, the Linear Corridor traverses a flat bajada of low plant diversity (creosote bush and white burr sage) and cover (8 percent). West of the existing First Solar/NRG Blythe solar facility, intermittent, loose, shallow sand sheets and dunes and small, exposed basins intersect the Linear Corridor, and ponding water is a potential in some of the basins. Well-developed, low dunes enter the corridor where it turns to the west and remain characteristic of the Linear Corridor through and including most of the switchyard. This habitat contains widely spaced perennial shrubs (2-5 percent cover), with the dominant species including creosote bush, white burr sage, and galleta grass. Several sand-associates and other annuals are also abundant (e.g., sand verbena [*Abronia villosa*], birdcage primrose [*Oenothera deltoides*], desert marigold [*Baileya pauciradiata*], and narrow-leaved forget-me-not [*Cryptantha angustifolia*]).

Additional details regarding vegetation at the Project can be found in the McCoy Solar Energy Project Biological Resources Technical Report (Tetra Tech and Karl 2011).

4.0 COLLECTION AND SYNTHESIS OF BIOLOGICAL DATA

4.1 Eagle Nest Surveys

Helicopter surveys to detect golden eagle nesting activity were conducted on March 25-26, April 2-3, and May 14, 2010 by the Wildlife Research Institute (WRI 2010). Surveys were conducted following the USFWS Interim Golden Eagle Inventory and Monitoring Protocols (Pagel et al. 2010) in spring 2010. Surveys covered the MSEP and portions of the surrounding mountains. The 2010 helicopter survey was a collaborative effort among three solar developers and covered four proposed projects located north of I-10 between the town of Desert Center and Blythe, CA. Survey coverage included a 10-mile survey buffer from each project's ROW boundary for a total of approximately 1,600 square miles of search area. One of the projects was Solar Millennium's BSPP directly south of the MSEP, and therefore, these surveys also covered the entire MSEP and portions of its 10-mile buffer (Figure 3). The northern portion of the MSEP 10-mile buffer is outside of the area surveyed in 2010, nevertheless, this area was partially captured in the 2010 survey, as indicated by the inactive nest detected in the Little Maria Mountains.

Additional helicopter surveys were conducted at the request of the USFWS to provide a second consecutive year of golden eagle nest data within 10 miles of the Project The surveys were conducted on March 23 and 24 (Phase 1), and May 5, 6, and 7, 2011 (Phase 2). Surveys were conducted by WRI following the USFWS Interim Golden Eagle Inventory and Monitoring Protocols (Pagel et al. 2010), and covered approximately 314 square miles surrounding the MSEP. Surveys were conducted during the most appropriate time to observe nesting activity and productivity, and focused on areas containing suitable nesting habitat within the search area.

WRI considered active any nest in good (i.e., worked on by golden eagles within the last three years) condition that contained evidence of fresh nest material being added during the season in which the survey was conducted, whether or not any golden eagles were seen in proximity to the nest. WRI considered a nest inactive if they did not find evidence of an adult at or in close proximity of a nest or the nest did not contain eggs, young, or fresh nesting material. Assigning an inactive stick nest to a species is challenging because a nest might be used by different species in each year and the characteristics of nests overlap for some species. However, golden eagle nests can often be distinguished from hawk, falcon, and raven nests by size and placement. Golden eagle nests are constructed of sticks and the bowl of the nest can be lined with a wide variety of vegetation types, including shredded yucca (Yucca spp.), grasses, dry yucca leaves (Slevin 1929, Dixon 1937), strips of inner bark, dead and green leaves, soft mosses, and lichens (Gabrielson and Lincoln 1959). Golden eagle nests are large, and the adults often add material to the nest prior to use each year. Thus, inactive nests were conservatively considered golden eagle nests based on the nest characteristics, the experience of the lead observer, and nest placement on the landscape.

Golden eagles often have more than one nest in a territory, and two or three alternative nests sites is most common (Kochert et al. 2002). The spacing between nests within a territory varies with terrain features and the proximity to other eagle pairs and can range from <3.3 feet (1 meter) to >3.1 miles (5 kilometers) (McGahan 1968, Boeker and Ray 1971). Pairs may investigate multiple nests before choosing a nest for laying, with some pairs using the same nest every year and some switching nests sites between years, regardless of reproductive success the previous year (Boeker and Ray 1971). Therefore, the total number of nests should not be construed as representative of the number of locally breeding golden eagles because (1) there is no simple correlation between the number of alternative nests and eagle pairs; (2) the tally of nests was conservative and may have included nests of other species; and (3) eagle nests can last for decades. WRI categorized the nests into territories in their reports based on the proximity of the nests to each other and the arrangement of the nests within the landscape, but due to the speculative nature of territory delineation, we report only on total nests.

For ease of interpretation, all nests found on the 2011 survey, whether detected on Phase 1 or Phase 2 of the survey, were assigned sequential numbers for the Project. These numbers are distinct from the trip, waypoint, and territory name system used by WRI in their survey reports (WRI 2011a,b; see Appendix A, B).

4.1.1 2010 Survey Results

The spring 2010 helicopter surveys detected two golden eagle nests (one active, two inactive) within 10 miles of the MSEP (Figure 3). The active eagle nest (Nest 4 [2011 survey designation]) was identified as active based on the presence of fresh nest material only, and was located 9.2 miles northeast of the Project in the Big Maria Mountains, and the inactive nest (Nest 7) was 2.3 miles southwest of the MSEP in the McCoy Mountains (Figure 3).

4.1.2 2011 Survey Results

The 2011 nest survey located five golden eagle nests within the 10-mile-radius search area (Figure 4, Appendix A, B). Four of these nests were inactive, and the fifth (Nest 4 - active golden eagle nest in 2010), was occupied by red-tailed hawks in 2011. Inactive golden eagle nests were noted 1.7 miles west (Nest 1), 3 miles southwest (Nest 7), 5.6 miles west-northwest (Nest 3), and 8.4 miles northwest (Nest 2) of the MSEP in the McCoy Mountains (Figure 4). An additional 11 inactive golden eagle nests were detected outside the 10-mile search radius, at distances of 10.5 – 13.5 miles from the Project. No successful breeding by golden eagles was detected at any of these nests within or outside the 10-mile search radius around the Project on either phase of the aerial survey. Additionally, no golden eagles were seen during the nest surveys.

4.2 Avian Point Count Surveys

To inventory avian species and identify use of the site by special-status bird species, Tetra Tech biologists conducted avian point count surveys of the Solar Plant Site and Linear Corridor pursuant to a protocol approved by the USFWS, BLM and CDFG. A minimum of two point count plots were conducted per habitat type for a total of 12 plots covering the Solar Plant Site and Linear Corridor (Figure 5). There were five plots within the Solar Plant Site, one per 5.2 square kilometers (2 square miles) and seven plots along the Linear Corridor, one per 3.2 linear kilometers (2 miles). Within each plot, sampling focused on areas where the highest abundance of birds is likely to occur (e.g., drainages). Each plot consisted of at least four points spaced 200 meters apart. Point count surveys were conducted one day per week for four weeks between March and April. Each point count had an unlimited radius for raptors and common ravens. Point counts were 10 minutes long and were conducted between sunrise and four hours after sunrise, with an extension to approximately 11:00 if temperatures did not preclude bird activity.

Additional avian point count plots were conducted weekly during spring to document raptor behavior (e.g., foraging, migrating), particularly by golden eagles, over the Solar Plant Site. In addition to the morning point count surveys described above, at each point count plot on the Solar Plant Site, one of the four points was randomly chosen for a 10-minute survey during midday, when raptors are foraging following thermal lift and prey are still active (i.e., before temperatures are too high for diminished activity). An additional set of 30-minute surveys was completed midday on June 15 and 16 at all 12 plot locations on the Solar Plant Site and the Linear Corridor. Each raptor point count had an unlimited distance in all directions, which allowed for tracking the movements of large birds such as golden eagles over a large area.

No golden eagles were observed during the avian point counts or the modified counts for raptors. Two golden eagles were incidentally observed south of the Solar Plant Site on March 28, 2011. The two birds were observed south of the Project soaring northward, toward the Project.

4.3 Christmas Bird Count Data

The Christmas Bird Count (CBC) is an annual, one-day bird count in late December or early January that provides some information on annual trends in wintering birds. These counts are done within a 15-mile diameter circle and reflect the total number of birds seen throughout the day. Of the three CBC locations in Riverside County, the Joshua Tree National Park Count is closest to the Project. Over the last 20 years, two golden eagles were seen in 1995; one was seen in 1999; and one was seen in 2008. These data were insufficient to calculate population trends for the region.

5.0 IDENTIFICATION OF PROJECT-RELATED ACTIVITIES THAT COULD POTENTIALLY RESULT IN EAGLE TAKE

This section addresses potential take of golden eagles that might result from the construction and operation of the Project, either through direct mortality or as a result of disturbance of normal breeding and foraging activities.

5.1 Mortality

5.1.1 Solar Plant Site – Collision

Few data are available regarding direct avian mortality at solar facilities, and no research has been published from PV facilities. McCrary et al. (1986) conducted searches for bird fatalities at the Solar One Project in San Bernardino County, California, a facility that used a central receiver tower and heliostats to concentrate sunlight on a central boiler. They found that the primary cause of bird mortality (57 birds, 81 percent of fatalities found) was collisions with structures, primarily the mirrored heliostats. The remaining 19 percent (13 birds) died from burning in the standby points (locations in the sky where reflected sunlight is focused when not focused on the boiler). Fatalities were primarily songbirds and ducks; no raptors were found. It is possible that collisions with PV collectors may pose a risk to birds at MSEP, but the anticipated height of PV arrays (approximately 6-10 feet [2-3m]) makes collisions unlikely. The facility will not pose a burning risk as was found at Solar One, because the PV plant design does not incorporate standby points or a central receiver tower.

Golden eagle mortality is unlikely to be associated with the operation of the solar facility. To date, there have been no documented raptor mortalities associated with solar facilities, although data regarding solar energy projects are sparse. In order for a golden eagle fatality to occur, golden eagles would have to collide with the facilities, which would be most likely to occur if golden eagles were hunting in the area. However, because of the distance of the Project from the nests, low levels of activity in nearby breeding territories, and the low density of prey available (see Section 5.2.2) due to absence of vegetation suitable as prey habitat, eagles are unlikely to be hunting in the immediate vicinity of the Project. Furthermore, the PV design lacks tall structures, and is probably less likely to cause collisions than wind turbines or other types of solar facilities that require tall structures.

5.1.2 Generation Tie and Distribution Lines – Collision/Electrocution

Golden eagle fatalities can occur as a result of electrocution and collisions with power line structures (Harness and Wilson 2001, APLIC 2006). Due to their large size, golden eagles are able to bridge conductive elements (Harness and Wilson 2001, APLIC 2006). Therefore, any structures that allow for circuit completion (i.e., flesh-to-flesh contact between energized parts or an energized and grounded part) pose an electrocution risk to golden eagles. To protect eagles from possible electrocution, APLIC recommends a horizontal separation of 60 in (150 cm) and a vertical separation of 40 in (100 cm) between phase conductors or between a phase conductor and grounded hardware.

A 230-kV gen-tie line and associated telecommunication line will extend south from the Solar Plant Site, around the east side of the BSPP to the proposed Southern California Edison Colorado River Substation south of I-10. For this line, transformers will be >60 in (150 cm) apart, effectively removing the risk for golden eagle electrocution. The MSEP gen-tie, estimated to be 14.5 miles long, will be parallel to the BSPP gen-tie (a separate line) for nearly half of the length, with the two lines being between 50 and 100 feet apart (see Figure 2).

Electrical distribution from the PV arrays will be via buried, which will eliminate the risk to golden eagles from these lines. McCoy Solar will follow APLIC guidelines such as spacing or insulation to minimize the risk of golden eagle electrocutions on any above-ground lines associated with the substation, gen-tie line and distribution line.

In areas where there are few natural perches, power poles may become an attractant to foraging raptors (Lehman et al. 2007). As natural perches are limited in the Project Area, it is possible that golden eagles within the Project Area will use the gen- tie line power poles as hunting perches; however, monopole towers, which reduce perching opportunities, are proposed for the gen-tie line. The nearest golden eagle nest (inactive in 2011) is 4.8 miles (7.72 km) from the closest point of the gen-tie line, and eagle use of the area that encompasses the line is likely to be limited to a maximum of one pair during the breeding season because of the territorial nature of golden eagles (Kochert et al. 2002). Additional eagles may move through the area during the non-breeding season, although there are no known concentrations of non-breeding eagles within the Project. By following APLIC recommendations during the design and construction of the gen-tie line and its components, the risk of electrocution to golden eagles will be reduced to negligible levels or eliminated.

Golden eagle mortalities have been recorded as a result of collisions with power lines (LaRoe et al. 1995); however, most reports do not distinguish between electrocution and collision accidents (Bevanger 1998). Although there is a potential for mortality due to collision with the gen-tie or telecommunication lines, the potential is low due to the distance from known nests and nesting habitat and the lack of known prey concentrations (see Section 5.2.2 below).

5.2 Disturbance

This section addresses any potential disturbance to normal breeding or foraging behaviors that may result from the construction and operation of the solar facility and the transmission line.

5.2.1 Nesting

Impacts to nesting eagles are dependent on the source or type of disturbance and the distance between the disturbance and the nest (Richardson and Miller 1997). Known disturbances to golden eagle nests in California deserts include OHV traffic, camping, mining/development, shooting, climbing and graffiti (WRI 2010). Construction and operational impacts that could affect golden eagles include noise, human activity, and dust.

Richardson and Miller (1997) summarized recommended buffer distances for active golden eagle nests, with respect to human disturbance, noise, and visual impacts, as 0.1 to 1 miles (200 to 1,600 meters). Suter and Joness (1981) suggested that construction buffers from nests should be at least 0.6 miles (1,000 meters). Holmes et al. (1993) evaluated flushing distance for golden eagles as 0.07–0.25 miles (105–390 meters) for pedestrian disturbance and 0.009–0.12 miles (14–190 meters) for vehicle disturbance. Multiple authors have stated that disturbance is minimized when it is not within line of sight of the nest (e.g., Suter and Joness 1981, Richardson and Miller 1997).

There are five golden eagle nests within 10 miles of the Project, although none are currently active (Figure 4, Appendix A, B). The nearest eagle nest in the McCoy Mountains is 1.7 miles (2.7 km) from the Solar Plant Site. Other nests within ten miles are 3-8.4 miles from the Solar Plant Site. These distances are substantially greater than the recommended buffers outlined above. Therefore, construction and operation of the solar facility is unlikely to disturb golden eagle nesting.

The nearest golden eagle nest is 4.8 miles (7.7 km) from the closest point of the gen-tie line. The nearest golden eagle nest is outside of all recommended buffers; therefore, the construction and operation of the gen-tie line is also unlikely to disturb nesting efforts at the closest known eagle nests.

5.2.2 Foraging

The construction of the Project will result in the removal of vegetation and prey habitat, which could result in disturbance to golden eagle foraging patterns. Black-tailed jackrabbits and cottontails are documented as the primary prey species of golden eagles in the southwestern US (Mollhagen et al. 1972, Kockhart 1976, Eakle and Grubb 1986 cited in Kochert et al. 2002). Black-tailed jackrabbits are found in a diversity of habitats, ranging from desert scrub to cactus to sagebrush, and are widely distributed throughout the state of California (Best 1996); however, they were detected in low numbers (14) during biological surveys of the Project (Tetra Tech and Karl 2011). Desert cottontails, and two species of ground squirrel were also detected on the Project during biological surveys, but no concentration areas were noted (Tetra Tech and Karl 2011). Additionally, small mammal surveys conducted at the Solar Plant Site in 2011 found a low abundance of other small mammal prey of sufficient size to serve as prey for golden eagles (e.g. 2 desert woodrats). Desert Kit Foxes are relatively common on the eastern portion of the Project Area, but their largely nocturnal activity patterns probably provide little opportunity to act as a prey base for golden eagles. Suter and Joness (1981) recommend that development should stay at least one quarter mile (400 meters) from prey concentrations to avoid impacts to foraging raptors.

It is unknown if golden eagles that might nest in the McCoy, Little Maria, and Big Maria Mountains in the future would utilize the Project Area for foraging. Avian point counts on the Project suggest that golden eagles do not use the area for foraging. However, even if we conservatively assume that they do forage in the Project Area, impacts to golden eagle foraging are likely to be minimal because the area leased for the Project represents 3% of the area within a 10-mile radius of the nearest eagle nest in the McCoy Mountains (Nest 1), 3% (Nest 7) and 1.5% (centroid of Nests 2 and 3) of other nest groups in the McCoy Mountains, and 0.4% of the area within a 10-mile radius of the eagle nest in the Big Maria Mountains (Nest 4, occupied by red-tailed hawks in 2011). Additionally, the habitat that will be disturbed or removed is not unique or limiting on the landscape and does not represent a known prey concentration. Eagles should have other comparable or better foraging opportunities within the surrounding areas. Therefore, the construction and operation of the Project is unlikely to disturb the foraging of any eagle pairs within 10 miles of the Project.

6.0 CUMULATIVE IMPACTS

The development of the MSEP is not expected to contribute significantly to cumulative impacts on eagles in the area. Mortality at this solar facility is unlikely based on available data; although some increased mortality risk may be associated with additional transmission lines. The spatial separation that results from the golden eagles nesting in the mountains and the solar facilities being located in the valley make disturbance at the nest unlikely. The removal of foraging habitat relative to the available habitat is proportionally small and, due to its marginal quality (low prey density), is not expected to impact breeding success.

7.0 CONCLUSIONS

The risk of impacts to golden eagles resulting from development of the MSEP is likely to be low. Potential causes of mortality include collisions with the solar facilities, transmission lines, and electrocution. However, mortality due to collisions with the solar facilities is unlikely because of the low height of the planned solar facilities (approximately 6-10 feet tall [2-3m]), and lack of prey, and therefore hunting eagles, in the immediate vicinity of the operational facility. Furthermore, although data on solar facilities are sparse, no raptor mortalities have been documented in the publicly available research results. Mortality risk due to electrocutions is low or nonexistent at the Project gen-tie line because this and the distribution lines will follow APLIC guidelines. Mortality risk due to collision with the gen-tie line is also likely to be low because likely only a single eagle pair overlaps the vicinity of the new gen-tie line and there are no known concentrations of non-breeding eagles in the Project Area. Disturbance to golden eagles is also likely to be low, due to the distance of the Project from the nest and the lack of known prey concentrations in the area.

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FIGURES

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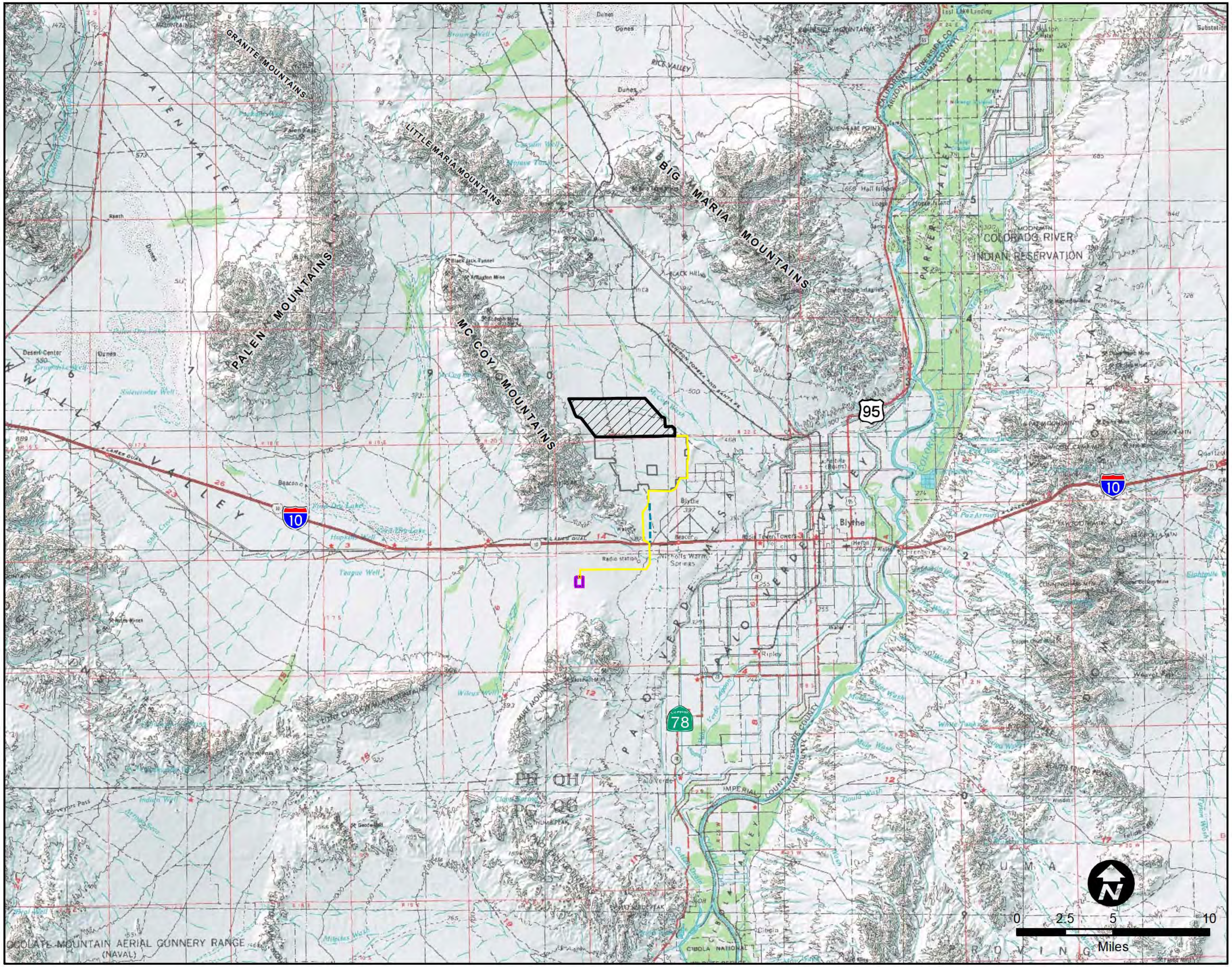

McCOY SOLAR ENERGY PROJECT RIVERSIDE COUNTY, CA

Legend

- MSEP Solar Plant Site Boundary
- Blythe Solar Power Project (BSPP)
- Linear Corridor
- Proposed Shared Access Road with BSPP
- Switchyard
- Proposed Colorado River Substation (SCE)

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

FIGURE 1
REGIONAL VICINITY MAP

TETRA TECH EC, INC.

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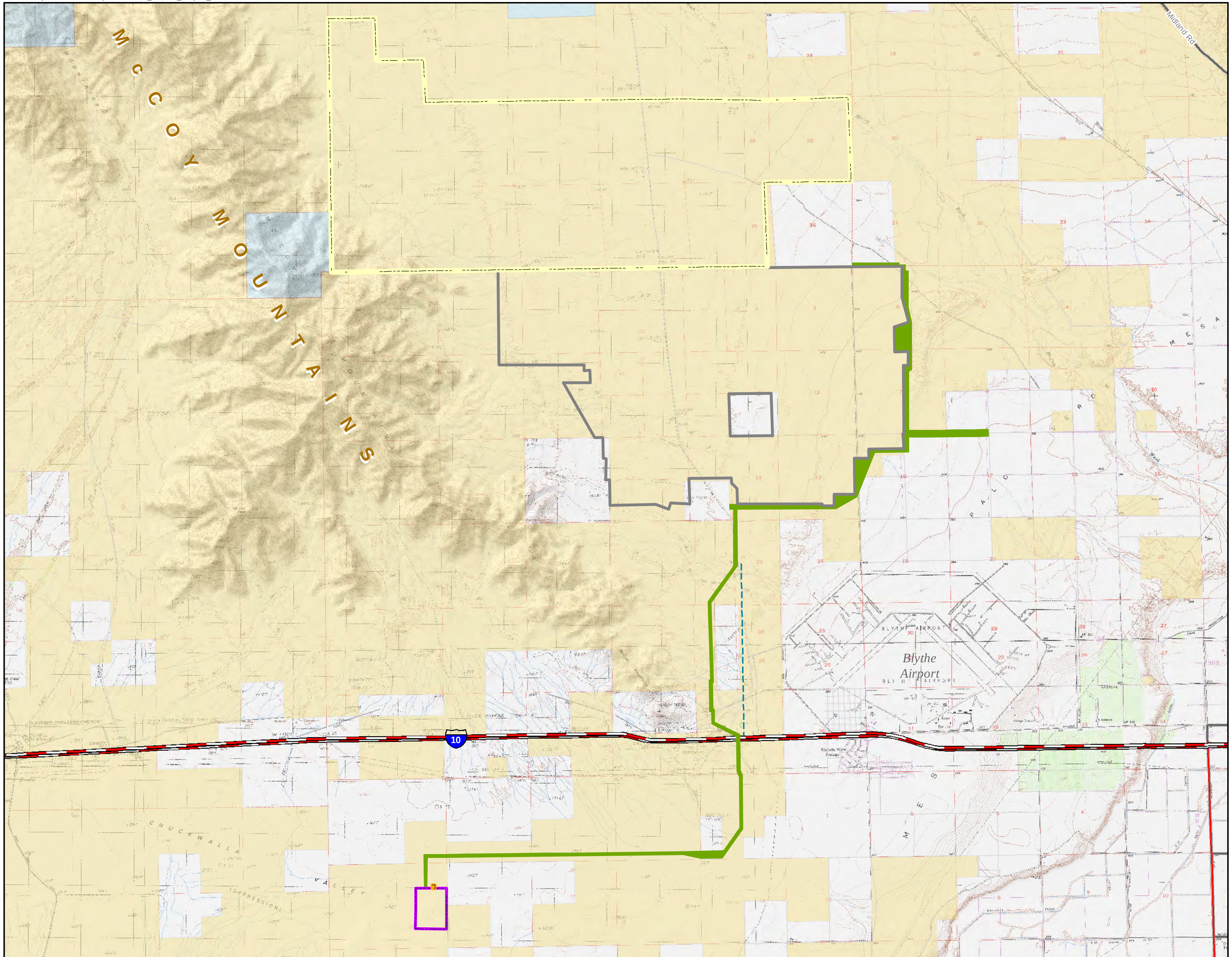
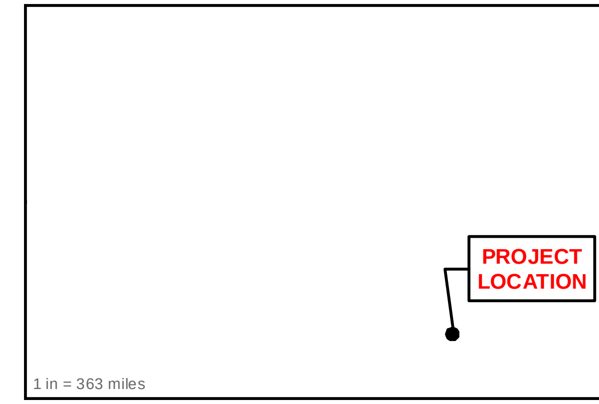


McCOY SOLAR ENERGY PROJECT RIVERSIDE COUNTY, CA



Legend

Project Features
- MSEP BLM ROW Grant Application Boundary
- MSEP Solar Plant Site Boundary
- Blythe Solar Power Project (BSPP)
- Linear Corridor
- Proposed Colorado River Substation (SCE)
- Switchyard
- Proposed Shared Access Road with BSPP

Jurisdiction
AGENCY
- Bureau of Land Management
- State
- Private

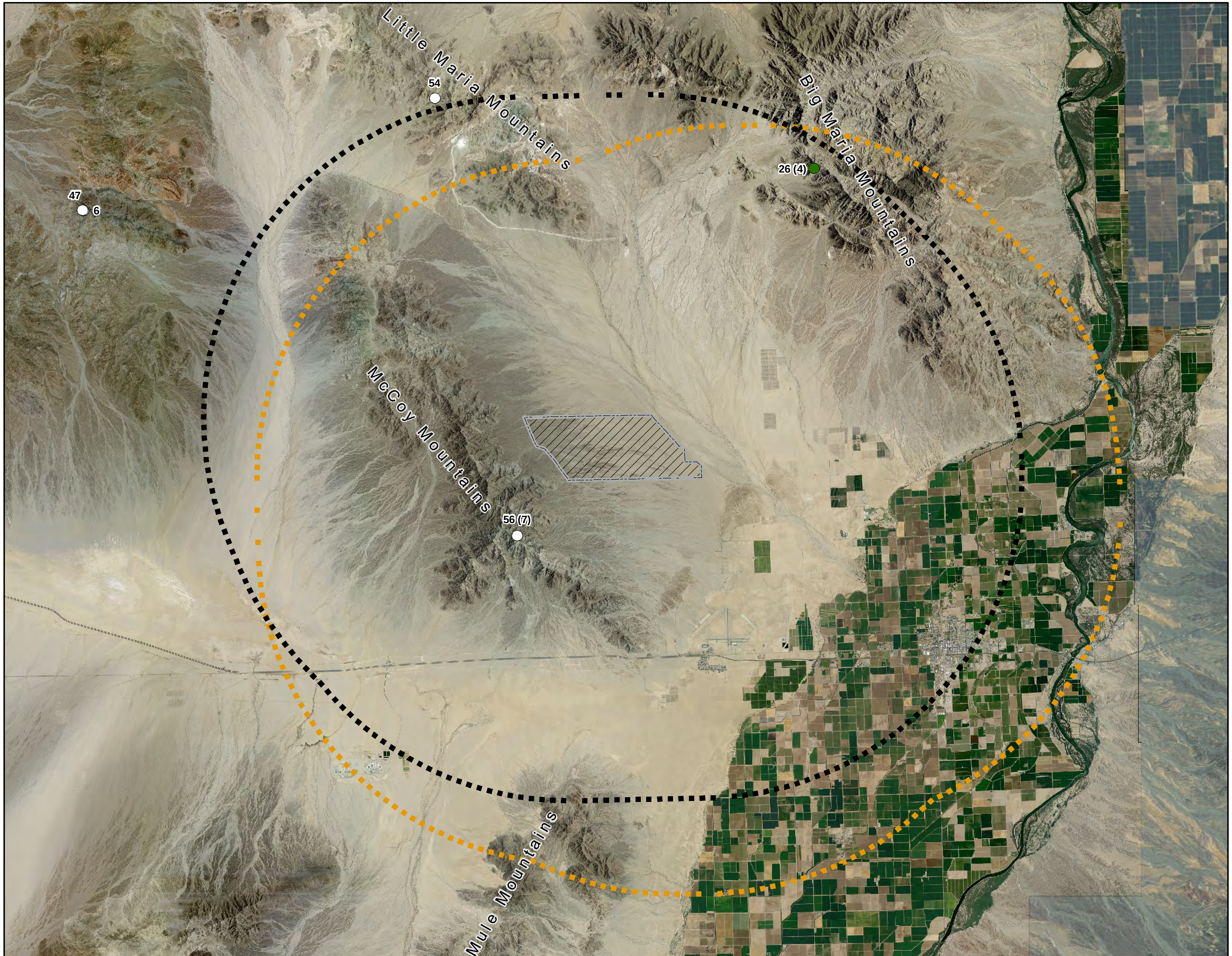
0 2,500 5,000 10,000
Feet

Notes:
(a) UTM Zone 11, NAD 1983 Projection.
(b) Source data: ESRI, BLM, USGS 7.5' DRGs, TTEC

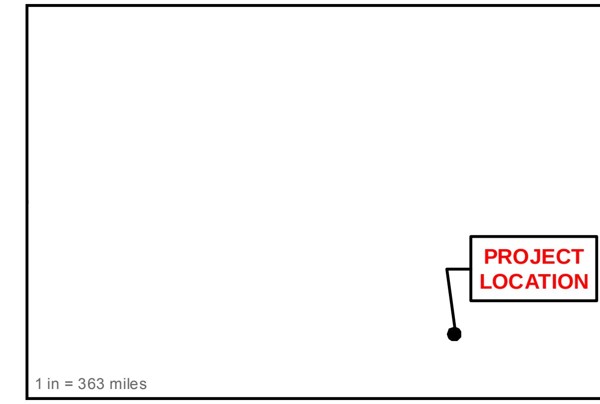
FIGURE 2
OVERALL PROJECT LOCATION MAP

TETRA TECH EC, INC.

P:\GIS\Projects\4177-McCoy\Bio\MXD\3_Golden_Eagle_2010.mxd



McCOY SOLAR ENERGY PROJECT RIVERSIDE COUNTY, CA



Legend

- MSEP Solar Plant Site Boundary
- 10-mile-radius Around Project Area
- 2010 Survey Boundary
- Inactive Golden Eagle Nest
- Active Golden Eagle Nest

Note: 2011 Nest ID numbers are shown in parentheses after WRI's 2010 nest numbers to facilitate comparisons.

N

0 1.5 3 6
Miles

Notes:
(a) UTM Zone 11, NAD 1983 Projection.
(b) Source data: ESRI, BLM, USGS, TTEC
(c) Eagle data (WRI 2010)

FIGURE 3
2010 WILDLIFE RESEARCH INSTITUTE AERIAL SURVEY AREA AND EAGLE NEST LOCATIONS

TETRA TECH EC, INC.

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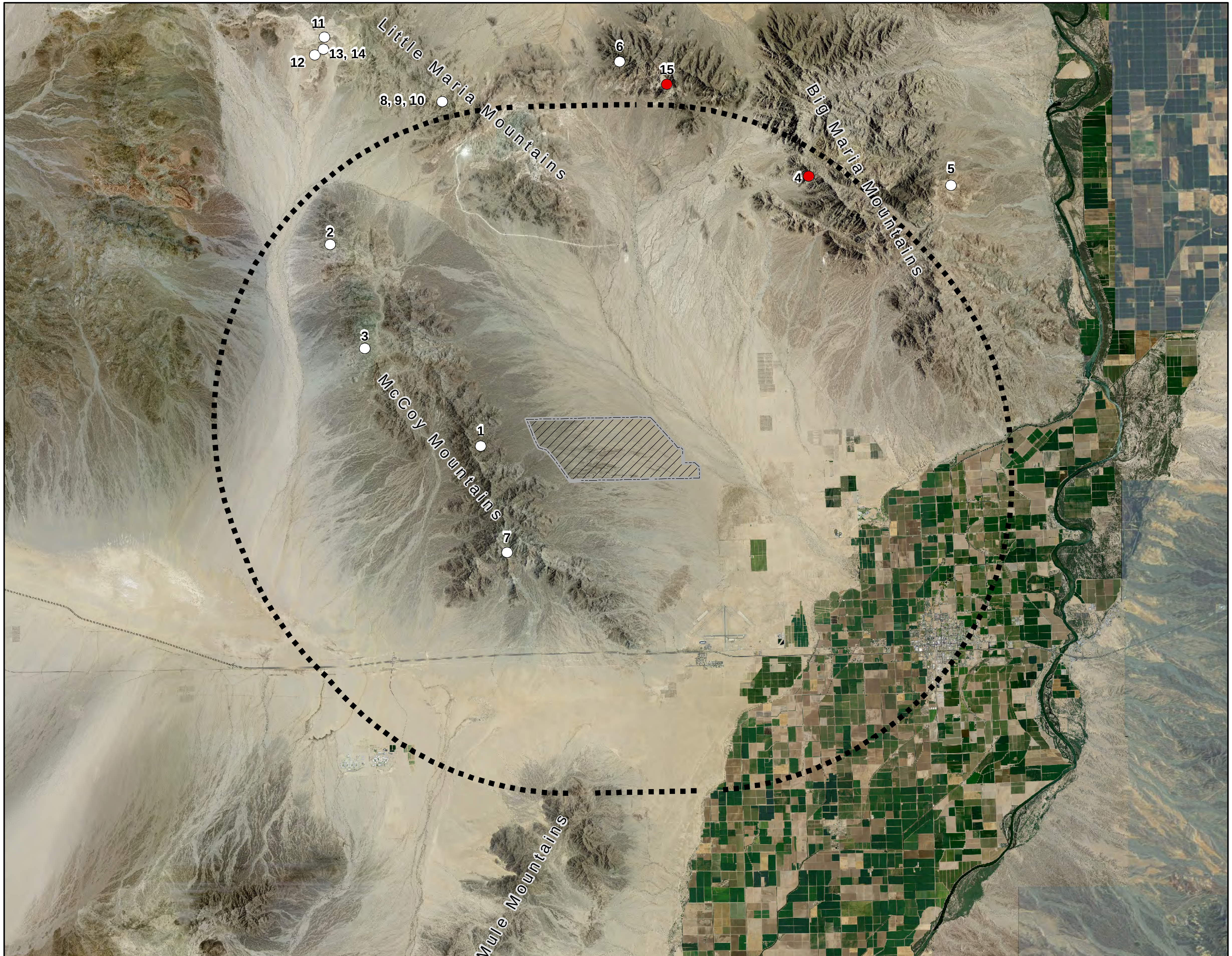
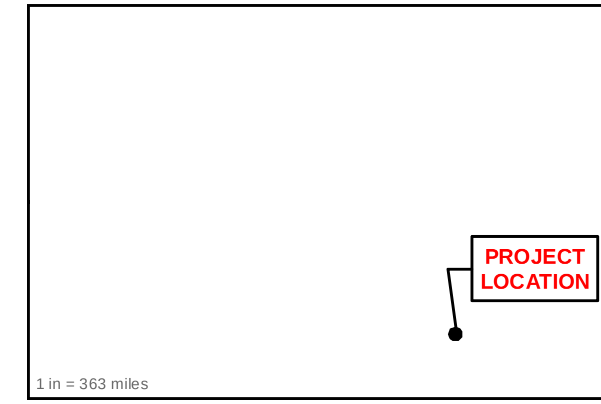


McCOY SOLAR ENERGY PROJECT RIVERSIDE COUNTY, CA



Legend

- MSEP Solar Plant Site Boundary
- 2011 McCoy Solar Energy Project 10-mile-radius Helicopter Survey Area
- Inactive Golden Eagle Nest
- Inactive Golden Eagle Nest In Use By Another Species

N

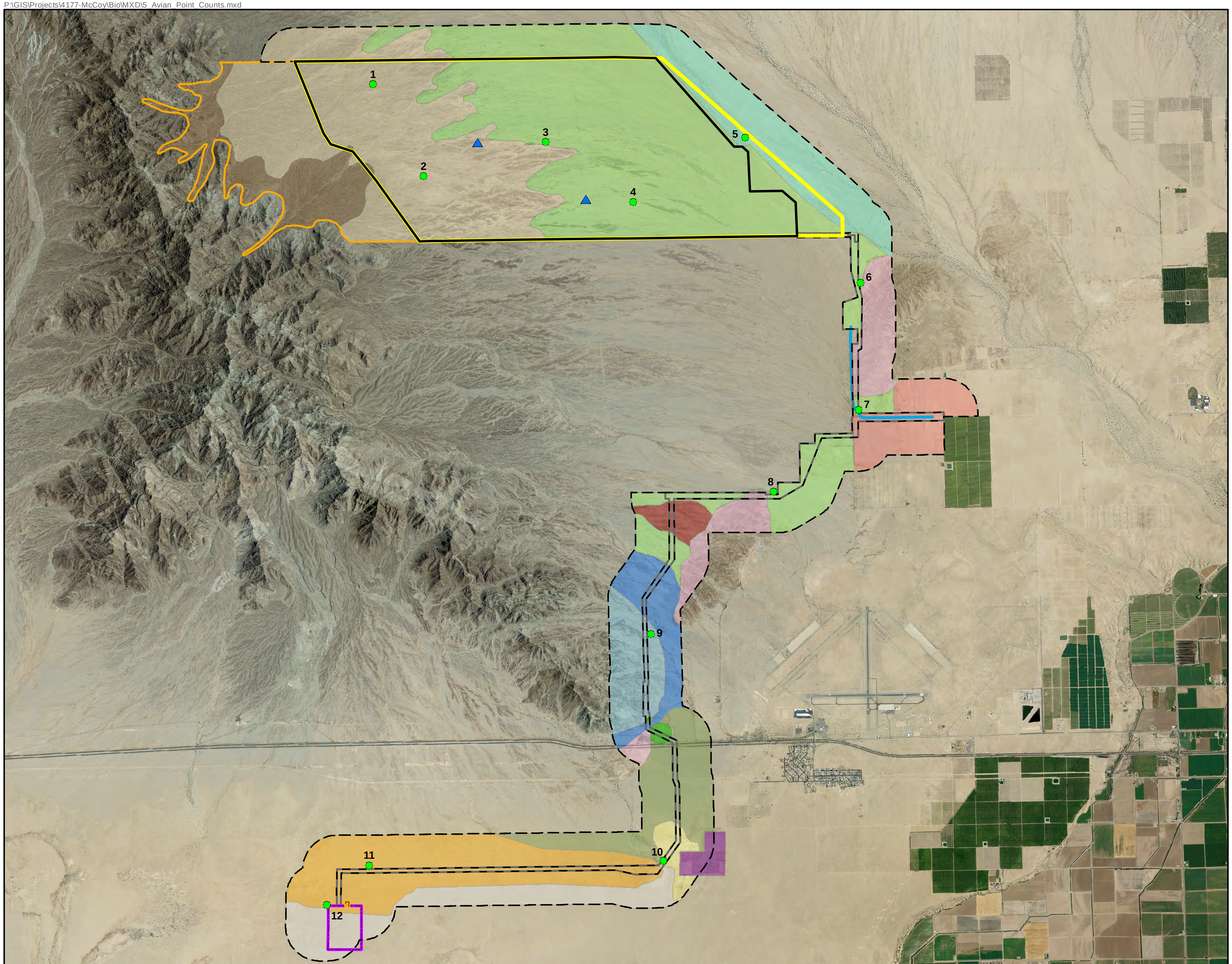
0 1.5 3 6
Miles

Notes:
(a) UTM Zone 11, NAD 1983 Projection.
(b) Source data: ESRI, BLM, USGS, TTEC
(c) Eagle data (WRI 2011)

FIGURE 4
2011 WILDLIFE RESEARCH INSTITUTE
AERIAL SURVEY AREA AND
EAGLE NEST LOCATIONS

TETRA TECH EC, INC.

P:\GIS\Projects\4177-McCoy\Bio\MXD\5_Avian_Point_Counts.mxd



McCOY SOLAR
ENERGY PROJECT
RIVERSIDE COUNTY, CA

Legend

- Avian Point Count Plot
- Small-Mammal Trap Line
- MSEP Solar Plant Site Boundary
- Solar Plant Site Survey Area
- Proposed Linear Corridor
- Proposed Colorado River Substation (SCE)
- Switchyard
- Extent of Area Surveyed
- Potential Primary Recipient Area

Habitat

- Arboreal Wash
- Agriculture
- Borrow Pit and Depression
- Boulder Outflow
- Desert Pavement Plain; 3-10 m Incised Washes
- Intermittent Low Sand Dunes and Swales
- Lower Bajada; Few Drainages
- Lower Bajada; Shallow Runnels and Swales
- McCoy Mountains Toeslopes; Arboreal Washes
- McCoy Wash
- Mid-Bajada; Arboreal Washes
- PV Solar Facility
- Pebble Plain
- Sand Dunes
- Sandy Lower Bajada; Sheet Flow, Swales and Percolation
- Well-Developed Desert Pavement

0 0.5 1 2
Miles

Notes:
(a) UTM Zone 11, NAD 1983 Projection.
(b) Source data: A. Karl, ESRI, CNDDB, USDA.

FIGURE 5
AVIAN POINT COUNT AND
SMALL-MAMMAL TRAPPING PLOTS

TETRA TECH EC, INC.

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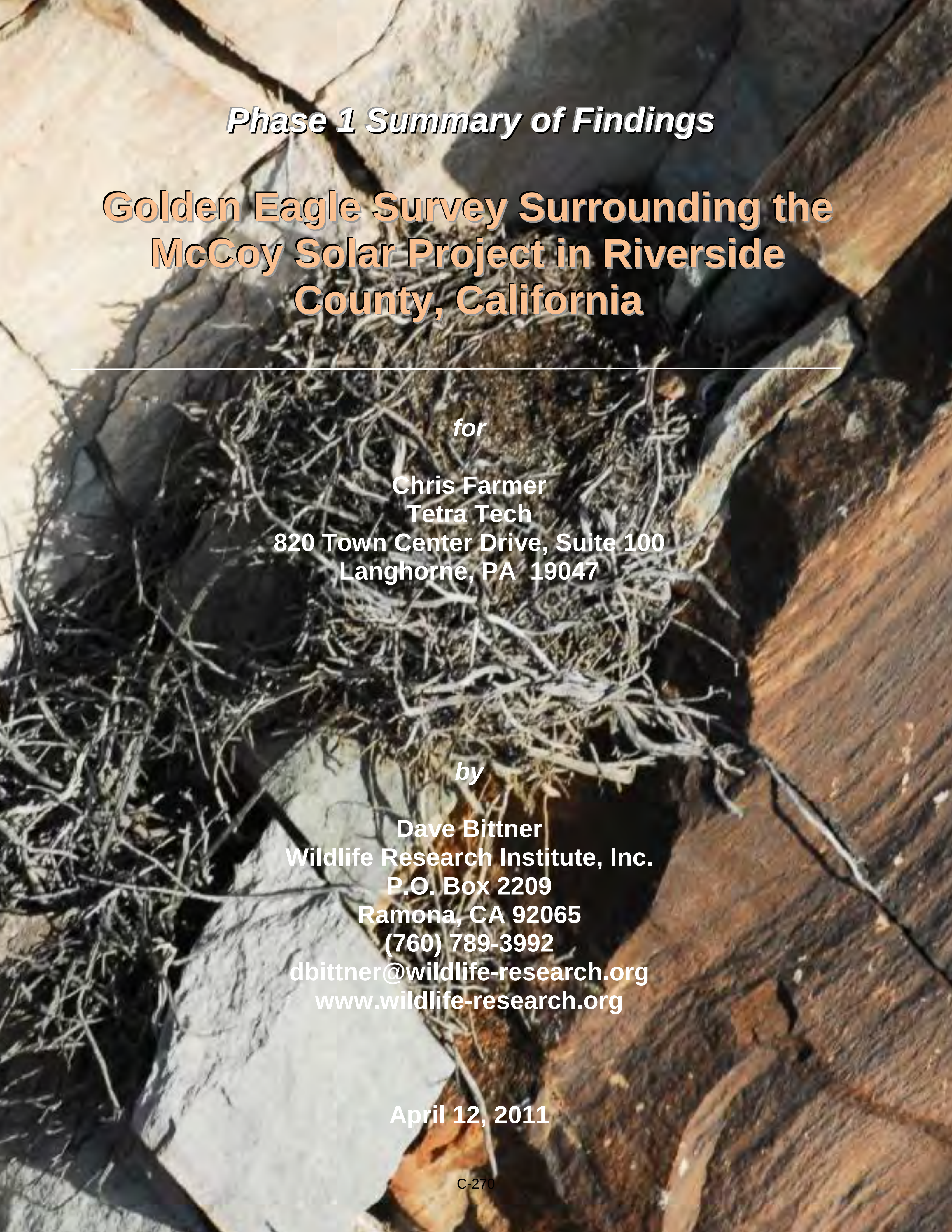
APPENDIX A

WRI 2011 Phase I Eagle Nest Survey Report



Phase 1 Summary of Findings

Golden Eagle Survey Surrounding the McCoy Solar Project in Riverside County, California

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for

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April 12, 2011

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

Cover Photo//Golden eagle nest observed at waypoint H69.

SUMMARY

This document provides the findings of the **Phase 1** surveys for golden eagles conducted within 10 nautical miles of the project boundary of the proposed McCoy Solar project in the East Mojave Desert Region in Riverside county of California in order to comply with the U.S. Fish and Wildlife Service recommendations. Surveys for this project were conducted by helicopter to confirm golden eagle occupancy status. Six golden eagle nests were documented, none of which were deemed to be active for the 2011 breeding season. Additionally, 7 species (i.e., American kestrel [*Falco sparverius*], common raven [*Corvus corax*], great horned owl [*Bubo virginianus*], peregrine falcon [*Falco peregrinus*], prairie falcon [*Falco mexicanus*], red-tailed hawk [*Buteo jamaicensus*], and turkey vulture [*Cathartes aura*]) were observed totaling 149 wildlife documentations. All sightings have been documented with GPS locations and recorded on the attached maps and tables as recommended in the USFWS Interim Golden Eagle Technical Guidance: Inventory and Monitoring Protocols; and Other Recommendations in Support of Golden Eagle Management and Permit Issuance (Pagel et al. 2010).

INTRODUCTION

Golden eagles respond to environmental changes in order to survive and reproduction in golden eagles, as in many predators, is regulated by prey species abundance. Since 1998, Western North America has been in a prolonged drought and this has affected many species including golden eagles (Bittner et al. 2003). Jackrabbits, an important prey species for golden eagles, have also declined (L. LaPre, Bureau of Land Management [BLM] and M. Jorgenson, California State Parks pers.com.). Golden eagle adults have persevered but reproduction rates have dropped to as low as 12% in some regions, such as the Mojave and Sonoran Deserts of the American Southwest (Bittner et al. 2003).

Eagles are large predatory birds with up to 7-foot wingspans and raising young takes a large investment of time and energy. Breeding in Southern California starts in January, nest building and egg laying in February to March, and hatching and raising the young eagles occur from April through June. Once the young eagles are flying on their own, the adult eagles will continue to feed them and teach them to hunt until late November. This huge investment of time and energy on the part of the adults, just to raise one or two young, causes some pairs to take a year off from breeding once in awhile even when food is abundant.

After leaving the nest, young eagles will explore their natal area and may continue to hunt close by or may venture tens to hundreds of miles away; occasionally returning briefly to their natal area (Bittner unpublished data).

WRI has learned, based on 22 years of helicopter and ground studies on golden eagles, that an initial helicopter survey can successfully identify approximately 80 to 90% of the golden eagle territories in a given area. Follow-up ground and helicopter surveys have indicated that some nests, and even some pairs, can be missed during the first survey. Second surveys are conducted to determine reproductive success but can also identify successful nesting attempts that were missed during initial surveys as well as reveal fledging success.

SURVEY AREA

The survey area was approximately 314 square miles and located in the Eastern Mojave Desert Region, near Blythe, California (Figure 1). It included the Mule, Hodges, Big Marias, and a portion of the McCoy mountain range. It was mostly Creosote Scrub and Yucca-Cactus transitional habitat at the lower areas and rocky outcrops at the higher elevations.

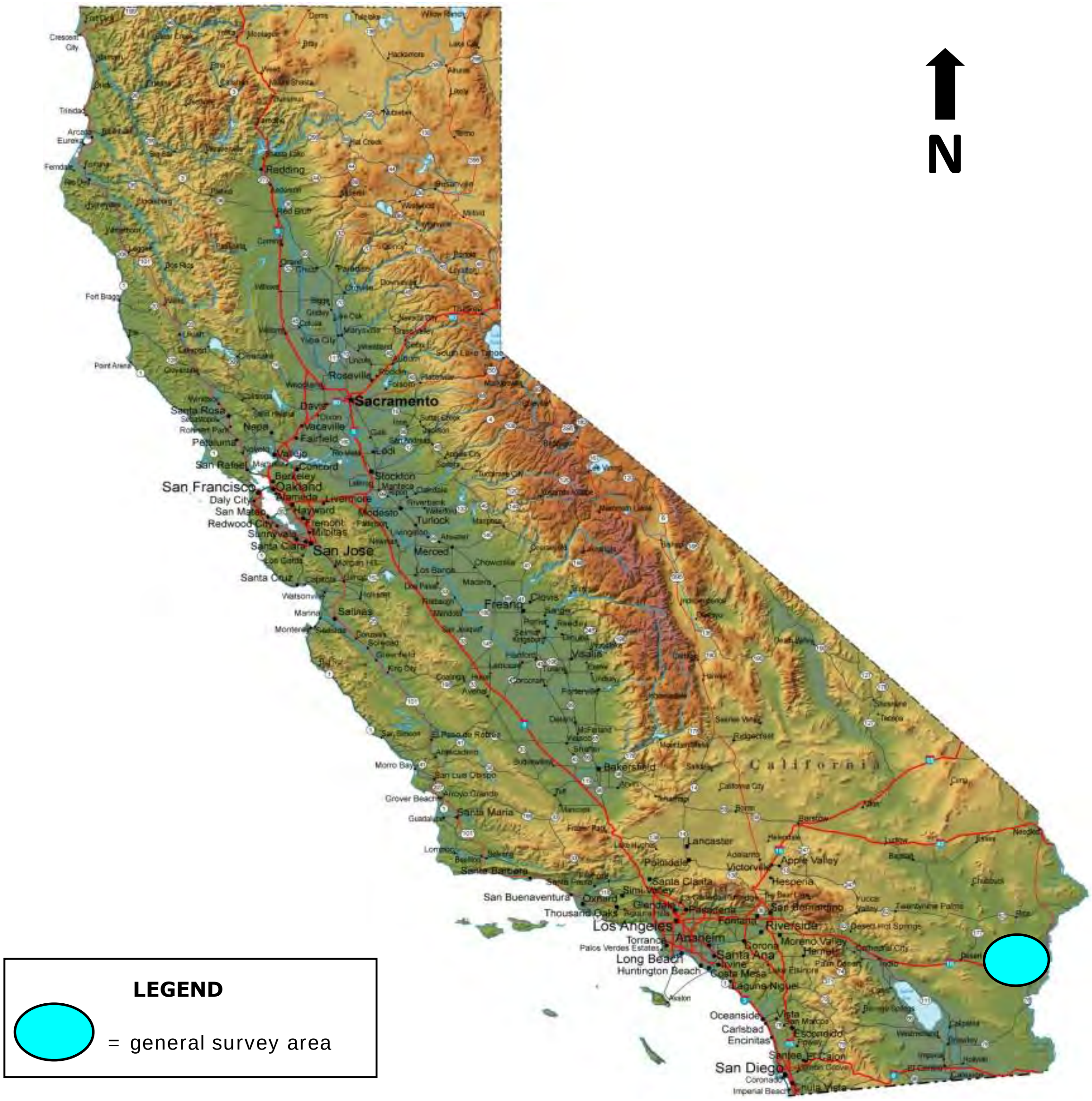


Figure 1. Map of McCoy Solar Project Survey Area.

METHODS AND CONSTRAINTS

Methods

WRI conducted aerial surveys surrounding the proposed project area including an approximate 10-nautical mile spatial buffer measured from the project boundary. All nests, raptors, and significant other wildlife observed (Table 1) were assigned a waypoint. Golden eagle nests and their associated territories were documented (Table 2); descriptive data for each observation were recorded on the transect data sheet (Table 3). The activity status of all golden eagle nests were either defined during flight, if possible, and/or confirmed later upon review of photographs. Even in the absence of incubating females, observations such as fresh green branches, material placed in the nest bowl such as yucca, and signs of new nest sticks built into and above old nest material all helped assess activity at the nest site for the 2011 breeding season.

We contacted Dr. Larry LaPre, of the BLM, to request available historic records or reports of golden eagle nesting activity and/or sightings in the project area. WRI utilized the verbal information provided by Dr. LaPre to improve our survey focus.

It should be noted that all surveying and reporting complies with the current U.S. Fish and Wildlife Service Interim Golden Eagle Inventory and Monitoring Protocols released in 2010 (Pagel et al. 2010).

Survey

On March 23 and 24, 2011, we conducted helicopter surveys for the target species, golden eagle, in the Eastern Mojave Desert region. We used a Hughes-500 helicopter that provided seating for three wildlife biologists (including at least 2 golden eagle biologists) and the pilot. The pilot used by WRI for these surveys also has extensive golden eagle (Appendix). We spent approximately 41 person-hours of actual aerial observations during the helicopter surveys for this phase.

We concentrated on any area with suitable golden eagle nesting habitat with possible nesting substrate which included cliffs with geological features, such as flat ledges or shallow cavities/caves, that could allow for safe nest construction and which were high enough to provide protection from ground-dwelling predators. This survey included all or part of every mountain range in the study area. We also surveyed large transmission towers in the project area since golden eagles are known to nest on these types of structures and WRI has documented this activity in other parts of the Mojave Desert.

GPS

Nest site and other location-specific data were determined and documented using hand-held GPS units (Garmin Map60GSx). A sequential number was assigned to each observation that corresponded to the GPS waypoint. Waypoints were recorded using the UTM grid in the WGS 84 Datum. GPS was also used to track our survey routes. Handwritten notes were taken on field forms that documented species, detailed observations, and corresponded to each GPS waypoint.

Photography

Photographs were taken with Nikon equipment with GPS units attached so that latitude and longitude could be recorded on each digital picture. Two cameras were used; one for recording wide-angle shots (18-200mm optically-stabilized zoom lens) and another for recording close-ups (200-400mm optically-stabilized zoom lens). The 400mm zoom lens plus the ability to enlarge the digital photographs allows accurate and detailed records to be captured with minimal disturbance to wildlife. This is also important because it allows review and confirmation of our observations in an environment that is more stable than the cockpit of a helicopter.

Data

We photographed all active golden eagle nests, some other raptor nests, representations of numerous inactive golden eagle nest sites, and significant other wildlife species observed. The following data were also specifically collected and are on file at WRI but map coordinates for nests of sensitive species (i.e., golden eagle, peregrine falcon, and prairie falcon) may not be included in all reports:

- Species
- Number of nests/alternative nests observed
- Condition of each nest and whether or not it was active
- Nest aspect and elevation
- Nest GPS coordinates
- Nest substrate (cliff, transmission tower, etc.)
- Age class of golden eagles and other species, if determinable
- Behavior of species observed.

It should be noted that red-tailed hawks in particular, as well as other raptors such as prairie falcons, sometimes utilize golden eagle nests for their own nesting, something observed during surveys for this project. During surveys, these nests were attributed to the current occupant (i.e., hawk or falcon), however the original nest builder (i.e., golden eagle) was recorded in the Notes section of the transect data sheet (Table 3). These old golden eagle nests, when viewed along with more current nests, often help define the core nesting area/territory of a particular pair of eagles.

Constraints

In that these were diurnal surveys focused on golden eagles, we were less likely to observe nocturnal and crepuscular raptors (i.e., owls) or nocturnal mammals. Aerial surveys also tend to under-represent the smaller species, like the American kestrel and burrowing owl (*Athene cunicularia*). No population data can be extrapolated from these surveys except for the focus species, golden eagle.

RESULTS

Satellite Map with Project Boundary of McCoy Solar Project Area and Golden Eagle Nests

The satellite map below shows the project boundary of the proposed McCoy Solar project area, plus an approximate 10-nautical mile spatial buffer. Waypoints for golden eagle nests and other sensitive species (i.e., peregrine and prairie falcons) observed within or immediately adjacent to the spatial buffer are also provided.

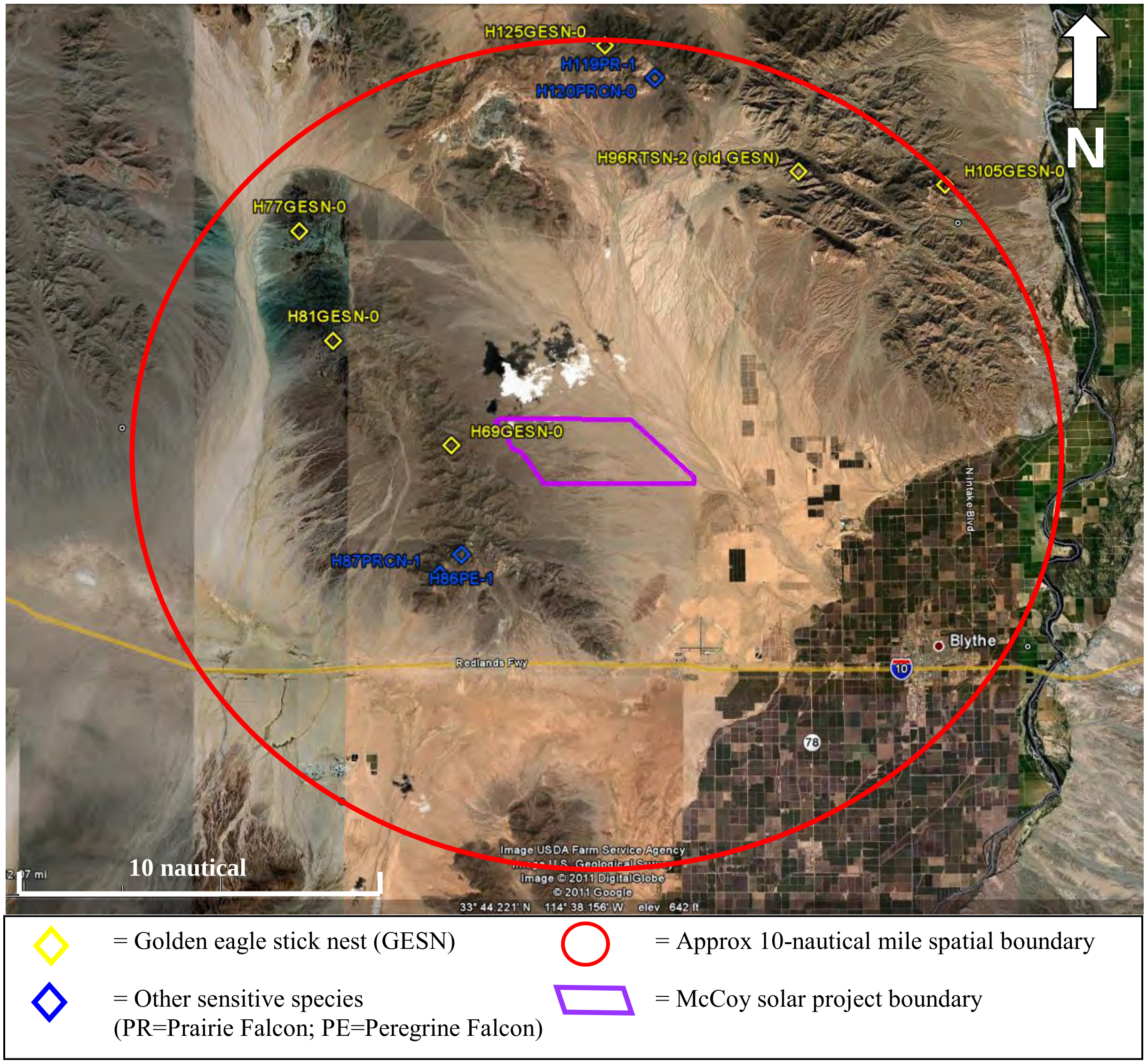
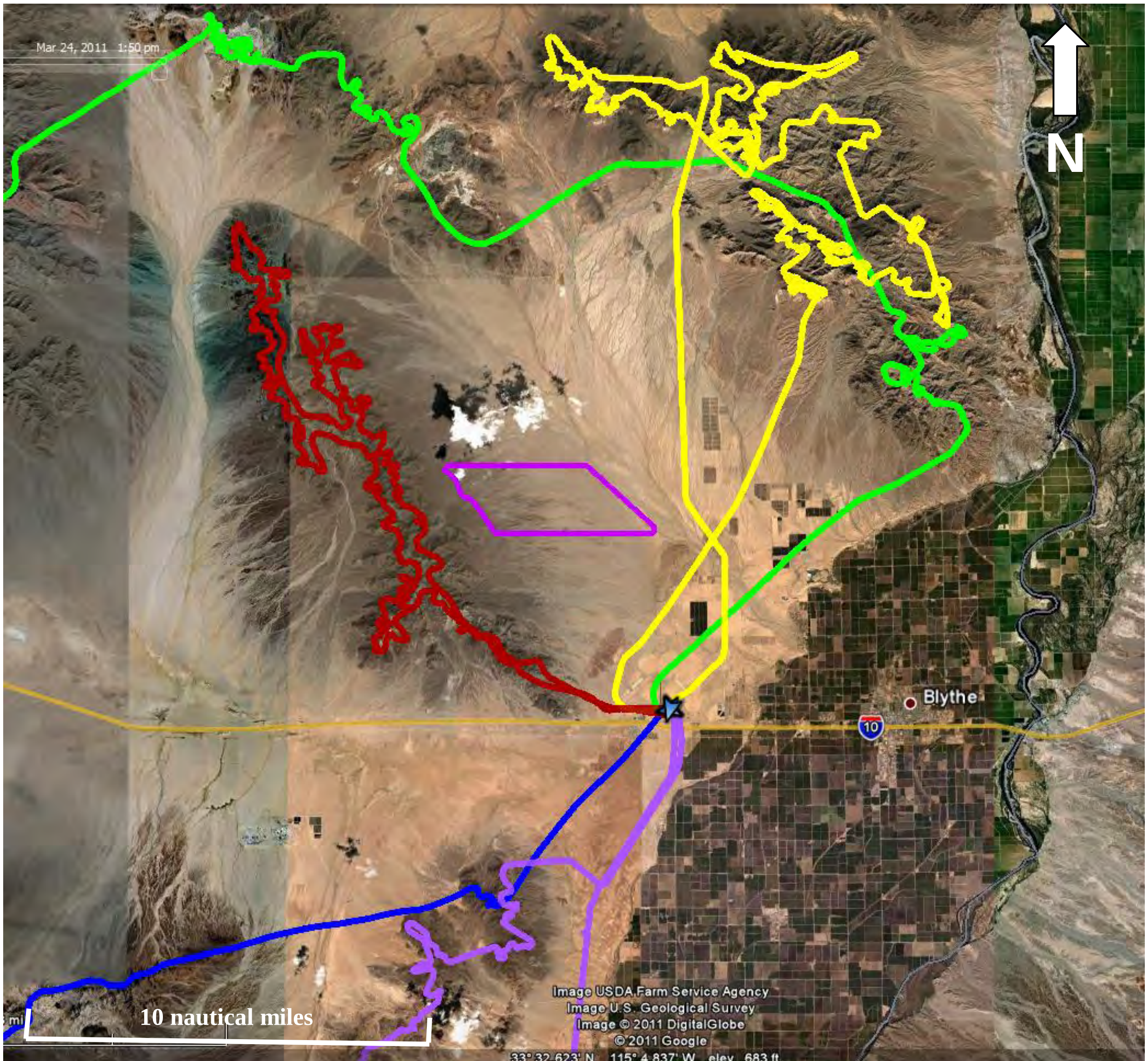


Figure 2. Golden Eagle Nests and Sensitive Species Surrounding the McCoy Solar Project Area.

Survey Flight Paths

The flight paths taken by WRI on March 23rd and 24th, 2011, while conducting the golden eagle surveys surrounding the McCoy Solar project area are depicted below.



= March 23, 2011 (flight #1)
= March 23, 2011 (flight #2)
= March 23, 2011 (flight #3)
= March 24, 2011 (flight #1)
= March 24, 2011 (flight #2)

Figure 3. Survey Flight Paths During Phase 1 Surveys of McCoy Solar Project Area.

PHASE 1 SUMMARY OF FINDINGS

All Wildlife Observations

Based on recommendations in the USFWS Interim Golden Eagle Guidelines (Pagel et al. 2010), all wildlife observations are documented in Table 2 below.

	Big Maria Mountains	Hodges Mountains	McCoy Mountains	Mule Mountains	Total
American Kestrel	0	0	0	1	1
Common Raven	0	0	1	1	2
Great Horned Owl	10	0	1	1	12
Peregrine Falcon	1	0	1	0	2
Prairie Falcon	1	0	1	2	4
Red-tailed Hawk	22	2	7	19	50
Turkey Vulture	21	4	31	22	78
Total	**55**	**6**	**42**	**46**	**149**

Table 1. All Wildlife Observed During Phase 1 Surveys of McCoy Solar Project Area.

Golden Eagle Nests and Associated Territories

The table below lists the trip identifier (a unique alpha character applied to each survey conducted during 2011), a waypoint identification number for each golden eagle nest identified, the species that built or is occupying the nest, the number of individual birds observed, the status of nest activity (i.e., active or not during 2011 breeding season), the USGS Quad territory name (incorporating the state, county, and US Geological Survey [USGS] Quad; which is the USFWS recommended naming convention), the geographical area where the nest was located, and the USGS Quad.

Territory #	Trip ID	Waypoint #	Species	# of Individuals	Nest Active by GE in 2011 (Yes/No/Possibly)	USGS Quad Territory Name	Geographical Area	USGS Quad
1	H	69	GE	0	No	CA-RIV-33114/f7-001-01	McCoy Mountains	McCoy Peak
2	H	77	GE	0	No	CA-RIV-33114/g8-001-01	McCoy Mountains	Arlington Mine
2	H	81	GE	0	No	CA-RIV-33114/g8-001-02	McCoy Mountains	Arlington Mine
3	H	96a	RT*	2	No	CA-RIV-33114/g6-001-01	Big Maria Mountains	Big Maria Mountains SW
4	H	105a	GE	0	No	CA-RIV-33114/g5-001-01	Big Maria Mountains	Big Maria Mountains SE
5	H	125	GE	0	No	CA-RIV-33114/h7-001-01	Big Maria Mountains	Styx
CA=California, GE=Golden Eagle, RIV=Riverside, RT=Red-tailed Hawk, SN=Stick Nest. *Old golden eagle stick nest being used during the 2011 breeding season by a red-tailed hawk.								

Table 2. Golden Eagle Nests Identified During Phase 1 Surveys of McCoy Solar Project Area.

All Data for Phase 1 Surveys of McCoy Solar Project Area

Map coordinates (i.e., UTM) of the nests of sensitive species (golden eagles, peregrine falcons, prairie falcons) have been withheld per request of federal agencies in order to protect these species, but are on file at WRI. If needed, this information is available upon request. Shaded rows are data that lie outside the 10-nautical mile spatial buffer but are included for completeness.

Trip ID	Waypoint #	Species	Nest Type*	# of Individuals	Position (UTM)	Nest Aspect	Nest Condition	Nest Substrate	Nest Active in 2010 (Yes/No/Possibly)	Elevation	Notes (age, sex, substrate, etc.)
March 23, 2011 - flight #1 (2.7 hours) - 48-63°F, 0% cloud cover, wind 0-5mph, 0% precip, 10+ visibility											
H	24	TV		1	11 S 702853 3713100					1362 ft	observed in flight
H	25	TV		1	11 S 704221 3712370					1165 ft	observed in flight
H	26	RT	SN	0	11 S 704026 3712465	N	G	R	Y	1366 ft	
H	27	TV		1	11 S 706142 3714903					995 ft	observed in flight
March 23, 2011 - flight #2 (2.75 hours) 76°F, 0% cloud cover, wind 0-5mph, 0% precip, 10+ visibility											
H	28a	RT		1	11 S 705089 3712361					1074 ft	observed in flight
H	28b	RT	SN	0	11 S 705089 3712361	E	G	R	Y	1074 ft	
H	29	RT	SN	0	11 S 705052 3712373	E	G	R	Y	1163 ft	
H	30	TV		1	11 S 704548 3711655					1650 ft	
H	31	RT	SN	1	11 S 704965 3710639	E	G	R	Y	1083 ft	adult incubating
H	32	RT	SN	0	11 S 701702 3708291	-	G	TT	Y	751 ft	has bowl
H	33	RT	SN	0	11 S 698064 3700248	N	G	R	N	702 ft	
H	34	RT	SN	0	11 S 698068 3700241	N	F	R	N	687 ft	smaller; remnant or beginning of nest
H	35	RT	SN	0	11 S 698023 3700202	N	F	R	N	703 ft	
H	36	RT	SN	3	11 S 698168 3700488	E	G	R	Y	699 ft	adult incubating; 2 eggs
H	37	RT	SN	1	11 S 698460 3698416	N	G	R	Y	1307 ft	adult incubating
H	38	TV		6	11 S 696452 3698268					1108 ft	observed in flight
H	39a	RT		1	11 S 696331 3697131					1267 ft	observed in flight
H	39b	TV		2	11 S 696331 3697131					1267 ft	observed in flight
H	40	RT	SN	0	11 S 697814 3697446	N	G	R	N	1029 ft	
H	41	RT	SN	2	11 S 698122 3695231	N	G	R	Y	1410 ft	adult incubating; 1 egg

PHASE 1 SUMMARY OF FINDINGS

Trip ID	Waypoint #	Species	Nest Type*	# of Individuals	Position (UTM)	Nest Aspect	Nest Condition	Nest Substrate	Nest Active in 2010 (Yes/No/Possibly)	Elevation	Notes (age, sex, substrate, etc.)
H	42	RT	SN	1	11 S 699607 3694824	W	G	R	Y	1314 ft	adult flew off nest
H	43	RT	SN	0	11 S 699560 3694730	W	F	R	N	1321 ft	some rock fell in nest
H	44	TV		3	11 S 701974 3690399					1082 ft	observed in flight
H	45	CR	SN	0	11 S 703376 3691854	N		R		1207 ft	nest located in a crack
H	46a	GHO		1	11 S 703308 3691588					1354 ft	observed in flight
H	46b	S-C		1	11 S 703308 3691588					1354 ft	Saguaro Cactus
H	47	RT	SN	0	11 S 703127 3691832	E	P	R	N	1238 ft	
H	48	RT	SN	1	11 S 703097 3691870	E	G	R	N	1251 ft	egg in nest
H	49	RT	SN	3	11 S 703089 3691883	E	G	R	Y	1249 ft	adult incubating, one egg, one other adult
H	50	TV		2	11 S 703914 3690453					1305 ft	flew out from cave
H	51a	RT	SN	0	11 S 704087 3690163	E	P	R	N	1373 ft	
H	51b	RT	SN	0	11 S 704087 3690163	E	F	R	N	1373 ft	
H	52	RT	SN	0	11 S 704106 3690158	E	P	R	N	1367 ft	small green plant in nest
H	53	PR	CN	2		W	G	R	Y	1418 ft	adult incubating and adult flying nearby
H	54	CR	SN	1	11 S 706654 3689385	W	G	R	Y	1292 ft	adult incubating
H	55	PR	CN	0		SW		R	N	1334 ft	old nest built on top of old CRSN
H	**56**	**GE**	**SN**	**0**		**SW**		**R**	**N**	**1360 ft**	**old GESN**
H	57	S-C		1	11 S 707090 3689983					1555 ft	Saguaro Cactus
H	**58a**	**GE**	**SN**	**0**		**E**	**F**	**R**	**N**	**1298 ft**	
H	**58b**	**GE**	**SN**	**0**		**E**	**P**	**R**	**N**	**1298 ft**	
H	59	TV		5	11 S 706769 3688971					1486 ft	flew out of cave/roost
H	60a	U	SN	0	11 S 706504 3688357	N	G	R	Y	1040 ft	
H	60b	RT	SN	0	11 S 706504 3688357	N	G	R		1040 ft	
H	60c	U	CN	0	11 S 706504 3688357					1040 ft	
H	61	TV		2	11 S 706566 3687301					1368 ft	observed in flight
H	62a	RT	SN	4	11 S 707312 3691153	W	G	R	Y	943 ft	adult flushed, 3 eggs; mylar under eggs

PHASE 1 SUMMARY OF FINDINGS

Trip ID	Waypoint #	Species	Nest Type*	# of Individuals	Position (UTM)	Nest Aspect	Nest Condition	Nest Substrate	Nest Active in 2010 (Yes/No/Possibly)	Elevation	Notes (age, sex, substrate, etc.)
H	62b	RT	SN	0	11 S 707312 3691153	W	G	R	N	943 ft	
H	63	RT	SN	1	11 S 708899 3692065	W	G	R	N	738 ft	
H	64	RT	SN	1	11 S 707837 3704505	-	G	TT	Y	656 ft	adult incubating
H	65	RT	SN	0	11 S 708382 3711159	-		TT	?	537 ft	
H	66	AK		1	11 S 711471 3717213					659 ft	observed in flight/perching
H	67	TV		2	11 S 711776 3717707					608 ft	observed in flight
H	68	RT		1	11 S 711973 3718056					610 ft	observed perched on telephone pole
March 23, 2011 - flight #3 (2hours) 75-71°F, 0% cloud cover, wind 5-15mph, 0% precip, 10+ visibility											
H	**69**	**GE**	**SN**	**0**		**SE**	**G**	**R**	**N**	**1889 ft**	**nice bowl**
H	70	U	SN	0	11 S 699122 3731745	SE	G	R	Y	1945 ft	larger nest, greenery added
H	71	RT		1	11 S 697313 3734919					2228 ft	observed in flight
H	72	TV		2	11 S 695293 3738281					2151 ft	observed in flight
H	73	TV		2	11 S 696458 3735551					2109 ft	observed in flight
H	74	TV		3	11 S 693252 3739587					2094 ft	observed in flight
H	75	RT	SN	0	11 S 693135 3741454	N	G	R	Y	2040 ft	
H	76	RT		2	11 S 691385 3744225					1613 ft	observed in flight
H	**77**	**GE**	**SN**	**0**		**NW**	**P**	**R**	**N**	**2037 ft**	**old GESN**
H	78a	RT		1	11 S 692623 3741150					2341 ft	observed in flight
H	78b	TV		1	11 S 692623 3741150					2341 ft	observed in flight
H	79	RT		1	11 S 692278 3739533					1838 ft	perched
H	80	TV		10	11 S 692503 3737964					2092 ft	observed in flight
H	**81**	**GE**	**SN**	**0**		**N**	**P**	**R**	**N**	**1532 ft**	**older nest**
H	82	RT	SN	0	11 S 694410 3733996	NW	G	R	N		possibly used last year
H	83a	RT	SN	0	11 S 698207 3731855	NE	G	R	Y	1951 ft	nice bowl, recent activity
H	83b	RT	SN	0	11 S 698207 3731855	NE	P	R	N	1951 ft	flat and old
H	84	CR		1	11 S 698782 3730478					1965 ft	observed in flight
H	85	TV		9	11 S 699258 3729784					2080 ft	observed in flight

Trip ID	Waypoint #	Species	Nest Type*	# of Individuals	Position (UTM)	Nest Aspect	Nest Condition	Nest Substrate	Nest Active in 2010 (Yes/No/Possibly)	Elevation	Notes (age, sex, substrate, etc.)
H	86a	PE		1						1871 ft	chasing GHO
H	86b	GHO		1						1871 ft	being chased by PE
H	87	PR	CN	1		W	G	R	Y	1677 ft	lots of whitewash build-up on nest
H	88a	RT		1	11 S 701063 3727050					2222 ft	observed in flight
H	88b	TV		4	11 S 701063 3727050					2222 ft	observed in flight
H	89	RT	SN	0	11 S 701827 3726240	E	G	R	Y	1645 ft	nice bowl
H	90	RT		1	11 S 703781 3725033					1604 ft	observed in flight
March 24, 2011 - flight #1 (2.7 hours) 53-62°F, light haze, wind 5-10mph, 0% precip, 10+ visibility											
H	91	GHO		1	11 S 717613 3741686					1759 ft	observed in flight
H	92	RT	SN	0	11 S 717635 3741697	E	F	R	N	1774 ft	one nest and lower/ fallen material below
H	93	TV		6	11 S 717773 3742300					1936 ft	observed in flight
H	94a	RT	SN	1	11 S 717899 3743663	S	G	R	Y	2139 ft	2 young on nest with adult
H	94b	TV		1	11 S 717899 3743663					2139 ft	observed in flight
H	95	RT		1	11 S 716149 3745556					2144 ft	observed in flight
H	**96a**	**RT**	**SN**	**2**		**S**	**G**	**R**	**Y**	**2263 ft**	**old GESN, used by RT this year; 1 adult, one egg**
H	96b	TV		3	11 S 716116 3745643					2263 ft	flew from roost
H	97	RT		1	11 S 720231 3743687					1968 ft	in flight/ perched
H	98	RT	SN	0	11 S 719400 3743629	S	F	R	N	1985 ft	some rock fell in nest
H	99	GHO		1	11 S 721134 3742951					1508 ft	observed in flight
H	100a	RT		1	11 S 720778 3742641					2506 ft	observed in flight
H	100b	TV		1	11 S 720778 3742641					2506 ft	observed in flight
H	101	GHO		1	11 S 723230 3744485					1418 ft	perched/ in flight
H	102	GHO	SN	1	11 S 723420 3744368	S	G	R	Y	1394 ft	adult incubating
H	103	GHO		1	11 S 723312 3745041					1251 ft	observed in flight
H	104	RT	SN	1	11 S 723347 3745139	W	G	R	Y	1207 ft	adult incubating
H	**105a**	**GE**	**SN**	**0**		**NW**	**P**	**R**	**N**	**1174 ft**	**old nest**
H	105b	TV		2	11 S 723446 3745175					1174 ft	observed in flight

PHASE 1 SUMMARY OF FINDINGS

Trip ID	Waypoint #	Species	Nest Type*	# of Individuals	Position (UTM)	Nest Aspect	Nest Condition	Nest Substrate	Nest Active in 2010 (Yes/No/Possibly)	Elevation	Notes (age, sex, substrate, etc.)
H	106	RT	SN	0	11 S 720616 3748680	S		R	N	1322 ft	
H	107	RT	SN	1	11 S 720573 3748701	S	G	R	Y	1327 ft	
H	108a	RT		1	11 S 719252 3749700					1537 ft	RT chased and hit the GHO
H	108b	GHO		1	11 S 719252 3749700					1537 ft	RT chased and hit the GHO
H	109	RT	SN	0	11 S 719470 3749817	SE	G	R	P	1428 ft	
H	110a	RT	SN	0	11 S 715603 3748040	E	G	R	P	2572 ft	
H	110b	RT		1	11 S 715603 3748040					2572 ft	observed in flight
H	110c	TV		1	11 S 715603 3748040					2572 ft	observed in flight
H	111	GHO		1	11 S 713816 3752491					1887 ft	observed in flight
H	112	TV		4	11 S 713767 3748881					1752 ft	observed in flight
H	113	GHO		1	11 S 711905 3749650					1903 ft	observed in flight
H	114	RT	SN	0	11 S 711987 3749760	SE	G	R	Y	1872 ft	
H	115	RT	SN	1	11 S 711576 3749853	SE	G	R	Y	2047 ft	adult incubating
H	116	RT	SN	0	11 S 708925 3750282	E	G	R	N	1882 ft	
H	117	RT	SN	0	11 S 708906 3750121	E	G	R		1934 ft	
H	118	RT	SN	0	11 S 708910 3750133	E	G	R		1934 ft	
H	119	PR		1						1810 ft	observed in flight
H	120	PR	CN	0		SE	G	R	Y	1851 ft	
H	121	RT		1	11 S 708822 3750007					1879 ft	observed in flight
H	122	RT	SN	0	11 S 708025 3749986	S	G	R	N	1758 ft	
H	123	GHO		1	11 S 708312 3750632					1834 ft	observed in flight
H	124	RT	SN	0	11 S 707429 3751164	E	G	R	Y	2308 ft	
H	**125**	**GE**	**SN**	**0**		**SW**	**P**	**R**	**N**	**2292 ft**	**old GESN**
H	126	RT	SN	0	11 S 705988 3751901	E	G	R	Y	2004 ft	
H	127	RT	SN	0	11 S 707180 3751984	E	F	R		2438 ft	
March 24, 2011 - flight #2 (3.5 hours) 69-56°F, 0% cloud cover, wind 5-10mph, 0% precip, 10+ visibility											
H	128	RT	SN	1	11 S 724631 3736577	S	G	R	Y	1588 ft	adult flew off nest; 2 eggs

Trip ID	Waypoint #	Species	Nest Type*	# of Individuals	Position (UTM)	Nest Aspect	Nest Condition	Nest Substrate	Nest Active in 2010 (Yes/No/Possibly)	Elevation	Notes (age, sex, substrate, etc.)
H	129	RT	SN	1	11 S 723029 3738008	S	G	R	Y	1998 ft	adult incubating
H	130	RT	SN	0	11 S 723543 3739544	S	G	R	Y	1571 ft	
H	131	RT	SN	0	11 S 723894 3739354	E	G	R		1447 ft	
H	132a	RT		1	11 S 724024 3739393					1393 ft	observed in flight
H	132b	RT	SN	2	11 S 724024 3739393	E	G	R	Y	1393 ft	nest contains eggs
H	133	RT		2	11 S 725413 3739739					970 ft	observed in flight
H	134	RT		1	11 S 725723 3740007					1130 ft	observed in flight
H	135	RT	SN	2	11 S 725616 3740128	S	G	R	Y	1200 ft	nest contains 2 eggs
H	136	RT	SN	0	11 S 697253 3749467	N	F	R	Y	2117 ft	built up over the years
H	137	TV		2	11 S 691495 3752049					2202 ft	observed in flight
H	138	PE		1						2326 ft	observed in flight
H	139a	RT	SN	0	11 S 691145 3752806	SW	F	R		2173 ft	
H	139b	TV		1	11 S 691145 3752806					2173 ft	observed in flight
H	140	RT	SN	0	11 S 690590 3752635	W	P	R	N	2268 ft	old and deteriorated
H	141	GHO		1	11 S 679335 3743480					2953 ft	perched/ in flight; hit by PR

AK=American Kestrel, CN=Cavity Nest, CR=Common Raven, F=Fair, G=Good, GE=Golden Eagle, GHO=Great Horned Owl, P=Poor, PE=Peregrine Falcon, PR=Prairie Falcon, R=Rock, RT=Red-tailed Hawk, S-C=Saguaro Cactus, SN=Stick Nest, TT=Transmission Tower, TV=Turkey Vulture, U=Unidentified.
*If no nest type is indicated, then the species was observed independently of a nest (e.g., flying, perched).

Table 3. Transect Datasheet with all Data from Phase 1 Surveys of McCoy Solar Project Area.

Photographs of Golden Eagle Nests and Other Observations

Inactive golden eagle stick nest (H69GESN-0) in the McCoy Mountains; good condition.

Inactive golden eagle stick nest (H77GESN-0) in the McCoy Mountains; poor condition.

Inactive golden eagle stick nest (H81GESN-0) in the McCoy Mountains; poor condition.

Red-tailed hawk using golden eagle stick nest (H96aGESN-0) in the Big Maria Mountains.

Inactive golden eagle stick nest (H105aGESN-0) in the Big Maria Mountains; poor condition.

Inactive golden eagle stick nest (H125GESN-0) in the Big Maria Mountains; poor condition.


Incubating great horned owl (H102GHOSN-1) in the Big Maria Mountains.


Incubating red-tailed hawk (H104RTSN-1) in the Big Maria Mountains.

DISCUSSION OF FINDINGS

This report provides the findings of the **Phase 1** surveys for golden eagles conducted by Wildlife Research Institute within 10 nautical miles of the project boundary of the proposed McCoy Solar project in the East Mojave Desert Region in Riverside county of California in order to comply with the U.S. Fish and Wildlife Service recommendations. Surveys for this project were conducted by helicopter to confirm golden eagle occupancy status.

WRI conducted 5 flights between March 23rd and March 24, 2011 over the McCoy Mountains, Big Maria Mountains, Hodges Mountains, and the Mule Mountains. Six golden eagle nests were documented, comprising 5 territories, none of which were deemed to be active for the 2011 breeding season. Additionally, 1 American kestrel, 2 common ravens, 12 great horned owls, 2 peregrine falcons, 4 prairie falcons, 50 red-tailed hawks, and 78 turkey vultures were observed totaling 149 wildlife documentations.

All golden eagle nests and territories have been assigned a USGS Quad name, and all sightings have been documented with GPS locations and recorded on the attached tables, as recommended in the USFWS Interim Golden Eagle Technical Guidance: Inventory and Monitoring Protocols; and Other Recommendations in Support of Golden Eagle Management and Permit Issuance (Pagel et al. 2010).

LITERATURE CITED

Bittner, J.D., J. Oakley, J. Hannan, J.L. Lincer, N. Muscolino, and R. Domenech. 2003. Reproduction of Golden Eagles in a Drought Period. Paper presented at the Raptor Research Foundation's Annual Scientific Conference. September 2-7. Anchorage, AK.

Pagel J.E., D.M. Whittington and G.T. Allen. 2010. Interim Golden Eagle technical guidance: Inventory and monitoring protocols; and other recommendations in support of golden Eagle management and permit issuance. Division of Migratory Bird Management, U.S. Fish and Wildlife Service.

APPENDIX A
Wildlife Research Institute Golden Eagle Team

Dave Bittner
Executive Director, WRI
Wildlife Biologist/Raptor Ecologist

Mr. Dave Bittner is a Co-founder and Executive Director of The Wildlife Research Institute, Inc. and has been a Wildlife Biologist for more than 44 years. Much of his work has been with raptors of various species but he has also studied and banded 3700 Great Blue Herons, conducted mammal research, and trapped and tagged over 3,000 mammals of various species. Dave currently coordinates an annual Golden Eagle and raptor population study throughout Southern California, including the Western Mojave Desert and the Anza-Borrego Desert State Park. He is the Primary Investigator (P.I.) for the Southern California Golden Eagle Population Study, the longest continuous running (22 years) Golden Eagle study of its kind in the Western Hemisphere, which began in 1968. Currently, he is also the P.I. for WRI's satellite and VHF telemetry-based Golden Eagle migration and habitat use study in cooperation with the US Forest Service, Montana Parks and Wildlife, and the California Department of Fish and Game. WRI, under Dave's direction, has conducted annual helicopter surveys on Golden Eagles and raptors in general since 1996. Dave has banded raptors since 1963 and has banded over 420 Golden Eagles, many with VHF and satellite telemetry. He has conducted Bighorn Sheep surveys, both aerial and ground, for Desert Bighorn Sheep in the Mojave Desert and for Peninsular Bighorn Sheep in the Anza-Borrego Desert State Park and Baja, Mexico since 1998. Dave has also surveyed Bighorn Sheep in Montana where WRI has a research Station. His education includes a B.Sc. in Zoology and Wildlife Management from Ohio State University (1968). He also conducted graduate studies in Avian Reproduction and Natural Resources (1975-1977) at Ohio State University. Dave has worked for the U.S. Fish and Wildlife Service, Cleveland Museum of Natural History, and the Ohio Department of Natural Resources and has taught at two universities and one technical college.

Jeffrey L. Lincer, Ph.D.
Research Director, WRI
Senior Scientist/Wildlife Biologist/Raptor Ecologist

Dr. Lincer is a Co-founder and Research Director of The Wildlife Research Institute, Inc. and has extensive experience surveying for raptors, including helping establish WRI's Montana Raptor Migration Station. He has actively participated in the institute's Southern California Golden Eagle project since 2000, including helicopter surveys since 2001. He has conducted numerous raptor surveys for federal, state, county, and local governments, and the private sector across desert and mountain habitat in the California Mojave and Anza-Borrego deserts, San Diego County, Nevada and the mountains of northern Baja Mexico. In addition, Jeff has over 100 hours of aerial surveying for Bald Eagles and over 50 hours for fish-eating birds. He has conducted Bighorn Sheep surveys, both aerial and ground, in the Mojave Desert and for the Anza-Borrego Desert State Park since 1998. Dr. Lincer's background includes 40 years as a scientist, scientific advisor, and administrator in the environmental research and management areas. He has taught college level courses in environmental and occupational health, environmental science, ornithology, and mangrove ecology, produced over 100 scientific publications and papers (most on raptors), authored dozens of environmental reports, and served as advisor to high-level governmental offices and national/international conservation programs. Jeff received his Bachelors and Masters degrees in Wildlife Biology/Wildlife Management from Syracuse University and his Doctorate in Ecology and Toxicology from Cornell University. He is most well known for his work with raptors and other threatened/endangered species and his ability to manage complex interdisciplinary projects and work productively with government agencies. He is a Past-President of the Southern Chapter of The Wildlife Society. As President of the Raptor Research Foundation (RRF) from l982 to l988, he oversaw the greatest growth of that professional organization in its entire history. He chairs RRF's Leslie Brown Award Grant Committee (for research on African raptors) and chaired the First International Burrowing Owl Symposium and Workshop. He is the Co-editor for the Proceedings of the First International Symposium on Burrowing Owls, a Co-editor of the proceedings of the First California Burrowing Owl Symposium, and is a contributing Technical Editor for a recent book on California's endangered species. Dr. Lincer was the founding Director of the National Wildlife Federation's (NWF) Raptor Information Center. During his NWF tenure, he coordinated with government agencies and the private sector, developed computerized literature databases, and prioritized eagle and other raptor habitat throughout the United States for acquisition. He served as Consulting Editor for the joint RRF/Bureau of Land Management publication, "Raptor Habitat Management Multiple Use Mandate." Over the last four decades, he has worked on major projects from Alaska to Africa, addressing raptor population trends, ecological monitoring, environmental impacts, ecotoxicology, and habitat protection and acquisition.

Leigh Bittner
Vice-President, WRI
Field Assistant

Mrs. Bittner first flew Golden Eagle helicopter surveys in 1996. She has participated in Golden Eagle nest surveys, eagle banding, tagging and tracking in California since 1991, New Mexico, 2001 and Montana since 2000. Leigh has also been involved in tagging and releasing of some of the first California Condors in California, 1992, and Arizona, 1996. Leigh is a co-founder of the Wildlife Research Institute, Inc. and has been a Board member since 1996. She is a retired Marketing Manager from Hallmark Corporation and also helps coordinate office operations to support WRI's field activities.

Chris Meador
WRI Assistant Director
Wildlife Biologist

Mr. Meador is a full-time Wildlife Biologist for the Wildlife Research Institute (WRI) and has been a Wildlife Biologist for the past eight years. Chris has three years experience conducting helicopter surveys on Golden Eagles and other raptors, including over 125 hours of helicopter survey experience. He has conducted numerous raptor surveys for federal, state, county and local governments, and the private sector across desert, coastal and mountain habitats. He co-leads WRI's Southern California Golden Eagle Population Study, the longest running study of its kind in the Western Hemisphere and has participated in it for the past ten years. He currently carries out myriad tasks for various projects pertaining to the Golden Eagle. These include trapping, tagging, and affixing radio and satellite telemetry transmitters to nestling, juvenile and adult Golden Eagles in San Diego County as well as migrating Golden Eagles in Montana. He maintains and oversees much of the Wildlife Research Institute's tracking process including gathering, interpreting and publishing data and findings using GPS and GIS integration. Chris has conducted Bighorn Sheep surveys, both aerial and ground, in the Mojave Desert and for the Anza-Borrego Desert State Park since 2008. He has assisted with projects, including research, education and reintroduction on a broad range of species from endangered mammals to sensitive fish and from Burrowing Owls to Desert Tortoises. Mr. Meador also conducts educational programs on multiple topics including natural history, ecology and conservation pertaining to many different species. He is an expert in identification and ecology of North American raptors. He holds a Bachelor of Arts degree with a double major in Environmental Studies and Psychology from Prescott College in Prescott, Arizona.

James Hannan, Ph.D.
Senior Wildlife Biologist

Dr. Hannan has seven years experience with WRI conducting helicopter surveys of Golden Eagles and other raptors. Jim also helps on WRI's long running Golden Eagle Research project with rappelling to, banding and tracking Golden Eagles. He is fluent in Spanish and served as an International Environmental Consultant for the Peace Corps and United Nations Volunteer programs His professional experience includes two years as a Peace Corps Volunteer (fisheries and agriculture, in Panama), one-year Peace Crops staff (fisheries development in Puerto Rico), and one year at the Smithsonian Institution. His academic experience also includes three years as Professor of Marine Biology and Environmental Studies at Florida Institute of Technology. Jim also spent twelve years as a private environmental consultant (contracts included Mexican aquaculture, impacts to Caribbean coral reefs, deer and other game studies involving radio transmitters for the California Dept of Fish and Game). He also served as a Texas game ranch manager, naturalist for East Africa wildlife filming company, fishery management advisor for the Florida Keys and holds a NAUI diver certificate and Florida EMT certificate. Dr. Hannan, is a WRI Senior Wildlife Biologist and Professor, Mesa College. He received his BS in 1965 from Humboldt State University, his MS in 1969 from University of Oregon, and his PhD in 1973 from the University of Miami (FL).

Renée Rivard, Pharm.D.
Wildlife Biologist

Dr. Rivard is currently a member of the Wildlife Research Institute's Golden Eagle team; she has participated in more than 18 Golden Eagle surveys conducted by WRI over the last 2 years for numerous renewable energy projects across desert and mountain habitat in the California Mojave desert, San Diego and adjacent counties, and Nevada. In addition to participating in aerial transect surveys and ground surveys to identify Golden Eagle nests and territories impacted by renewable energy projects, she has also participated in WRI's ongoing Golden Eagle research and monitoring project in San Diego County as a member of the banding and telemetry teams. She maintains the Golden Eagle Database and helps maintain Burrowing Owl artificial burrows on premises at WRI headquarters and continues to expand her knowledgebase related to these and other raptors. Renée assists with WRI's annual Hawk Watch educational program about the Ramona Grasslands and its raptor residents and migrants. Her 20+ years of database, scientific publishing, and medical research experience provide her with the background and skills to efficiently and professionally assimilate survey data for WRI, clients and agencies. Over the last 5 years, she has accumulated diverse and valuable wildlife knowledge and skills as a wildlife rescuer, rehabilitator, and veterinarian assistant for non-profit organizations in Australia and, more recently, as a field technician and laboratory technician for the San Diego Zoo's Institute for Conservation Research Applied Animal Ecology Department and Wildlife Disease Laboratory, respectively. Renée received her Bachelor's of Science in Biology from the University of South Alabama (1987), graduated *cum laude* with her Doctorate of Pharmacy from Creighton University (1995), and completed specialized post-graduate papers in medical literature evaluation from the University of Auckland in New Zealand (2001).

Brittany Schlotfeldt
Wildlife Biologist

Ms. Schlotfeldt has experience with mammals and birds and field transect experience in both the marine and desert environments. Brittany has one year experience conducting helicopter surveys of Golden Eagles and other raptors. She assisted with the research on coral recruitment across various conditions in Hawaii (Donald Potts Lab, UCSC) and tracked sea otters for SORAC (Sea Otter Research and Conservation) at the Monterey Bay Aquarium. Brittany has also assisted with, and performed, a number of tasks in the upland and desert habitats for various Wildlife Research Institute (WRI) projects. In the desert environment, she has assisted with WRI's research on golden eagles (radio telemetry and tracking), burrowing owls (transect surveys, field observations, trapping, and banding), and desert tortoises (surveyed over 100 miles of protocol transects in the Western Mojave Desert with Drs. Boarman and Lincer, and Mr. Peter Woodman). This study, which was recently completed, was a follow-up on an earlier project focused on the potential impacts of vehicular traffic, and highway fencing, on tortoise mortality (Boarman and Sazaki 2006). She has additional experience with desert tortoises on Fort Irwin, where she conducted numerous surveys and assisted with the VHF-transmittering of tortoises in an effort to relocate the individuals. Ms. Schlotfeldt received her Bachelor's of Science in Marine Biology from the University of California, Santa Cruz (2008).

Jeff Wells
Wildlife Biologist

Mr. Wells has been involved with WRI's Golden Eagle research since 1991 including trapping, banding and tracking. Jeff has ten years experience with WRI conducting helicopter surveys of Golden Eagles and other raptors. He has his Bachelors in Wildlife Studies from San Diego State University and has over 20 years experience as a private wildlife biologist. For the past 5 years, Jeff has been a Wildlife Biologist for the US Forest Service.

James Newland
Field Biologist

Mr. Newland has assisted WRI on Golden Eagle research for the last 4 years banding, trapping, and VHF and satellite tracking. James has also assisted trapping and tracking Golden Eagles at WRI’s migratory research center in Montana. He has one year experience conducting helicopter surveys of Golden Eagles and other raptors. James has a Bachelor’s of Science in Electrical Engineering and has worked for numerous large communication corporations.

Jeff Laws
Field Biologist/Bio-climber

Mr. Laws has assisted WRI with Golden Eagle research and field work since 1995. He has also assisted trapping and tracking Golden Eagles at WRI’s migratory research center in Montana. Jeff has five years experience conducting helicopter surveys of Golden Eagles and other raptors with WRI. Jeff works as a climber and field installer for San Diego Gas & Electric Company.

Mel Cain
Pilot, Utility Helicopters

Mr. Cain has more than 55 years experience flying helicopters for wildlife surveys. Utility Helicopters, with their Hughes-500 helicopters, has assisted WRI in Golden Eagle and raptor surveys for the last 10 years in the United States and Mexico. Mel has 12 years of experience in New Zealand trapping and transporting big game including deer and elk. He has conducted hundreds of netting and translocations of Bighorn Sheep and Tule Elk in California for California Fish and Game and California State Parks. Mel works frequently in Mexico and Canada and maintains NAFTA and Mexican permits to conduct wildlife and resource surveys.

Gregg Matson, M.D.
Pilot, Cherry Helicopters

Dr. Matson is a practicing physician who also started and headed a helicopter company in Hawaii to provide industrial and tourist services. Cherry Helicopters uses Hughes-500 helicopters to conduct these surveys. Gregg, WRI, and Cherry Helicopters have conducted wildlife surveys both in the United States and Mexico. He has supported WRI in aerial helicopter surveys of Golden Eagles, raptors and other wildlife for the last 8 years.

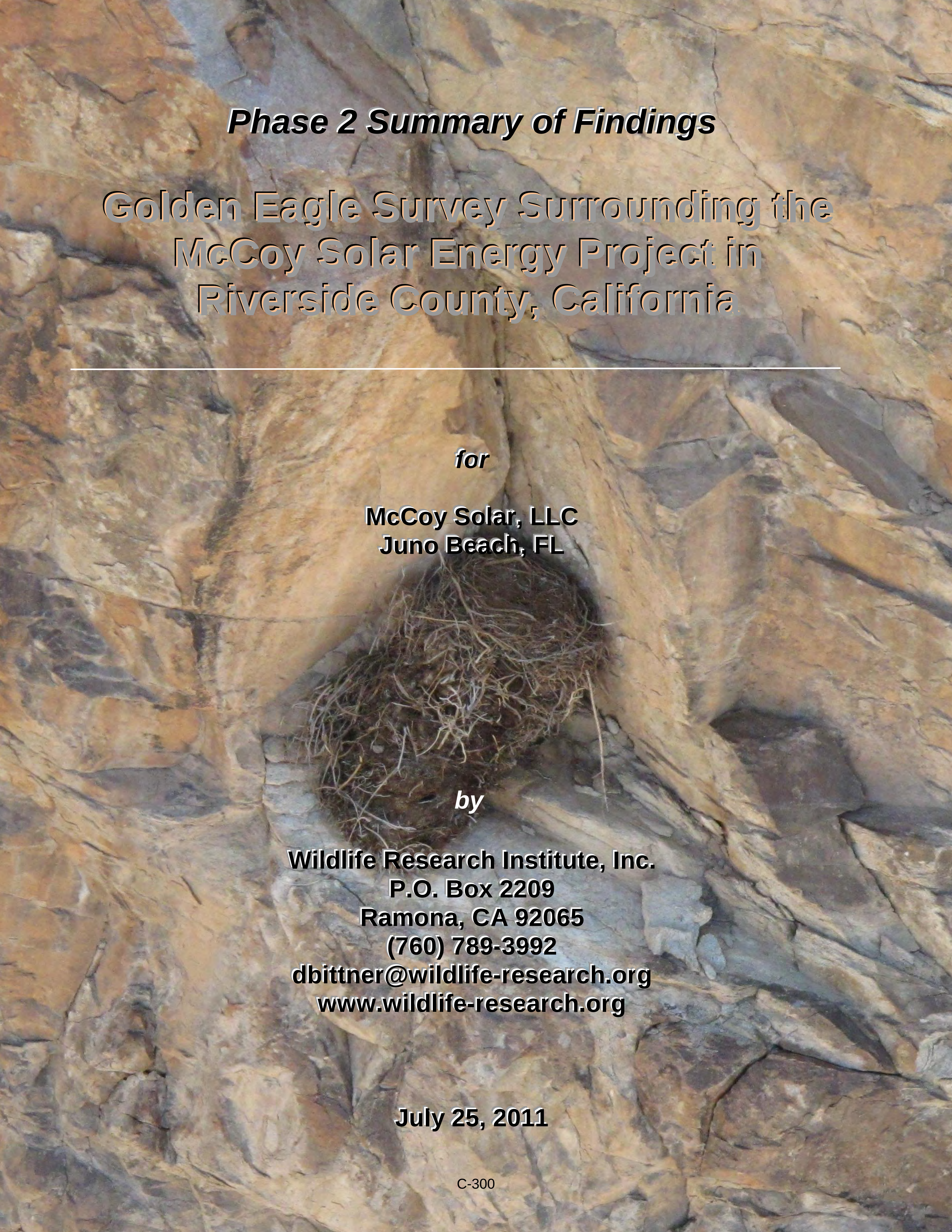
Barry Martin
Pilot, Western Tracking Institute

Mr. Martin is a WRI Research Associate and Director of the Western Tracking Institute. He has a Bachelor’s in Business from Fresno State and an Associate’s degree in Aeronautics. He has 42 years of flying experience and 22 years in the Navy with over 300 aircraft carrier landings. Concurrent with his Navy experience, he flew for over 21 years as a pilot for American Airlines. In total, Barry has over 20,000 hours of experience in the air. In 1989, Barry started the San Diego

Tracking Team and started the Western Tracking Institute in 2007 to further expand his studies in wildlife populations and movements. In 2006, he started VHF tracking from aircraft primarily for mountain lions and 2 years later, began assisting WRI in aerial VHF tracking of Golden Eagles.

APPENDIX B

WRI 2011 Phase II Eagle Nest Survey Report



Phase 2 Summary of Findings

Golden Eagle Survey Surrounding the McCoy Solar Energy Project in Riverside County, California

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for

McCoy Solar, LLC
Juno Beach, FL

by

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July 25, 2011

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

Cover Photo//Golden eagle nest observed at waypoint Q66a.

ACKNOWLEDGMENTS

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Wildlife Biologists: Chris Meador, Daniel Palmer, Renée Rivard, PharmD, Brittany Schlotfeldt, Jeff Wells
Field Biologist: James Newland
Data Compilation: Brittany Schlotfeldt
Editor: Renée Rivard, PharmD

SUMMARY

This document provides the findings of the Phase 2 productivity surveys for golden eagles conducted within 10 miles of the project boundary of the proposed McCoy Solar Energy Project in the Sonoran Desert Region in Riverside county of California in order to comply with the U.S. Fish and Wildlife Service recommendations. Surveys for this project were conducted by helicopter to document golden eagle occupancy and confirm productivity status. Five previously undocumented golden eagle nests were observed during Phase 2 surveys, 4 of these nests comprised 2 new territories within the 10-mile spatial buffer of the project area, none were deemed to be active for the 2011 breeding season. Additionally, 4 golden eagle nests comprising 1new territory, were observed approximately 1.5 miles outside the spatial buffer and is included because part of the foraging area for this territory is expected to lie within the project spatial buffer. During Phase 2 surveys, 11 other wildlife species (i.e., American kestrel [*Falco sparverius*], bobcat [*Lynx rufus*], bighorn sheep [*Ovis canadensis*], common raven [*Corvus corax*], great horned owl [*Bubo virginianus*], nighthawk [*Chordeiles minor*], northern harrier [*Circus cyaneous*], peregrine falcon [*Falco peregrinus*], prairie falcon [*Falco mexicanus*], red-tailed hawk [*Buteo jamaicensus*], and turkey vulture [*Cathartes aura*]) were observed totaling 232 wildlife documentations. The bighorn sheep were observed 1.8 miles outside the project spatial buffer. All sightings have been documented with GPS locations and recorded on the attached maps and tables as recommended in the USFWS Interim Golden Eagle Technical Guidance: Inventory and Monitoring Protocols; and Other Recommendations in Support of Golden Eagle Management and Permit Issuance (Pagel et al. 2010) and the subsequent Draft Eagle Conservation Plan Guidance (Gould and Schmidt 2011).

INTRODUCTION

Golden eagles respond to environmental changes in order to survive and reproduction in golden eagles, as in many predators, can be regulated by prey species abundance. Since 1998, Western North America has been in a prolonged drought and this has affected many species including golden eagles (Bittner et al. 2003). Jackrabbits, an important prey species for golden eagles, have also declined (L. LaPre, Bureau of Land Management [BLM] and M. Jorgenson, California State Parks pers.com.). Golden eagle adults have persevered but reproduction rates have dropped to as low as 12% in some regions, such as the Mojave and Sonora Deserts of the American Southwest (Bittner et al. 2003).

Eagles are large predatory birds with up to 7-foot wingspans and raising young takes a large investment of time and energy. Breeding in Southern California starts in January, nest building and egg laying in February to March, and hatching and raising the young eagles occur from April through June. Once the young eagles are flying on their own, the adult eagles will continue to feed them and teach them to hunt until late November. This huge investment of time and energy on the part of the adults, just to raise one or two young, may be the reason that some pairs take a year off from breeding occasionally even when food is abundant.

After leaving the nest, young eagles will explore their natal area and may continue to hunt close by or may venture tens to hundreds of miles away; occasionally returning briefly to their natal area (Bittner unpublished data).

WRI has learned, based on 22 years of helicopter and ground studies on golden eagles, that an initial helicopter survey can successfully identify approximately 80 to 90% of the golden eagle territories in a given area. Follow-up ground and helicopter surveys have indicated that some nests, and even some pairs, can be missed during the first survey. Second surveys are conducted to determine reproductive success but can also identify successful nesting attempts that were missed during initial surveys as well as reveal fledging success.

GLOSSARY

Nest Terminology

Nest Condition

The nest condition is an important indicator of how recently the nest has been used and whether the nest should be considered "active", which is an indication of territory occupancy.

Example of a nest in good condition decorated with fresh sticks

Good condition - A golden eagle nest in **good condition** has been worked on in the current year or within the past 1 to 3 years; a determination made by observing the age of sticks or recent addition of other materials that make up the nest. Additionally, the presence of a bowl constructed with yucca, with or without new material, is indicative of recent activity and good condition.

Example of a nest in fair condition

Fair condition – A golden eagle nest in **fair condition** has not been used for several years, shows moderate signs of weathering, and may or may not include a rough bowl.

Example of a nest in poor condition

Poor condition – A golden eagle nest in **poor condition** shows extensive and clear signs of weathering, is in the process of deteriorating, and can often even be decomposing.

Nest Activity

The activity status of a golden eagle nest is an important indicator of how recently the nest has been used and, in the absence of observing an eagle on territory, can provide evidence that a pair of eagles is occupying a territory and preparing for egg laying.

Example of an active nest with new material in bowl

Example of an occupied nest with an incubating female golden eagle

Example of an inactive nest that is beginning to deteriorate

Active nest (occupancy implied) - An **active golden eagle nest** is a nest in good condition that has been decorated (new material added to the nest) during the current breeding season. It will usually include the use of yucca, new sticks, fresh greenery and the construction of a bowl, which is created in preparation for egg-laying and incubation. An active nest may not necessarily be **occupied** but does constitute evidence of, and thereby implies, territory occupancy.

Occupied nest (occupancy confirmed) – An **occupied golden eagle nest** is an active nest used for breeding in the current year by a pair in which an adult or young golden eagle, or a new egg, has been observed. A nest is considered by the USFWS to be "occupied" throughout the periods of egg laying, incubation, brooding, fledging, and post-fledging dependency of the young.

Once a nest is chosen for incubation, other nests previously observed in the territory to be active no longer need to be monitored.

Inactive nest - An **inactive golden eagle nest** is a nest that is not currently being used by eagles as determined by the continued absence of any nest decoration, adult, egg, or dependent young during the current breeding season. An inactive nest may become active again in subsequent breeding seasons and remains protected under the Eagle Act.

Nest Arrangement

A golden eagle pair may often construct several nests in close proximity to one another. Often times, these nests are within a few feet of each other and may lie in a vertical or horizontal arrangement.

Example of multiple (2) nests in close proximity marked by a single waypoint

Marking multiple nests at one waypoint – During surveys, multiple nests in close proximity to one another are often recorded at a single waypoint for graphic clarity and readability.

WRI uses the following format for denoting multiple nests, for example 2, at one waypoint: A01GE**2**SN, where A is a unique trip identifier, 01 is the waypoint number, GE is the species of the nest builder, 2 is the number of nests at the waypoint, and SN is the type of nest such as "stick nest."

Territory Terminology

According to the USFWS Interim Golden Eagle Guidance (Pagel et al. 2010), all nest sites within a breeding territory are deemed occupied while raptors are demonstrating pair bonding activities and developing affinity to a given area.

Active/Occupied territory - A golden eagle territory may be determined to be "active" (or more specifically "occupied") for the current breeding season if either of the following observations is made: (1) one or both of a golden eagle pair is observed demonstrating pair bonding activity, such as nest building or courtship behavior (active with confirmed occupancy) or (2) if *evidence* of pair bonding activities is observed, such as observing a decorated nest, (active with implied occupancy).

Inactive territory - A golden eagle territory is determined to be inactive if occupancy or breeding cannot be confirmed. This occurs if no golden eagle pair bonding or evidence of pair bonding is observed for the current breeding season during the surveys. Golden eagles sometimes take a year or two off from breeding and may still be living in the territory even in the absence of breeding. Inactive territories may become active again.

SURVEY AREA

The survey area was approximately 314 square miles and located in the Sonoran Desert Region, near Blythe, California (Figure 1). It included the Hodges, Little Maria's, Big Maria's, and a portion of the McCoy mountain ranges. It was mostly Creosote Scrub and Yucca-Cactus transitional habitat at the lower areas and rocky outcrops at the higher elevations.

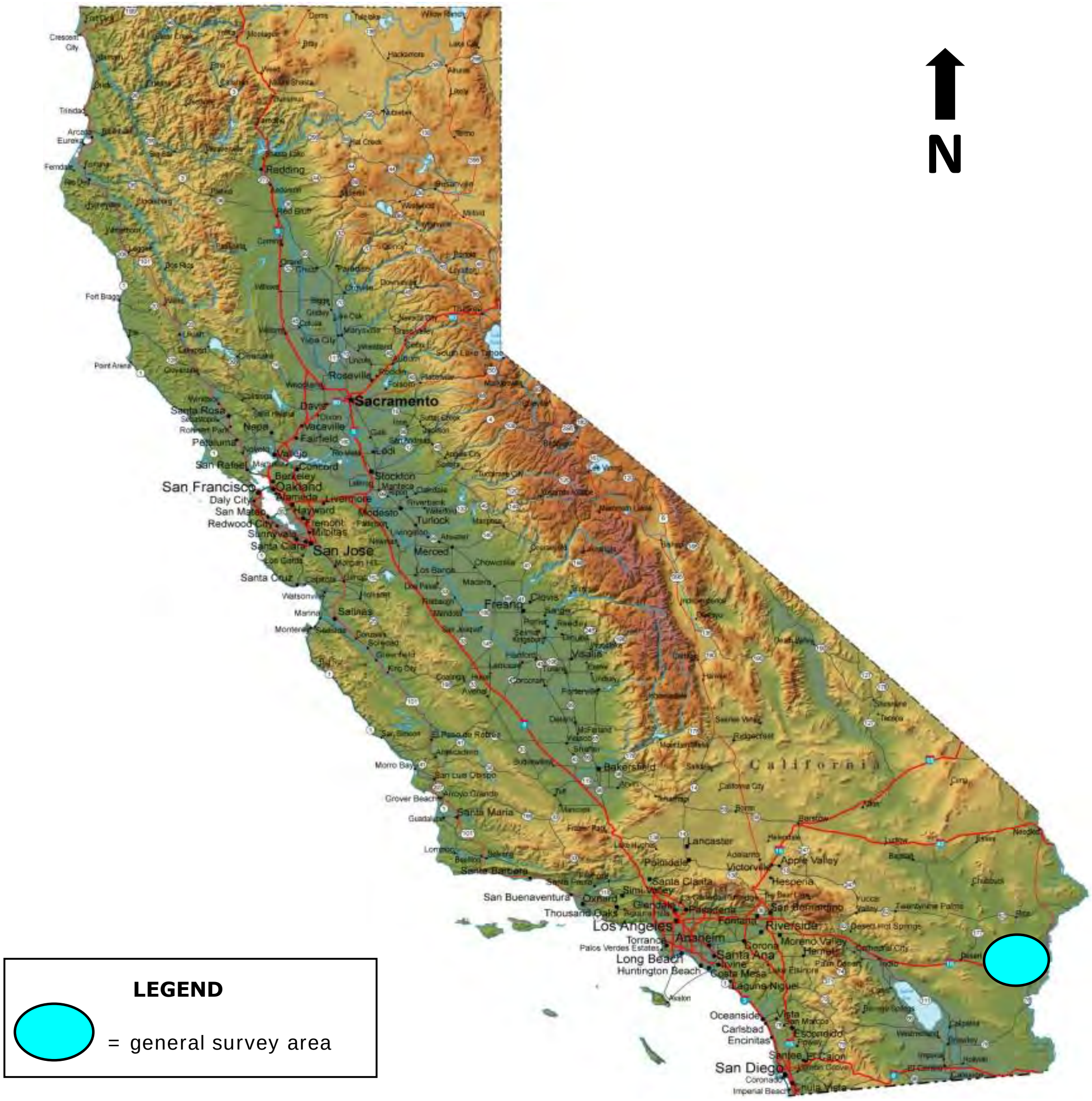

Figure 1. Map of McCoy Solar Energy Project Survey Area.

METHODS AND CONSTRAINTS

Methods

WRI conducted aerial surveys surrounding the proposed project area including an approximate 10-nautical mile spatial buffer measured from the project boundary. Golden eagle nests and their associated territories were documented (Table 1); all significant other wildlife observed were counted (Table 2); and descriptive data for each observation were recorded on the transect data sheet (Table 3). The activity status of all golden eagle nests were either defined during the survey, if possible, and/or confirmed later upon review of photographs. Even in the absence of incubating females, observations of nest decoration such as fresh yucca or leafy green branches, as well as new nest sticks built into and above old nest material helped assess activity at the nest site for the 2011 breeding season.

We contacted Dr. Larry LaPre, of the BLM, to request available historic records or reports of golden eagle nesting activity and/or sightings in the project area. WRI utilized the verbal information provided by Dr. LaPre to improve our survey focus.

It should be noted that all surveying and reporting complies with the current U.S. Fish and Wildlife Service Interim Golden Eagle Inventory and Monitoring Protocols released in 2010 (Pagel et al. 2010) and the subsequent Draft Eagle Conservation Plan Guidance (Gould and Schmidt 2011).

Survey

On May 5, 6, and 7, 2011, WRI conducted helicopter surveys for the target species, golden eagle, in the Sonoran Desert Region. We used a Hughes-500 helicopter that provided seating for three wildlife biologists (including at least 2 golden eagle biologists) and the pilot. The pilot used by WRI for these surveys also has extensive golden eagle experience (Appendix A).

We concentrated on any area with suitable golden eagle nesting habitat with possible nesting substrate that included cliffs with geological features, such as flat ledges or shallow cavities/caves, that could allow for safe nest construction and were high enough to provide protection from ground-dwelling predators. This survey included all or part of every mountain range in the study area. We also surveyed large transmission towers in the project area since golden eagles are known to nest on these types of structures and WRI has documented this activity in other parts of the Mojave and Sonora Deserts.

GPS

Nest site and other location-specific data were determined and documented using hand-held GPS units (Garmin Map60GSx). A sequential number was assigned to each observation that corresponded to the GPS waypoint. Waypoints were recorded using the UTM grid in the WGS 84 Datum. GPS was also used to track our survey routes. Handwritten notes were taken on field forms that documented species, detailed observations, and corresponded to each GPS waypoint (Table 3).

Photography

Photographs were taken with Nikon equipment with GPS units attached so that latitude and longitude could be recorded on each digital picture. Two cameras were used; one for recording wide-angle shots (18-200mm optically-stabilized zoom lens) and another for recording close-ups (200-400mm optically-stabilized zoom lens). The 400mm zoom lens plus the ability to enlarge the digital photographs allows accurate and detailed records to be captured with minimal disturbance to wildlife. This is also important because it allows review and confirmation of our observations in an environment that is more stable than the cockpit of a helicopter.

Data

We photographed all active golden eagle nests, some other raptor nests, representations of numerous inactive golden eagle nest sites, and significant other wildlife species observed. The following data were also specifically collected and are on file at WRI but map coordinates for nests of sensitive species (i.e., golden eagle, peregrine falcon, and prairie falcon) may not be included in all reports:

- Species
- Number of nests/alternative nests observed
- Condition of each nest and whether or not it was active
- Nest aspect and elevation
- Nest GPS coordinates
- Nest substrate (cliff, transmission tower, etc.)
- Age class of golden eagles and other species, if determinable
- Behavior of species observed.

It should be noted that red-tailed hawks in particular, as well as other raptors such as prairie falcons, sometimes utilize golden eagle nests for their own nesting, something observed during surveys for this project. During surveys, these nests were attributed to the current occupant (i.e., hawk or falcon), however the original nest builder (i.e., golden eagle) was recorded in the Notes section of the transect data sheet (Table 3). These old golden eagle nests, when viewed along with more current nests, often help define the history and core nesting area/territory of a particular pair of eagles.

Constraints

In that these were diurnal surveys focused on golden eagles, we were less likely to observe nocturnal and crepuscular raptors (i.e., owls) or nocturnal mammals. Aerial surveys also tend to under-represent the smaller species, like the American kestrel and burrowing owl (*Athene cunicularia*). No population data can be extrapolated from these surveys except for the focus species, golden eagle.

RESULTS

Map of Golden Eagle Nests from 2 Surveys

The satellite map below shows the project boundary of the proposed McCoy Solar Energy Project area, plus an approximate 10-mile spatial buffer. Waypoints for golden eagle nests and other sensitive species (i.e., peregrine falcons, prairie falcons, bighorn sheep) observed within or immediately adjacent to the spatial buffer are also provided.

Note: All spatial distance is measured in nautical miles.

Figure 2. Phase 2 Golden Eagle Nests Surrounding the McCoy Solar Energy Project Area.

Map of Survey Flight Paths from Phase 2 Surveys

The flight paths taken by WRI on May 5, 6, and 7, 2011, while conducting the golden eagle surveys surrounding the McCoy Solar Energy Project area are depicted below.

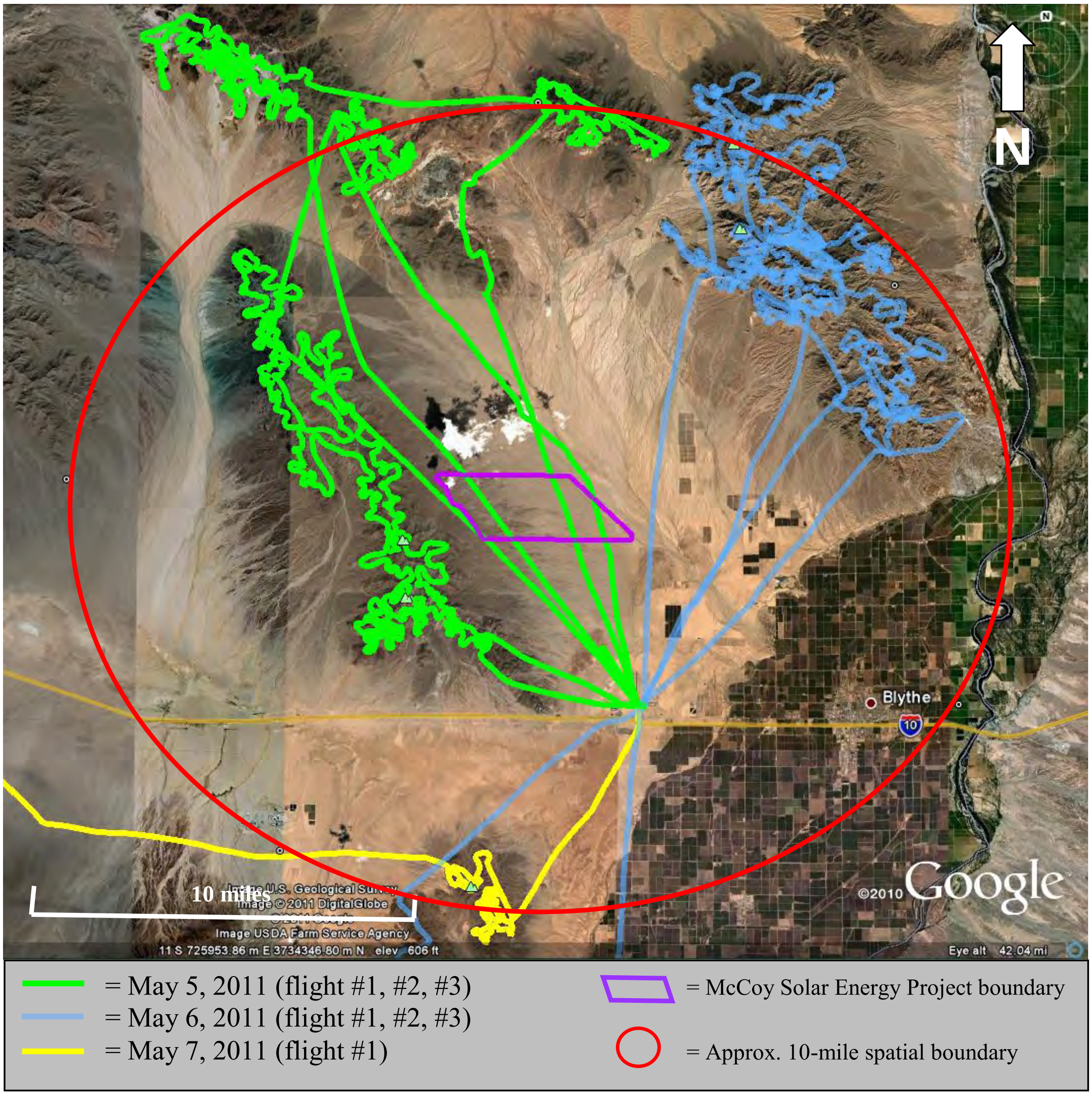

Figure 3. Phase 2 Survey Flight Paths of McCoy Solar Energy Project Area.

Golden Eagle Nests and Associated Territories from 2 Surveys

The table below lists the trip identifier (a unique alpha character applied to each survey conducted during 2011), a waypoint identification number for each golden eagle nest identified, the species that built or is occupying the nest, the number of individual birds observed, the status of nest activity (i.e., active or not during 2011 breeding season), the USGS Quad territory name (incorporating the state, county, and US Geological Survey [USGS] Quad; which is the USFWS recommended naming convention), the geographical area where the nest was located, and the USGS Quad.

The 4 golden eagle nests comprising the Little Maria Mountains - Northwest territory were located approximately 1.5 miles outside the 10-mile spatial buffer. This territory was included in the report because it is suspected that part of the foraging area for this territory would likely extend within the 10-mile spatial buffer of the project area. This territory is denoted below with red highlighting.

Territory #	Trip ID	Waypoint #	Species	Nest Type	# of Individuals	Nest Active by GE in 2011 (Yes/No)	USGS Quad Territory Name	Geographical Area	USGS Quad
3	Q	105	GE	SN	0	N	CA-RIV-33114/h7-001-01	Big Maria Mountains - North	Styx
3	Q	117	PR (GE)	CN	4	N	CA-RIV-33114/h7-001-02*	Big Maria Mountains - North	Big Maria Mountains SW
6	Q	32	GE	SN	0	N	CA-RIV-33114/f7-002-01	McCoy Mountains - South	McCoy Peak
7	Q	66a	GE	SN	0	N	CA-RIV-33114/g7-001-01	Little Maria Mountains - Central	Inca
7	Q	66b	GE	SN	0	N	CA-RIV-33114/g7-001-02	Little Maria Mountains - Central	Inca
7	Q	66c	GE	SN	0	N	CA-RIV-33114/g7-001-03	Little Maria Mountains - Central	Inca
8	Q	82	GE	SN	0	N	CA-RIV-33114/h8-002-01	Little Maria Mountains - Northwest	Little Maria Mountains
8	Q	83a	GE	SN	0	N	CA-RIV-33114/h8-002-02	Little Maria Mountains - Northwest	Little Maria Mountains
8	Q	85a	GE	SN	0	N	CA-RIV-33114/h8-002-03	Little Maria Mountains - Northwest	Little Maria Mountains
8	Q	85b	GE	SN	0	N	CA-RIV-33114/h8-002-04	Little Maria Mountains - Northwest	Little Maria Mountains

CA=California, CN=Cavity Nest, GE=Golden Eagle, PR=Prairie Falcon, RIV=Riverside County, SN=Stick Nest.
Golden Eagle nests used by another species in 2011 are denoted with the occupant species first and the original nest builder, golden eagle, in parentheses (GE).
*Based on the USFWS recommended naming convention, the territory name is based on the county and USGS Quad name of the location of the first nest observed for a given territory. Nests denoted with an asterisk were physically located in a different county of USGS Quad than the first nest, but retain the Quad of origin of the first nest discovered in its USGS Quad territory name.

Table 1. Golden Eagle Nests and Associated Territories from 2 Surveys.

All Wildlife Observed During 2 Surveys

Based on recommendations in the USFWS Interim Golden Eagle Guidelines (Pagel et al. 2010), all wildlife observations for Phase 2 are documented in the table below. During Phase 2 surveys, 231 unique wildlife observations were made; 1 incubating adult prairie falcon initially documented during Phase 1 was seen on her nest again during Phase 2 and is noted as such in the table below.

	Big Maria Mountains	Hodges Mountains	Little Maria Mountains	McCoy Mountains	Total
American Kestrel	0	0	1	0	**1**
Bighorn Sheep	0	0	3	0	**3**
Bobcat	0	0	0	1	**1**
Common Raven	12	0	2	2	**16**
Great Horned Owl	13	0	3	5	**21**
Nighthawk	1	0	0	1	**2**
Northern Harrier	1	0	0	0	**1**
Peregrine Falcon	2	0	0	0	**2**
Prairie Falcon	6	2	1	3*	**12**
Red-tailed Hawk	38	3	13	25	**79**
Turkey Vulture	38	3	17	36	**94**
Total	111	8	40	73	**232**
*Includes 1 incubating adult observed during Phase 1.					

Table 2. All Wildlife Observed During Phase 2 Surveys of McCoy Solar Energy Project Area.

All Data from Phase 2 Surveys

Map coordinates (i.e., UTM) of the nests of sensitive species (golden eagles, peregrine falcons, prairie falcons) have been withheld per request of federal agencies in order to protect these species, but are on file at WRI. If needed, this information is available upon request. Golden eagle data are noted in bold type.

Trip ID	Waypoint #	Species	Nest Type*	# of Individuals	Position (UTM)	Nest Aspect	Nest Condition	Nest Substrate	Nest Active in 2011 (Yes/No/Possibly)	Elevation	Notes (age, sex, substrate, etc.)	Geographical Area
(5/5/2011) - 3 flights, flight #1 - 70-103°F, 0%-light haze cloud cover, 0-5 mph wind, 0% precip, 10+ visibility												
Q	1	TV		1	11 S 705828 3724195					1123 ft		McCoy Mountains
Q	2	TV		1	11 S 701415 3727176					1841 ft		McCoy Mountains
Q	3	RT	SN	3	11 S 701116 3727217	N	G	R	Y	2013 ft	adult and 2 young chicks	McCoy Mountains
Q	4	CR		1	11 S 700015 3729124					2176 ft		McCoy Mountains
Q	5	TV		4	11 S 699338 3730413					2378 ft		McCoy Mountains
Q	6	RT	SN	2	11 S 699114 3731653	SE	G	R	Y	2009 ft	2 adults flying above nest	McCoy Mountains
Q	7	RT	SN	0	11 S 699220 3731748	E	G	R	P	1914 ft	possible GE activity on nest	McCoy Mountains
Q	8	RT	SN	3	11 S 695809 3737457	W	G	R	Y	2080 ft	2 young in nest, adult flying nearby	McCoy Mountains
Q	9	TV		1	11 S 695905 3738694					2018 ft		McCoy Mountains
Q	10	RT	SN	0	11 S 694715 3738091	N	F	R	P	1927 ft		McCoy Mountains
Q	11	GHO		1	11 S 694460 3738069					1918 ft		McCoy Mountains
Q	12	GHO		1	11 S 694657 3737806					1988 ft		McCoy Mountains
Q	13a	TV		10	11 S 697023 3734863					2340 ft		McCoy Mountains
Q	13b	RT		1	11 S 697023 3734863					2340 ft		McCoy Mountains
Q	14	RT		1	11 S 694551 3735290					2211 ft		McCoy Mountains
Q	15	RT	SN	0	11 S 693375 3738161	SE	F	R	N	1998 ft		McCoy Mountains
Q	16	TV		1	11 S 693318 3740943					1958 ft		McCoy Mountains
Q	-	-	-	-	11 S 692955 3741792					-	mine sites	McCoy Mountains
Q	18	RT		1	11 S 692604 3743037					1725 ft		McCoy Mountains
Q	19	TV		1	11 S 691494 3742927					2095 ft		McCoy Mountains

PHASE 2 SUMMARY OF FINDINGS

Trip ID	Waypoint #	Species	Nest Type*	# of Individuals	Position (UTM)	Nest Aspect	Nest Condition	Nest Substrate	Nest Active in 2011 (Yes/No/Possibly)	Elevation	Notes (age, sex, substrate, etc.)	Geographical Area
Q	20	RT	SN	0	11 S 691455 3742113	W	F	R	N	2038 ft		McCoy Mountains
Q	21	TV		1	11 S 692089 3740763					2043 ft		McCoy Mountains
Q	22	RT		1	11 S 692556 3740174					2026 ft		McCoy Mountains
Q	23	U	CN	0	11 S 692421 3740099	G	W	R	N	1912 ft		McCoy Mountains
Q	24	TV		1	11 S 703615 3730210					1941 ft		McCoy Mountains
Flight #2 -88-96°F, 0% cloud cover, 0-5mph wind, 0% precip, 10+ visibility												
Q	25	TV		1	11 S 704251 3724628					1306 ft		McCoy Mountains
Q	26	RT	SN	0	11 S 703903 3724859	SE	F	R		1044 ft		McCoy Mountains
Q	27	RT	SN	0	11 S 702824 3725335	E	F	R		1511 ft		McCoy Mountains
Q	28	TV		7	11 S 702623 3725352					1556 ft		McCoy Mountains
Q	29a	PR		2						1618 ft	one perched and one observed in flight	McCoy Mountains
Q	29b	PR	CN	0		W	G	R	Y	1618 ft	white wash under cavity	McCoy Mountains
Q	29c	NIGH		1	11 S 702483 3725552					1618 ft		McCoy Mountains
Q	30	RT		1	11 S 700813 3726790					1648 ft		McCoy Mountains
Q	31	RT	SN	2	11 S 700829 3726739	W	G	R	Y	1663 ft	a adult and one very young chick	McCoy Mountains
Q	**32**	**GE**	**SN**	**0**		**NE**	**P**	**R**	**N**	**1419 ft**	**old and greater than five feet tall** Nest ID: CA-RIV-33114/f7-002-01	**McCoy Mountains**
Q	33	GHO		1	11 S 700531 3726387					1448 ft		McCoy Mountains
Q	34	BC		1	11 S 700775 3726317					1200 ft	bobcat hiding under rocks	McCoy Mountains
Q	35	TV		2	11 S 700725 3725230					1251 ft		McCoy Mountains
Q	36	RT	SN	0	11 S 699341 3725371	E	G	R	P	1543 ft	nice bowl	McCoy Mountains
Q	37	GHO		1	11 S 699050 3725018					1345 ft		McCoy Mountains
Q	38	RT	SN	0	11 S 698673 3724935	E	G	R	N	1496 ft	good bowl	McCoy Mountains

PHASE 2 SUMMARY OF FINDINGS

Trip ID	Waypoint #	Species	Nest Type*	# of Individuals	Position (UTM)	Nest Aspect	Nest Condition	Nest Substrate	Nest Active in 2011 (Yes/No/Possibly)	Elevation	Notes (age, sex, substrate, etc.)	Geographical Area
Q	39	RT		2	11 S 698869 3725001					1614 ft	juveniles observed in flight	McCoy Mountains
Q	40	RT		1	11 S 699073 3725479					1952 ft	adult observed in flight	McCoy Mountains
Q	41	RT	SN	0	11 S 699023 3725264	S	P	R	N	1991 ft	nest remnant	McCoy Mountains
Q	42	RT	SN	0	11 S 698112 3724902	W	F	R	N	1125 ft	small bowl	McCoy Mountains
Q	43	TV		2	11 S 698559 3725702					1628 ft		McCoy Mountains
Q	44	RT		1	11 S 698867 3725401					1786 ft		McCoy Mountains
Q	45	PR	CN	1		N	G	R	Y	1666 ft	(same as H87 from Phase 1)	McCoy Mountains
Q	46	RT	SN	0	11 S 699562 3726801	N	F	R	N	1781 ft		McCoy Mountains
Q	47	RT		1	11 S 699739 3727340					2035 ft		McCoy Mountains
Q	48	RT	SN	2	11 S 699131 3728359	SE	G	R	Y	1562 ft	2 eggs in nest	McCoy Mountains
Q	49	TV		1	11 S 699493 3729309					2360 ft		McCoy Mountains
Q	50	RT	SN	2	11 S 698141 3731679	S	G	R	Y	1957 ft	adult brooding 1 chick	McCoy Mountains
Q	51	RT	SN	0	11 S 698225 3731874	S	F	R	N	1989 ft		McCoy Mountains
Q	52	CR		1	11 S 698114 3732787					1883 ft		McCoy Mountains
Q	53	RT	SN	0	11 S 695152 3732911	S	F	R	N	1677 ft		McCoy Mountains
Q	54	RT	SN	0	11 S 695063 3733001	S	G	R		1691 ft		McCoy Mountains
Q	55	TV		1	11 S 694022 3733159					1492 ft		McCoy Mountains
Q	56	RT		1	11 S 693205 3737011					1838 ft		McCoy Mountains
Q	57a	RT	SN	0	11 S 693217 3736771	N	F	R		1548 ft		McCoy Mountains
Q	57b	GHO		1	11 S 693217 3736771					1548 ft		McCoy Mountains
Q	58	TV		1	11 S 692474 3737406					1724 ft		McCoy Mountains
Q	59	RT	SN	0	11 S 692446 3737475	SW	P	R	N	1632 ft		McCoy Mountains
Q	60	RT	SN	0	11 S 693043 3738814	SW	F	R	N	2099 ft		McCoy Mountains

Trip ID	Waypoint #	Species	Nest Type*	# of Individuals	Position (UTM)	Nest Aspect	Nest Condition	Nest Substrate	Nest Active in 2011 (Yes/No/Possibly)	Elevation	Notes (age, sex, substrate, etc.)	Geographical Area
Q	61	RT	SN	0	11 S 692743 3739470	SW	G	R		2409 ft		McCoy Mountains
Q	62	TV		1	11 S 696143 3750818					2065 ft		Little Maria Mountains
Q	63	PR		1						2214 ft		Little Maria Mountains
Q	64	RT	SN	0	11 S 696947 3750920	N	F	R	N	1814 ft		Little Maria Mountains
Q	65	AK		1	11 S 696686 3750632					2035 ft	adult observed in flight	Little Maria Mountains
Q	**66a**	**GE**	**SN**	**0**		**N**	**F**	**R**	**N**	**2124 ft**	**old and about 4 feet tall** Nest ID: CA-RIV-33114/g7-001-01	**Little Maria Mountains**
Q	**66b**	**GE**	**SN**	**0**		**N**	**F**	**R**	**N**	**2124 ft**	**old and flat** Nest ID: CA-RIV-33114/g7-001-02	**Little Maria Mountains**
Q	**66c**	**GE**	**SN**	**0**		**N**	**F**	**R**	**N**	**2124 ft**	**old, smaller, adjacent to flat nest** Nest ID: CA-RIV-33114/g7-001-03	**Little Maria Mountains**
Q	67a	CR		1	11 S 698493 3748942					2196 ft		Little Maria Mountains
Q	67b	RT		2	11 S 698493 3748942					2196 ft		Little Maria Mountains
Q	68a	TV		3	11 S 699343 3749403					2104 ft		Little Maria Mountains
Q	68b	GHO		1	11 S 699343 3749403					2104 ft		Little Maria Mountains
Q	69	RT	SN	0	11 S 699285 3748334	E	F	R	N	2072 ft		Little Maria Mountains
Q	70	RT		1	11 S 698694 3748536					2112 ft		Little Maria Mountains
Q	71	RT		1	11 S 696631 3749154					2056 ft		Little Maria Mountains
Q	72	TV		1	11 S 696081 3749190					1855 ft		Little Maria Mountains
Flight #3 - 100-95°F, 0% cloud cover, 0-5mph wind, 0% precip, 10+ visibility												
Q	73	TV		3	11 S 697741 3738140					2627 ft		Little Maria Mountains
Q	74	TV		1	11 S 694470 3750187					2069 ft		Little Maria Mountains
Q	75	RT	SN	0	11 S 693948 3751007	S	F	R	N	2242 ft		Little Maria Mountains
Q	76	RT	SN	0	11 S 693140 3751747	E	P	R	N	2289 ft		Little Maria Mountains

PHASE 2 SUMMARY OF FINDINGS

Trip ID	Waypoint #	Species	Nest Type*	# of Individuals	Position (UTM)	Nest Aspect	Nest Condition	Nest Substrate	Nest Active in 2011 (Yes/No/Possibly)	Elevation	Notes (age, sex, substrate, etc.)	Geographical Area
Q	77	RT		1	11 S 692611 3750729					2073 ft	adult observed in flight	Little Maria Mountains
Q	78	RT	SN	0	11 S 692725 3751791	SW	P	R	N	2130 ft		Little Maria Mountains
Q	79	CR	SN	0	11 S 692175 3752360	SW	P	R	N	2253 ft		Little Maria Mountains
Q	80	TV		2	11 S 691836 3751830					1927 ft		Little Maria Mountains
Q	81	CR		1	11 S 691168 3752795					2229 ft		Little Maria Mountains
Q	**82**	**GE**	**SN**	**0**		**SE**	**G**	**R**	**N**	**2095 ft**	Nest ID: CA-RIV-33114/h8-002-01	**Little Maria Mountains**
Q	**83a**	**GE**	**SN**	**0**		**N**	**F**	**R**	**N**	**1731 ft**	Nest ID: CA-RIV-33114/h8-002-02	**Little Maria Mountains**
Q	83b	RT	SN	0	11 S 690678 3751886	N		R	N	1731 ft		Little Maria Mountains
Q	84	RT	SN	0	11 S 691077 3752182	S	F	R	N	1774 ft		Little Maria Mountains
Q	**85a**	**GE**	**SN**	**0**		**S**	**P**	**R**	**N**	**1798 ft**	Nest ID: CA-RIV-33114/h8-002-03	**Little Maria Mountains**
Q	**85b**	**GE**	**SN**	**0**		**S**	**P**	**R**	**N**	**1798 ft**	Nest ID: CA-RIV-33114/h8-002-04	**Little Maria Mountains**
Q	86	GHO		1	11 S 690774 3751481					1555 ft		Little Maria Mountains
Q	87	RT	SN	0	11 S 690624 3751638	NE	F	R	N	1437 ft		Little Maria Mountains
Q	88	GHO		1	11 S 690040 3752074					1610 ft		Little Maria Mountains
Q	89	RT		1	11 S 690608 3752144					1976 ft	adult observed in flight	Little Maria Mountains
Q	90	RT	SN	0	11 S 689997 3753772	S	G	R	N	1924 ft		Little Maria Mountains
Q	91	RT		1	11 S 689310 3752935					1870 ft		Little Maria Mountains
Q	92	U	SN	0	11 S 689568 3753807	S		R		2257 ft	older, smaller nest RT/CR (probably RT)	Little Maria Mountains
Q	93	RT	SN	0	11 S 690274 3753446	SW	P	R	N	2347 ft		Little Maria Mountains
Q	94	U	SN	0	11 S 689218 3753319	S	P	R	N	1968 ft	RT/GE, old nest	Little Maria Mountains
Q	95	RT	SN	0	11 S 688772 3753763	SW	G	R	Y	2181 ft	small sticks on a large nest	Little Maria Mountains
Q	96a	RT		1	11 S 688600 3753916					2230 ft	perched	Little Maria Mountains

Trip ID	Waypoint #	Species	Nest Type*	# of Individuals	Position (UTM)	Nest Aspect	Nest Condition	Nest Substrate	Nest Active in 2011 (Yes/No/Possibly)	Elevation	Notes (age, sex, substrate, etc.)	Geographical Area
Q	96b	RT		1	11 S 688600 3753916					2230 ft	observed in flight	Little Maria Mountains
Q	97	RT	SN	0	11 S 688422 3754625	SE	F	R	N	2110 ft		Little Maria Mountains
Q	98	TV		6	11 S 688823 3755325					2277 ft		Little Maria Mountains
Q	99	RT	SN	0	11 S 689771 3754585	E	G	R	N	2327 ft		Little Maria Mountains
Q	100	BHS		3						2561 ft	ewes	Little Maria Mountains
Q	101	RT	SN	2	11 S 691145 3753578	E	G	R	Y	2305 ft	2 chicks	Little Maria Mountains
Q	102	RT	SN	0	11 S 691864 3753200	E	F	R	N	2720 ft	large nest	Little Maria Mountains
Q	103	RT	SN	2	11 S 692790 3752989	E	G	R	Y	2139 ft	2 chicks	Little Maria Mountains
Q	104	TV		2	11 S 694475 3752250					2655 ft		Big Maria Mountains
Q	**105**	**GE**	**SN**	**0**		**W**	**P**	**R**	**N**	**2269 ft**	**(same as H125 from Phase 1)** Nest ID: CA-RIV-33114/h7-001-01	**Big Maria Mountains**
Q	106	RT	SN	0	11 S 706267 3751568	W	F	R	N	2211 ft		Big Maria Mountains
Q	108	CR	SN	0	11 S 706027 3752292	SW	G	R		1871 ft		Big Maria Mountains
Q	109	RT	SN	0	11 S 705932 3752327	SW	G	R		1815 ft		Big Maria Mountains
Q	110	CR	SN	0	11 S 706048 3752627	SW	G	R		1726 ft		Big Maria Mountains
Q	111	TV		4	11 S 706820 3752313					2158 ft		Big Maria Mountains
Q	112	TV		1	11 S 709744 3751241					2553 ft		Big Maria Mountains
Q	113	PR		1						2182 ft		Big Maria Mountains
Q	114	GHO		1	11 S 712100 3749767					2026 ft		Big Maria Mountains
Q	115	RT	SN	0	11 S 711566 3749839	W	G	R	Y	2110 ft		Big Maria Mountains
Q	116	TV		1	11 S 711018 3750031					2081 ft		Big Maria Mountains
Q	**117**	**PR**	**CN**	**4**		**S**	**P**	**R**	**Y**	**1984 ft**	**old GESN being used by PR with 4 eggs** Nest ID: CA-RIV-33114/h7-001-02	**Big Maria Mountains**

Trip ID	Waypoint #	Species	Nest Type*	# of Individuals	Position (UTM)	Nest Aspect	Nest Condition	Nest Substrate	Nest Active in 2011 (Yes/No/Possibly)	Elevation	Notes (age, sex, substrate, etc.)	Geographical Area
Q	118	RT	SN	0	11 S 708951 3750247	S	G	R	N	1986 ft		Big Maria Mountains
Q	119a	RT	SN	0	11 S 708932 3750127	S	G	R	N	1983 ft		Big Maria Mountains
Q	119b	RT	SN	0	11 S 708932 3750127	S	G	R	N	1983 ft		Big Maria Mountains
Q	120	TV		1	11 S 708443 3749850					2048 ft		Big Maria Mountains
Q	121	RT	SN	0	11 S 708015 3749971	S	F	R		1885 ft		Big Maria Mountains
Q	122	RT	SN	0	11 S 707445 3751071	SE	F	R		2293 ft		Big Maria Mountains
Q	123	RT	SN	3	11 S 703608 3742197		G	Tr	Y	992 ft	adult and two fat chicks	Big Maria Mountains
(5/6/2011) - 3 flights, flight #1 - 95-103°F, 0% to light haze cloud cover, 0-5mph wind, 0% precip, 7-10+ visibility												
Q	124	CR		12	11 S 713290 3739435					999 ft		Big Maria Mountains
Q	125a	RT	SN	0	11 S 715105 3743613	W	G	R	N	1460 ft		Big Maria Mountains
Q	125b	CR	SN	0	11 S 715105 3743613	W	G	R		1460 ft		Big Maria Mountains
Q	126	TV		1	11 S 713575 3744374					1415 ft		Big Maria Mountains
Q	127	RT	SN	0	11 S 712579 3745769	NE	F	R	N	1448 ft		Big Maria Mountains
Q	128	TV		1	11 S 713844 3744440					1461 ft		Big Maria Mountains
Q	129	NH		1	11 S 715193 3743802					1561 ft		Big Maria Mountains
Q	130	RT		1	11 S 716222 3743617					1713 ft		Big Maria Mountains
Q	131	RT		1	11 S 716806 3743677					1840 ft	juvenile observed in flight	Big Maria Mountains
Q	132	RT	SN	0	11 S 716022 3743091	E	P	R	N	1424 ft		Big Maria Mountains
Q	133	RT		1	11 S 715749 3743011					1485 ft		Big Maria Mountains
Q	134	GHO		1	11 S 715264 3743516					1756 ft		Big Maria Mountains
Q	135	RT	SN	0	11 S 714434 3749508	E	G	R		2048 ft		Big Maria Mountains
Q	136	RT		1	11 S 714340 3749083					1931 ft	juvenile perched	Big Maria Mountains
Q	137	RT	SN	0	11 S 714139 3749158	S	F	R	N	1817 ft		Big Maria Mountains

PHASE 2 SUMMARY OF FINDINGS

Trip ID	Waypoint #	Species	Nest Type*	# of Individuals	Position (UTM)	Nest Aspect	Nest Condition	Nest Substrate	Nest Active in 2011 (Yes/No/Possibly)	Elevation	Notes (age, sex, substrate, etc.)	Geographical Area
Q	138	RT	SN	0	11 S 714973 3750298	NE	P	R	N	2397 ft		Big Maria Mountains
Q	139	RT	SN	1	11 S 714017 3751957	S	G	R	Y	1749 ft	perched/flying near nest	Big Maria Mountains
Q	140	RT	SN	0	11 S 713975 3752364	SW	F	R	N	1871 ft		Big Maria Mountains
Q	141	CR	SN	0	11 S 714703 3752482	W	F	R		2250 ft		Big Maria Mountains
Q	142	RT	SN	0	11 S 714716 3752475	W	F	R	N	2283 ft		Big Maria Mountains
Q	143	RT	SN	0	11 S 714796 3752508	S	F	R	N	2490 ft		Big Maria Mountains
Q	144a	GHO		1	11 S 717246 3752066					2424 ft		Big Maria Mountains
Q	144b	RT	SN	0	11 S 717246 3752066	E	F	R		2424 ft		Big Maria Mountains
Q	145	TV		1	11 S 718925 3752429					2389 ft		Big Maria Mountains
Q	146	RT	SN	0	11 S 720202 3752555	S	G	R	N	1899 ft		Big Maria Mountains
Q	147	RT	SN	0	11 S 720118 3752553	S	F	R	N	1948 ft		Big Maria Mountains
Q	148	RT	SN	0	11 S 720136 3752347	S	G	R	N	1946 ft		Big Maria Mountains
Q	149	RT	SN	0	11 S 719981 3752225	S		R	N	1946 ft		Big Maria Mountains
Q	150	TV		1	11 S 719358 3752141					2068 ft		Big Maria Mountains
Q	151	RT	SN	0	11 S 717337 3751144	S	F	R	N	2301 ft		Big Maria Mountains
Q	152	RT		1	11 S 715896 3747240					2279 ft		Big Maria Mountains
Q	153a	RT	SN	0	11 S 715613 3747520	SE	F	R	N	2305 ft	large, but small sticks	Big Maria Mountains
Q	153b	RT	SN	0	11 S 715613 3747520	SE	F	R	N	2305 ft	smaller and to upper left of 153a	Big Maria Mountains
Q	154a	TV		7	11 S 715816 3748956					3044 ft		Big Maria Mountains
Q	154b	RT		2	11 S 715816 3748956					3044 ft		Big Maria Mountains
Q	155	TV		1	11 S 719505 3743655					2434 ft		Big Maria Mountains
Q	156	RT	SN	0	11 S 719693 3742979	SE	F	R	N	2226 ft		Big Maria Mountains
Q	157	U	SN	0	11 S 720126 3742263	E	F	R	N	2460 ft	rocks fell in middle of nest	Big Maria Mountains

Trip ID	Waypoint #	Species	Nest Type*	# of Individuals	Position (UTM)	Nest Aspect	Nest Condition	Nest Substrate	Nest Active in 2011 (Yes/No/Possibly)	Elevation	Notes (age, sex, substrate, etc.)	Geographical Area
Q	158	PE		2						2599 ft		Big Maria Mountains
Q	159	RT	SN	0	11 S 718725 3743469	S	F	R	N	2606 ft		Big Maria Mountains
Q	160	TV		1	11 S 718543 3743604					2646 ft		Big Maria Mountains
Q	161	RT		1	11 S 717764 3743658					2334 ft		Big Maria Mountains
Q	162a	RT	SN	0	11 S 717612 3743747	S	F	R	N	2090 ft		Big Maria Mountains
Q	162b	RT	SN	0	11 S 717612 3743747	S	F	R	N	2090 ft		Big Maria Mountains
Q	162c	RT	SN	0	11 S 717612 3743747	S	F	R	N	2090 ft		Big Maria Mountains
Q	162d	RT	SN	0	11 S 717612 3743747	S	F	R	N	2090 ft		Big Maria Mountains
Q	163	RT	SN	0	11 S 717450 3743747	S	F	R	N	1968 ft		Big Maria Mountains
Q	164	RT	SN	0	11 S 717246 3743989	E	F	R	N	1978 ft		Big Maria Mountains
Q	165	RT		1	11 S 716102 3745608					2599 ft		Big Maria Mountains
Q	166	RT	SN	2	11 S 716140 3745642	SW	G	R	Y	2331 ft	adult and at least one day-old chick	Big Maria Mountains
Q	167	RT	SN	0	11 S 716937 3744803	SW	F	R	N	2055 ft		Big Maria Mountains
Q	168	TV		1	11 S 716617 3744313					1942 ft		Big Maria Mountains
Q	169	GHO		1	11 S 717892 3743203					1994 ft		Big Maria Mountains
Q	170	TV		1	11 S 718526 3743002					2009 ft		Big Maria Mountains
Flight #2 - 86-95°F, 0% cloud cover, 0-5mph wind, 0% precip, 10+ visibility												
Q	171	RT		1	11 S 721119 3743636					1443 ft		Big Maria Mountains
Q	172	RT	SN	3	11 S 718711 3745328	S	G	R	Y	2161 ft	adult brooding and 2 young chicks	Big Maria Mountains
Q	173	GHO		1	11 S 719647 3745006					2017 ft		Big Maria Mountains
Q	174	TV		1	11 S 720116 3744746					1936 ft		Big Maria Mountains
Q	175a	PR		1						1853 ft	hit GHO	Big Maria Mountains
Q	175b	GHO		1	11 S 720556 3744513					1853 ft	hit by PR and RT	Big Maria Mountains

Trip ID	Waypoint #	Species	Nest Type*	# of Individuals	Position (UTM)	Nest Aspect	Nest Condition	Nest Substrate	Nest Active in 2011 (Yes/No/Possibly)	Elevation	Notes (age, sex, substrate, etc.)	Geographical Area
Q	175c	RT		1	11 S 720556 3744513					1853 ft	hit GHO	Big Maria Mountains
Q	176	RT		1	11 S 718730 3745499					2427 ft		Big Maria Mountains
Q	177	RT	SN	0	11 S 718696 3745770	E	P	R	N	2299 ft		Big Maria Mountains
Q	178	RT	SN	0	11 S 719055 3745545	W	P	R	N	2280 ft		Big Maria Mountains
Q	179	RT		1	11 S 719907 3745327					2379 ft		Big Maria Mountains
Q	180	RT	SN	0	11 S 720231 3745085	N	F	R	N	2153 ft		Big Maria Mountains
Q	181	TV		4	11 S 719434 3747693					1781 ft		Big Maria Mountains
Q	182a	GHO		1	11 S 720709 3748631					1249 ft	flew out of SE-facing cavity	Big Maria Mountains
Q	182b	GHO		1	11 S 720709 3748631					1249 ft	flew out of SW-facing cavity	Big Maria Mountains
Q	183	RT	SN	0	11 S 720617 3748677	SW	F	R	N	1328 ft		Big Maria Mountains
Q	184	RT	SN	1	11 S 720579 3748700	SW	G	R	Y	1354 ft	adult incubating	Big Maria Mountains
Q	185	RT	SN	0	11 S 720287 3748844	SW	P	R	N	1650 ft		Big Maria Mountains
Q	186	RT	SN	0	11 S 719488 3749780	SW	G	R		1577 ft		Big Maria Mountains
Q	187	TV		2	11 S 719323 3749994					1629 ft		Big Maria Mountains
Q	188a	RT	SN	0	11 S 722860 3745234	N	F	R	N	1524 ft		Big Maria Mountains
Q	188b	RT	SN	0	11 S 722860 3745234	N	P	R	N	1524 ft		Big Maria Mountains
Q	189	RT	SN	3	11 S 723331 3745118	N	G	R	Y	1184 ft	3 chicks	Big Maria Mountains
Q	190	RT	SN	0	11 S 723423 3745173	N	F	R	N	1196 ft		Big Maria Mountains
Q	191	RT	SN	0	11 S 723672 3744360	N	P	R	N	1346 ft		Big Maria Mountains
Q	192	NIGH		1	11 S 723620 3743983					1263 ft	flew from cavity	Big Maria Mountains
Q	193	GHO	CN	4	11 S 723408 3744358	E	G	R	Y	1420 ft	two adults flew from cavity nest; 2 chicks	Big Maria Mountains
Q	194	TV		1	11 S 722614 3744591					1430 ft		Big Maria Mountains

PHASE 2 SUMMARY OF FINDINGS

Trip ID	Waypoint #	Species	Nest Type*	# of Individuals	Position (UTM)	Nest Aspect	Nest Condition	Nest Substrate	Nest Active in 2011 (Yes/No/Possibly)	Elevation	Notes (age, sex, substrate, etc.)	Geographical Area
Q	195	RT		1	11 S 722107 3742748					1607 ft		Big Maria Mountains
Q	196a	RT	SN	0	11 S 723853 3742460	S	P	R	N	921 ft		Big Maria Mountains
Q	196b	GHO		1	11 S 723853 3742460					921 ft		Big Maria Mountains
Q	197	RT		1	11 S 723788 3741095					1623 ft	adult observed in flight	Big Maria Mountains
Q	198	RT	SN	3	11 S 725578 3740151	S	G	R	Y	1220 ft	1 adult and two chicks	Big Maria Mountains
Q	199	RT	SN	0	11 S 724686 3738858	SE	G	R	Y	1346 ft	new decoration	Big Maria Mountains
Q	200	RT		2	11 S 724476 3738720					1525 ft	adult observed in flight	Big Maria Mountains
Q	201	RT	SN	2	11 S 724617 3736549	S	G	R	Y	1522 ft	adult on nest with at least one older chick	Big Maria Mountains
Q	202	RT		1	11 S 723615 3737230					1702 ft	adult observed in flight	Big Maria Mountains
Q	203	TV		4	11 S 723187 3737921					1985 ft		Big Maria Mountains
Q	204	RT	SN	0	11 S 723022 3738026	S	F	R	N	2066 ft		Big Maria Mountains
Q	205	RT	SN	0	11 S 722768 3736821	S	F	R	N	1455 ft		Big Maria Mountains
Q	206	RT	SN	0	11 S 722666 3739131	S	F	R	N	1834 ft		Big Maria Mountains
Q	207	RT	SN	0	11 S 722454 3739256	E	G	R	Y	1853 ft		Big Maria Mountains
Q	208	RT		2	11 S 722554 3739577					1913 ft	adult observed in flight	Big Maria Mountains
Q	209	RT	SN	0	11 S 723350 3739529	S	G	R		1761 ft		Big Maria Mountains
Q	210	TV		1	11 S 727721 3736575					1189 ft		Big Maria Mountains
Q	211	TV		1	11 S 716843 3726548					823 ft		Big Maria Mountains
Flight #3 - 95-103°F, 0% to light haze cloud cover, 0-5mph wind, 0% precip, 7-10+ visibility												
Q	265	RT		1	11 S 701098 3709331					1530 ft		Hodges Mountains
(5/7/2011) - 1 flight - 76-82°F, 0% cloud cover, 0-5 mph, 0% precip, 10+ visibility												
R	1	RT		1	11 S 704659 3710017					965 ft	observed in flight	Hodges Mountains
R	2	TV		3	11 S 704412 3711511					1538 ft	observed in flight	Hodges Mountains

Trip ID	Waypoint #	Species	Nest Type*	# of Individuals	Position (UTM)	Nest Aspect	Nest Condition	Nest Substrate	Nest Active in 2011 (Yes/No/Possibly)	Elevation	Notes (age, sex, substrate, etc.)	Geographical Area
R	3	RT	SN	0	11 S 704720 3712357		F	R	N	1078 ft		Hodges Mountains
R	4	RT	SN	0	11 S 704907 3712426	N	P	R	N	1159 ft		Hodges Mountains
R	5	RT	SN	0	11 S 705070 3712366	N	G	R	Y	1083 ft	new material in nest	Hodges Mountains
R	6	RT	SN	0	11 S 705036 3712375	N	G	R	Y	1131 ft	new material in nest	Hodges Mountains
R	7	RT		1	11 S 705005 3711901					1400 ft	adult observed in flight	Hodges Mountains
R	8	PR		1						1237 ft	adult observed in flight	Hodges Mountains
R	9	RT	SN	0	11 S 703961 3712558	N	F	R	N	1522 ft		Hodges Mountains
R	10	PR		1						1188 ft	juvenile observed in flight	Hodges Mountains

AK=American Kestrel, BC=Bobcat, BHS=Bighorn Sheep, CN=Cavity Nest, CR=Common Raven, F=Fair, G=Good, GE=Golden Eagle, GHO=Great Horned Owl, NIGH=Nighthawk, NH=Northern Harrier, P=Poor, PE=Peregrine Falcon, PR=Prairie Falcon, R=Rock, RT=Red-tailed Hawk, SN=Stick Nest, Tr=Tree, TV=Turkey Vulture, U=Unidentified.
*If no nest type is indicated, then the species was observed independently of a nest (e.g., flying, perched, etc.).

Table 3. All Data from Phase 2 Surveys of McCoy Solar Energy Project Area.

Photographs of Golden Eagle Nests and Other Observations

Old golden eagle stick nest in a cavity being used by a prairie falcon (Q117PRCN-4); observed with 4 eggs (noted within yellow circle) May 5th in the Big Maria Mountains (Phase 2).

Adult red-tailed hawk in tree nest (Q123SN-3) with 2 young, observed May 5th near the Big Maria Mountains (Phase 2).

Adult red-tailed hawk (Q166RTSN-2) observed May 6th brooding at least one very young chick in the Big Maria Mountains (Phase2).

Two inactive, adjacent golden eagle stick nests (Q85a&bGESN-0) observed May 5th in the Little Maria Mountains (Phase 2).

One of 3 inactive golden eagle stick nests (Q66aGESN-0) observed in close proximity to 2 others on May 5th in the Little Maria Mountains (Phase 2).

The 2nd of 3 inactive golden eagle stick nests (Q66bGESN-0) observed in close proximity to 2 others on May 5th in the Little Maria Mountains (Phase 2).

Landscape view from above the Big Maria Mountains looking west at the McCoy Mountains, May 6th (Phase 2).

Active red-tailed hawk nest (Q8RTSN-2) observed in the McCoy Mountains May 5th with 2 young in nest; adult was flying nearby (Phase 2).

Inactive golden eagle stick nest (Q32GESN-0) observed May 5th in the McCoy Mountains; very old nest in poor condition that was approximately 5 feet in height (Phase 2).

Active red-tailed hawk stick nest (Q48RTSN-2) observed May 5th with 2 eggs (noted with the yellow arrow) in nest in the McCoy Mountains (Phase 2).


A brooding prairie falcon in a cavity nest (H87PRCN-1) observed March 23rd in the McCoy Mountains (Phase 1) and revisited during Phase 2, see photo below.


The same prairie falcon cavity nest (Q45PRCN-0) as above, observed May 5th in the McCoy Mountains (Phase 2). The young had presumably fledged and the nest was unoccupied.

DISCUSSION OF FINDINGS

This report provides the findings of the Phase 2 surveys for golden eagles conducted by Wildlife Research Institute within 10 miles of the project boundary of the proposed McCoy Solar Energy Project in the Sonoran Desert Region in Riverside county of California in order to comply with the U.S. Fish and Wildlife Service recommendations. Surveys for this project were conducted by helicopter to determine golden eagle occupancy and confirm productivity status.

WRI conducted 7 Phase-2 flights between May 5 and 7, 2011, over the Big Maria Mountains, Little Maria Mountains, McCoy Mountains, and Hodges Mountains. Five previously undocumented golden eagle nests were observed during Phase 2 surveys, 4 of these nests comprised 2 new territories within the 10-mile spatial buffer of the project area, none were deemed to be active for the 2011 breeding season. Additionally, 4 golden eagle nests comprising 1 new territory, were observed approximately 1.5 miles outside the spatial buffer and is included because part of the foraging area for this territory is expected to lie within the project spatial buffer. Combined with the 5 territories documented during Phase 1 surveys, this totals 8 golden eagle territories within 10 miles of the McCoy Solar Energy Project area, none of which were deemed to be active for the 2011 breeding season.

Additionally, 1 American kestrel, 1 bobcat, 3 bighorn sheep, 16 common ravens, 21 great horned owls, 2 nighthawks, 1 northern harrier, 2 peregrine falcons, 12 prairie falcons, 79 red-tailed hawks, and 94 turkey vultures were observed totaling 232 wildlife documentations for Phase 2 surveys. The 3 bighorn sheep were observed approximately 1.5 miles outside the project spatial buffer.

All golden eagle nests and territories have been assigned a USGS Quad name, and all sightings have been documented with GPS locations and recorded on the attached tables, as recommended in the USFWS Interim Golden Eagle Technical Guidance: Inventory and Monitoring Protocols; and Other Recommendations in Support of Golden Eagle Management and Permit Issuance (Pagel et al. 2010) and the subsequent Draft Eagle Conservation Plan Guidance (Gould and Schmidt 2011).

LITERATURE CITED

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Gould R. and P.R. Schmidt. Draft Eagle Conservation Plan Guidance. January 2011. US Fish & Wildlife Service.

Pagel J.E., D.M. Whittington and G.T. Allen. 2010. Interim Golden Eagle technical guidance: Inventory and monitoring protocols; and other recommendations in support of golden Eagle management and permit issuance. Division of Migratory Bird Management, U.S. Fish and Wildlife Service.

APPENDIX A
Wildlife Research Institute Golden Eagle Team

Note: Not all individuals, necessarily, participated in this survey.

Dave Bittner
Executive Director, WRI
Wildlife Biologist/Raptor Ecologist

Mr. Dave Bittner is a Co-founder and Executive Director of The Wildlife Research Institute, Inc. and has been a Wildlife Biologist for more than 44 years. Much of his work has been with raptors of various species but he has also studied and banded 3700 Great Blue Herons, conducted mammal research, and trapped and tagged over 3,000 mammals of various species. Dave currently coordinates an annual golden eagle and raptor population study throughout Southern California, including the Western Mojave Desert and the Anza-Borrego Desert State Park. He is the current Primary Investigator (P.I.) for the Southern California Golden Eagle Population Study, the longest continuous running golden eagle study of its kind in the Western Hemisphere starting in 1867. Dave's involvement began in 1968 in the Western Mojave but now includes all of Southern California. Currently, he is also the P.I. for WRI's satellite and VHF telemetry-based golden eagle migration and habitat use study in cooperation with the US Forest Service, Montana Parks and Wildlife, Nevada Dept. of Wildlife and the California Department of Fish and Game. WRI, under Dave's direction, has conducted annual helicopter surveys on golden eagles and raptors in general since 1996. Dave has banded thousands of raptors since 1963 and has banded over 480 golden eagles, over 150 with VHF and satellite telemetry. He has conducted Bighorn Sheep surveys, both aerial and ground, for Desert Bighorn Sheep in the Mojave Desert and for Peninsular Bighorn Sheep in the Anza-Borrego Desert State Park and Baja, Mexico since 1998. Dave has also surveyed Bighorn Sheep in Montana where WRI has a Research Station. His education includes a B.Sc. in Zoology and Wildlife Management from Ohio State University (1968). He also conducted graduate studies in Avian Reproduction and Natural Resources (1975-1977) at The Ohio State University. Dave has worked for the U.S. Fish and Wildlife Service, Cleveland Museum of Natural History, and the Ohio Department of Natural Resources and has taught at two universities and one technical college.

Jeffrey L. Lincer, Ph.D.
Research Director, WRI
Senior Scientist/Wildlife Biologist/Raptor Ecologist

Dr. Lincer is a Co-founder and Research Director of The Wildlife Research Institute, Inc. and has extensive experience surveying for raptors, including helping establish WRI's Montana Raptor Migration Station. He has actively participated in the institute's Southern California Golden Eagle project since 2000, including helicopter and ground surveys since 2001. He has conducted numerous raptor surveys for federal, state, county, and local governments, and the private sector across desert and mountain habitat in the California Mojave and Anza-Borrego deserts, San Diego County, Nevada and the mountains of northern Baja Mexico. In addition, Jeff has over 100 hours of aerial surveying for Bald Eagles and over 50 hours for fish-eating birds. He has conducted Bighorn Sheep surveys in the Mojave Desert and for the Anza-Borrego Desert State Park since 1998. Dr. Lincer's background includes 40 years as a scientist, scientific advisor, and administrator in the environmental research and management areas. He has taught college level courses in environmental and occupational health, environmental science, ornithology, and mangrove ecology, produced over 100 scientific publications and papers (most on raptors), authored dozens of environmental reports, and served as advisor to high-level governmental offices and national/international conservation programs. Jeff received his Bachelors and Masters degrees in Wildlife Biology/Wildlife Management from Syracuse University and his Doctorate in Ecology and Toxicology from Cornell University. He is most well known for his work with raptors and other threatened/endangered species and his ability to manage complex interdisciplinary projects and work productively with government agencies. He is a Past-President of the Southern Chapter of The Wildlife Society. As President of the Raptor Research Foundation (RRF) from l982 to l988, he oversaw the greatest growth of that professional organization in its entire history. He chairs RRF's Leslie Brown Award Grant Committee (for research on African raptors) and chaired the First International Burrowing Owl Symposium and Workshop. He is the Co-editor for the Proceedings of the First International Symposium on Burrowing Owls, a Co-editor of the proceedings of the First California Burrowing Owl Symposium, and is a contributing Technical Editor for a recent book on California's endangered species. Dr. Lincer was the founding Director of the National Wildlife Federation's (NWF) Raptor Information Center. During his NWF tenure, he coordinated with government agencies and the private sector, developed computerized literature databases, and prioritized eagle and other raptor habitat throughout the United States for acquisition. He served as Consulting Editor for the joint RRF/Bureau of Land Management publication, "Raptor Habitat Management Multiple Use Mandate." Over the last four decades, he has worked on major projects from Alaska to Africa, addressing raptor population trends, ecological monitoring, environmental impacts, ecotoxicology, and habitat protection and acquisition.

Leigh Bittner
Vice-President, WRI
Field Assistant

Mrs. Bittner first flew golden eagle helicopter surveys in 1996. She has participated in golden eagle nest surveys, nest observations, eagle banding, tagging and tracking in California since 1991, New Mexico, 2001 and Montana since 2000. Leigh has also been involved in tagging and releasing of some of the first California Condors in California, 1992, and Arizona, 1996. Leigh is a co-founder of the Wildlife Research Institute, Inc. and has been a Board member since 1996. She is a retired Marketing Manager from Hallmark Corporation and also helps coordinate office operations to support WRI's field activities.

Chris Meador
WRI Assistant Director
Wildlife Biologist

Mr. Meador is a full-time Wildlife Biologist for the Wildlife Research Institute (WRI) and has been a Wildlife Biologist for the past eight years. Chris started conducting helicopter surveys on golden eagles and other raptors in 2008, including over 250 hours of helicopter survey experience. He has conducted numerous raptor surveys for federal, state, county and local governments, and the private sector across desert, coastal and mountain habitats. He co-leads WRI's Southern California Golden Eagle Population Study, the longest running study of its kind in the Western Hemisphere and has participated in it for the past ten years. He currently carries out myriad tasks as the project manager for various projects pertaining to the golden eagle. These include observation, trapping, tagging, and affixing radio and satellite telemetry transmitters to nestling, juvenile and adult golden eagles in San Diego County as well as migrating golden eagles in Montana. He maintains and oversees much of the Wildlife Research Institute's tracking process including gathering, interpreting and publishing data and findings using GPS and GIS integration. Chris has conducted Bighorn Sheep surveys, both aerial and ground, in the Mojave Desert and for the Anza-Borrego Desert State Park since 2008. He has assisted with projects, including research, education and reintroduction on a broad range of species from endangered mammals (black footed ferret) to sensitive fish, black-tailed prairie dog and from Burrowing Owls to Desert Tortoises. Mr. Meador also conducts educational programs on multiple topics including natural history, ecology and conservation pertaining to many different species. He is an expert in identification and ecology of North American raptors. He holds a Bachelor of Arts degree with a double major in Environmental Studies and Psychology from Prescott College in Prescott, Arizona.

James Hannan, Ph.D.
Senior Wildlife Biologist
Dr. Hannan has experience with WRI conducting helicopter surveys of golden eagles and other raptors since 2002. Jim also helps on WRI's long running golden eagle Research project with nest observation, rappelling to, banding and tracking golden eagles since 2000. Jim, started golden eagle migration counts and banding in Montana in 2001. He is fluent in Spanish and served as an International Environmental Consultant for the Peace Corps and United Nations Volunteer programs His professional experience includes two years as a Peace Corps Volunteer (fisheries and agriculture, in Panama), one-year Peace Crops staff (fisheries development in Puerto Rico), and one year at the Smithsonian Institution. His academic experience also includes three years as Professor of Marine Biology and Environmental Studies at Florida Institute of Technology. Jim also spent twelve years as a private environmental consultant (contracts included Mexican aquaculture, impacts to Caribbean coral reefs, deer and other game studies involving radio transmitters for the California Dept of Fish and Game). He also served as a Texas game ranch manager, naturalist for East Africa wildlife filming company, fishery management advisor for the Florida Keys and holds a NAUI diver certificate and Florida EMT certificate. Dr. Hannan, is a WRI Senior Wildlife Biologist and Professor, Mesa College. He received his BS in 1965 from Humboldt State University, his MS in 1969 from University of Oregon, and his PhD in 1973 from the University of Miami (FL).

Daniel Palmer
Wildlife Biologist
Daniel received his Bachelor of Science in Biology from San Diego State in 2002 and has conducted graduate studies since that time. He is an experienced biologist, who has worked on a number of projects throughout Southern California for WRI and the USGS. WRI projects included surveys and monitoring for burrowing owls on private land and March Air Reserve Base, and golden eagle ground and aerial surveys on private property, State Park property, and US Forest Service land. Daniel has trapped for burrowing owls in order to assist with banding and relocation, and he has trapped for golden eagles in order to assist with banding, tagging, and satellite transmitter placement. He has also assisted with several banding trips, which included banding, tagging, and the placement of satellite transmitters on several golden eagle nestlings. During his work with WRI during 2011, Daniel logged well over 320 hours of survey time with golden eagles, as well as over 300 hours of monitoring and observation time for golden eagles and 23

other species of raptors. Before WRI, Daniel had worked for the USGS surveying for bats and Arroyo toads (*Anaxyrus californicus*) on US National Forest Service land, California State Park land, California Fish and Game reserves, Bureau of Land Management property, and on Marine Corps Base Camp Pendleton. Daniel decided to switch his focus back to raptors before becoming part of the WRI team. He has been a raptor biologist and observer for most of his biology career, and some of his recorded raptor data dates back to 1999.

Renée Rivard, Pharm.D.
Wildlife Biologist

Dr. Rivard is currently a member of the Wildlife Research Institute's Golden Eagle team; she has accumulated over 225 hours of aerial survey time while participating in more than 18 golden eagle projects conducted by WRI since 2010 for numerous renewable energy projects across desert and mountain habitat in the California Mojave desert, San Diego and adjacent counties, and Nevada. In addition to participating in aerial transect surveys and ground surveys to identify golden eagle nests and territories impacted by renewable energy projects, she has also participated in WRI's ongoing golden eagle research and monitoring project in San Diego County as a member of the banding and telemetry teams. She maintains the Golden Eagle Database and helps maintain Burrowing Owl artificial burrows on premises at WRI headquarters and continues to expand her knowledgebase related to these and other raptors. Renée assists with WRI's annual Hawk Watch educational program about the Ramona Grasslands and its raptor residents and migrants. Her 20+ years of database, scientific publishing, and medical research experience provide her with the background and skills to efficiently and professionally assimilate survey data for WRI, clients and agencies. Over the last 5 years, she has accumulated diverse and valuable wildlife knowledge and skills as a wildlife rescuer, rehabilitator, and veterinarian assistant for non-profit organizations in Australia and, more recently, as a field technician and laboratory technician for the San Diego Zoo's Institute for Conservation Research Applied Animal Ecology Department and Wildlife Disease Laboratory, respectively. Renée received her Bachelor's of Science in Biology from the University of South Alabama (1987), graduated *cum laude* with her Doctorate of Pharmacy from Creighton University (1995), and completed specialized post-graduate papers in medical literature evaluation from the University of Auckland in New Zealand (2001).

Brittany Schlotfeldt
Wildlife Biologist

Ms. Schlotfeldt has experience with mammals and birds and field transect experience in both the marine and desert environments. Brittany has one year experience conducting helicopter surveys of golden eagles and other raptors. She assisted with the research on coral recruitment across various conditions in Hawaii (Donald Potts Lab, UCSC) and tracked sea otters for SORAC (Sea Otter Research and Conservation) at the Monterey Bay Aquarium. Brittany has also assisted with, and performed, a number of tasks in the upland and desert habitats for various Wildlife Research Institute (WRI) projects. In the desert environment, she has assisted with WRI's research on golden eagles (radio telemetry and tracking), burrowing owls (transect surveys, field observations, trapping, and banding), and desert tortoises (surveyed over 100 miles of protocol transects in the Western Mojave Desert with Drs. Boarman and Lincer, and Mr. Peter Woodman). This study, which was recently completed, was a follow-up on an earlier project focused on the potential impacts of vehicular traffic, and highway fencing, on tortoise mortality (Boarman and Sazaki

2006). She has additional experience with desert tortoises on Fort Irwin, where she conducted numerous surveys and assisted with the VHF-transmittering of tortoises in an effort to relocate the individuals. Ms. Schlotfeldt received her Bachelor's of Science in Marine Biology from the University of California, Santa Cruz (2008).

Jeff Wells
Wildlife Biologist
Mr. Wells has been involved with WRI's golden eagle research since 1991 including trapping, banding and tracking. Jeff has ten years experience with WRI conducting helicopter surveys of golden eagles and other raptors. He has his Bachelors in Wildlife Studies from San Diego State University and has over 20 years experience as a private wildlife biologist. For the past 5 years, Jeff has been a Wildlife Biologist for the US Forest Service.

James Newland
Field Biologist
Mr. Newland has assisted WRI on golden eagle research for the last 4 years banding, trapping, and VHF and satellite tracking. James has also assisted trapping and tracking golden eagles at WRI's migratory research center in Montana. He has one year experience conducting helicopter surveys of golden eagles and other raptors. James has a Bachelor's of Science in Electrical Engineering and has worked for numerous large communication corporations.

Jeff Laws
Field Biologist/Bio-climber
Mr. Laws has assisted WRI with Golden Eagle research and field work since 1995. He has also assisted trapping and tracking Golden Eagles at WRI's migratory research center in Montana. Jeff has five years experience conducting helicopter surveys of Golden Eagles and other raptors with WRI. Jeff works as a climber and field installer for San Diego Gas & Electric Company.

Mel Cain
Pilot, Utility Helicopters
Mr. Cain has more than 55 years experience flying helicopters for wildlife surveys. Utility Helicopters, with their Hughes-500 helicopters, has assisted WRI in Golden Eagle and raptor surveys for the last 10 years in the United States and Mexico. Mel has 12 years of experience in New Zealand trapping and transporting big game including deer and elk. He has conducted hundreds of netting and translocations of Bighorn Sheep and Tule Elk in California for California Fish and Game and California State Parks. Mel works frequently in Mexico and Canada and maintains NAFTA and Mexican permits to conduct wildlife and resource surveys.

Gregg Matson, M.D.
Pilot, Cherry Helicopters
Dr. Matson is a practicing physician who also started and headed a helicopter company in Hawaii to provide industrial and tourist services. Cherry Helicopters uses Hughes-500 helicopters to

conduct these surveys. Gregg, WRI, and Cherry Helicopters have conducted wildlife surveys both in the United States and Mexico. He has supported WRI in aerial helicopter surveys of Golden Eagles, raptors and other wildlife for the last 8 years.

Barry Martin
Pilot, Western Tracking Institute

Mr. Martin is a WRI Research Associate and Director of the Western Tracking Institute. He has a Bachelor's in Business from Fresno State and an Associate's degree in Aeronautics. He has 42 years of flying experience and 22 years in the Navy with over 300 aircraft carrier landings. Concurrent with his Navy experience, he flew for over 21 years as a pilot for American Airlines. In total, Barry has over 20,000 hours of experience in the air. In 1989, Barry started the San Diego Tracking Team and started the Western Tracking Institute in 2007 to further expand his studies in wildlife populations and movements. In 2006, he started VHF tracking from aircraft primarily for mountain lions and 2 years later, began assisting WRI in aerial VHF tracking of Golden Eagles.

APPENDIX C

Biological Resources (continued)

C-4. Winter 2011-2012 Avian Point Count Survey Report

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Winter 2011-2012
Avian Point Count Survey Report

McCoy Solar Energy Project
Riverside County, CA

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March 2012

EXECUTIVE SUMMARY

McCoy Solar LLC, a subsidiary of NextEra Energy Resources LLC, proposes to construct, operate, maintain, and decommission an up to 750-megawatt (MW) photovoltaic (PV) solar energy generating facility, the McCoy Solar Energy Project (MSEP or Project), in unincorporated Riverside County, California. McCoy Solar, LLC has requested a 7,700 right-of-way (ROW) grant from the Bureau of Land Management (BLM) for this Project. The Project, including Linear Facilities, would disturb approximately 4,961 acres, of which 22.7 acres is already disturbed. The majority of the MSEP would be developed on public land administered by the BLM. Approximately 477 acres of privately owned land would be included in the proposed Solar Plant Site boundary.

To determine winter avian presence in the Project Area, avian point count (APC) surveys and raptor surveys were conducted between November 2011 and January 2012, inclusive. These surveys were conducted according to the same methods that were used for the Spring 2011 APC surveys that were part of the comprehensive surveys for biological resources in Spring 2011 (see Tetra Tech and Karl 2011). This report describes the methods and results of the Winter 2011-2012 surveys and supplements the 2011 *McCoy Solar Energy Project Biological Resources Technical Report* (Tetra Tech and Karl 2011).

A total of 711 birds, consisting of 25 identified and three unidentified species, was recorded during the winter avian point count surveys. The most commonly detected bird with the highest mean use was the house finch (*Carpodacus mexicanus*), which made up 47.4 percent of all birds observed, followed by the turkey vulture (*Cathartes aura*), which made up 9.8 percent of the observations. Each remaining species comprised less than 9 percent of the total number of birds observed. The sage sparrow (*Amphispiza belli*) was the most frequently detected bird as it was observed during 43.8 percent of all surveys.

<u>Special-status Species</u>

No federally or state-listed wildlife species were observed during winter surveys; however, one California species of special concern, the loggerhead shrike (*Lanius ludovicianus*), was observed. This species is also a U.S. Fish and Wildlife Service (FWS) Bird of Conservation Concern (BCC) and a second BCC species, the prairie falcon (*Falco mexicanus*), was also observed. Both are year-round residents of the Project vicinity. No golden eagles (*Aquila chrysaetos*) were observed.

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

APPENDICES

1.0 INTRODUCTION

McCoy Solar LLC, a subsidiary of NextEra Energy Resources LLC, proposes to construct, operate, maintain, and decommission an up to 750-megawatt (MW) photovoltaic (PV) solar energy generating facility, the McCoy Solar Energy Project (MSEP or Project), in unincorporated Riverside County, California. McCoy Solar, LLC has requested a 7,700 right-of-way (ROW) grant from the Bureau of Land Management (BLM) for this Project. The Project, including Linear Facilities, would disturb approximately 4,961 acres, of which 22.7 acres is already disturbed. The majority of the MSEP would be developed on public land administered by the BLM. Approximately 477 acres of privately owned land would be included in the proposed Solar Plant Site boundary (Figure 1).

The following terms will be used throughout this report:

- “Project” refers to the MSEP.
- “Project Area” is the footprint of all Project components, which includes the Solar Plant Site and Linear Facilities.
- “Solar Plant Site” is the 4,792-acre area that includes the Unit 1 and Unit 2 solar fields, two substations, evaporation ponds, access road, operations and maintenance (O&M) building and other support facilities, water storage tanks, auxiliary systems, and open areas.
- “Linear Facilities” includes the generation-tie (gen-tie) line, access road, primary and secondary telecommunication lines, and distribution line. With the exception of the switchyard and a portion of the access road, the Linear Facilities will be mostly co-located inside the Linear ROW. The switchyard will lie at the southern terminus of the Linear ROW; a portion of the access road north of Interstate 10 (I-10) will be shared with Solar Trust of America’s Blythe Solar Power Project (BSPP) and other potential solar projects in the vicinity.
- “Linear Corridor” is the area that was surveyed and within which all the Linear Facilities will be located. The Linear Corridor is substantially wider than what will ultimately become the Linear ROW to accommodate flexibility in the micro-siting of the Linear Facilities. The Linear Corridor is within the Survey Area.
- “Project vicinity” is intended to be a general term to describe the broader, surrounding area.

To determine winter avian presence in the Project Area and immediate Project vicinity, avian point count (APC) surveys and raptor surveys were conducted between November 2011 and January 2012, inclusive. These surveys were conducted according to the same methods that were used for the Spring 2011 APC surveys that were part of the comprehensive surveys for biological resources in Spring 2011 (see Tetra Tech and Karl 2011). This report describes the methods and results of the Winter 2011-2012 surveys and supplements the 2011 *McCoy Solar Energy Project Biological Resources Technical Report* (Tetra Tech and Karl 2011).

2.0 PROJECT SETTING

2.1 Project Location

The Project is located in the Sonoran Desert approximately 13 miles northwest of the City of Blythe, California, approximately five miles north of I-10 (Figure 1). Surrounding mountain ranges include the McCoy Mountains to the west, the Little Maria Mountains to the north, and the Big Maria Mountains to the northeast. McCoy Wash, a broad wash system flowing into Palo Verde Valley, is located immediately east of the Solar Plant Site. The elevation of the Project Area ranges from 390 to 735 feet above mean sea level. The Project is located immediately north of Solar Trust of America's recently permitted BSPP.

2.2 General Site Characteristics

A detailed description of site characteristics with photographs can be found in the *McCoy Solar Energy Project Biological Resources Technical Report* (Tetra Tech and Karl 2011); however, the following provides a summary of the Project's habitats (both natural and altered), vegetation communities, and other cover types (Figures 2A, 2B and 3).

The Project Area north of I-10 lies along the bajada sloping out of the eastern side of the McCoy Mountains. The western portion of the Solar Plant Site is dominated by gently undulating terrain with broad patches of largely unvegetated, well-developed, highly oxidized gravel desert pavement. Widely spaced washes, generally less than approximately 10 feet deep, flow through the pavement plain; associated small runnels flow into these washes. The exception to this is in the southwestern corner of the Solar Plant Site, where there are several 20-25 feet deep drainages. As the bajada flattens to the east, drainages become shallow, braided runnels with a few swales (especially along Black Creek Road). There are patches of sheet flow near McCoy Wash. Consistent with the hydrology and distance from the mountains, substrates become finer toward the eastern portion of the Solar Plant Site, becoming only scattered fine and very fine gravels over soft to slightly hard sandy loam along the eastern side. There are scattered patches of fine gravel- and coarse gravel-desert pavement throughout the eastern, and especially the southeastern, portion of the Solar Plant Site.

Vegetation on the Solar Plant Site is described using alliances developed by Sawyer, Keeler-Wolf and Evens (2009) and used by the California Natural Diversity Data Base (California Department of Fish and Game [CDFG] 2010). Upland vegetation is characterized by associations (i.e., subsets) of the Creosote Bush-White Burr Sage (*Larrea tridentata-Ambrosia dumosa*) Scrub Alliance. However, even typical upland vegetation is largely confined to drainages on the Project Area, probably because most of the available water is in the drainages due to the low regional rainfall and substrate and soil quality. On the desert pavement plains in the west, there are essentially no shrubs outside of water courses. In the eastern approximately half of the site, the interstices have moderately low vegetation cover of mostly creosote bush – approximately 7-8 percent cover, but lower in several broad patches. This low cover and the small stature of the plants again points to low available water. Where sheet flow predominates, shrub cover is a little higher (<10 percent), and co-dominants include white burr sage, brittlebush (*Encelia farinosa*), and white rhatany (*Krameria grayii*).

Runnels and very small washes on the Solar Plant Site, including over most of the eastern Solar Plant Site, are dominated by creosote bush, white burr sage, brittlebush, and white rhatany; galleta grass (*Pleuraphis rigida*) is patchily common to co-dominant. In the more well-developed washes in the western portion of the site, the vegetation is characterized by the Desert Lavender (*Hyptis emoryi*) Scrub and Catclaw Acacia (*Senegalia* [= *Acacia*] *greggii*) Thorn Scrub Alliances. Desert lavender, Anderson boxthorn (*Lycium andersonii*), catclaw acacia, creosote bush, white burr sage, brittlebush, chuckwalla bush (*Bebbia juncea*), and white rhatany and/or little-leaf rhatany (*Krameria erecta*; mostly upslope) are typical dominants; galleta grass is intermittently co-dominant. An occasional palo verde (*Parkinsonia florida* [=*Cercidium*] *floridum*) or ironwood (*Olneya tesota*), or patches of a few individuals, can also be found in some swales or in the more well-developed parts of some runnels where water volume is probably higher or water is more consistently available. Most plants are small (generally <15 feet in height), but there are occasional larger individuals. There are also a couple, several hundred foot stretches where palo verde is common, although many of the trees are only saplings. The most well-developed of these is an approximately 3,000-foot segment of one wash in the western half of the Solar Plant Site. It is dominated by relatively large palo verde, along with the common wash-shrub species and could be considered a Palo Verde-Ironwood Woodland Alliance.

The Linear Corridor exits the southeastern corner of the Solar Plant Site onto a barren, densely fine-gravelly, flat plain with little vegetation. As the corridor turns south, it travels through a relatively flat lower bajada with numerous small swales. Soils are generally fine, soft to consolidated loams lightly covered by fine to very fine gravels or none. The shrub cover is dominated by an approximately 10 percent cover of creosote bush and white burr sage; galleta grass is common in the swales, along with occasional ironwood trees. Much of the northern portion of the Linear Corridor runs along a distinctive alluvial deposit of rounded riverine gravel on a long, low ballena, or pebble terrace, standing 30-75 feet above the surrounding bajadas. A well-developed, large-arboreal wash resulting from the coalescence of several small washes meets and crosses the Linear Corridor just south of the pebble terrace. There, it becomes re-routed against a long east-west agricultural berm, where it forms a long swale of dense palo verde and ironwood infested with dense Russian thistle *(Salsola tragus*) and Sahara mustard (*Brassica tournefortii*). The Linear Corridor and adjacent area north and south of this swale has been farmed (although it was fallow in Spring 2011), except in the northwestern half, where native creosote bush and white burr sage habitat, with brittlebush-white burr sage-galleta grass runnels, remains. An actively farmed citrus orchard lies at the eastern end of this portion of the Linear Corridor.

As the Linear Corridor nears the McCoy Mountains the substrates generally become more gravelly and heavy sheeting and well-developed arboreal washes begin to cross the Linear Corridor. Vegetation in the interfluves is generally very sparse creosote bush-white burr sage scrub. Nearer the freeway, the Linear Corridor crosses both a low depression adjacent to a mesa, and farther south, a man-made borrow pit. Soils are fine and hard and there is potential for pockets of standing water. The borrow pit hosts a dense honey mesquite-palo verde bosque-ironwood bosque. South of I-10, the Linear Corridor traverses a flat bajada of low plant diversity (creosote bush and white burr sage) and cover (8 percent). West of the existing PV solar facility, intermittent, loose, shallow sand sheets and dunes and small, exposed basins intersect the Linear Corridor, and briefly ponding water is a potential in some of the basins. Well-developed, low dunes enter the route at the bend and remain characteristic of the Linear Corridor through and including most of the switchyard. This habitat contains widely spaced perennial shrubs (2-5 percent cover), with the dominant species including creosote bush, white burr sage, and galleta grass. Several sand-associates and other annuals are also abundant (e.g., sand verbena [*Abronia villosa*], birdcage primrose [*Oenothera deltoides*], desert marigold [*Baileya pauciradiata*], and narrow-leaved forget-me-not [*Cryptantha angustifolia*]). In the southern portion of the switchyard and south, the soil remains finely sandy, but fine gravel lightly covers the soil; creosote bush is dominant with white burr sage. Drainage is via sheet flow, small swales and runnels.

3.0 METHODS

Avian Point Count Surveys

To inventory avian species and identify avian use of the Project, biologists conducted APC surveys of the Solar Plant Site and Linear Corridor according to methods that were reviewed and agreed to by the BLM, U. S. Fish and Wildlife Service (FWS), and CDFG prior to Spring 2011 surveys. APC surveys were two days per week for four weeks and were conducted on November 21-22 and December 15-16, 2011, and January 15-16 and 29-30, 2012. A minimum of two point count plots were conducted per habitat type for a total of 12 plots spaced throughout the Project Area (Figure 3, Table 1). There were five plots within the Solar Plant Site, one chosen randomly within each two square miles (5.2 square kilometers), and seven plots along the Linear Corridor, one in every two linear miles (3.2 kilometers). The specific survey site at each of these 12 locations was subjectively chosen based on areas where the highest abundance of birds was likely to occur (e.g., drainages, trees). Each plot consisted of four points spaced 660 feet (200 meters) apart. Each point count had a 660-foot (200-meter) radius for non-raptors and an unlimited radius for raptors and common ravens. Point counts were 10 minutes long (i.e., 40 minutes per plot) and were conducted between sunrise and four hours after sunrise, with an extension to approximately 1100 h when temperatures did not preclude bird activity.

Table 1. Habitat Types of Avian Point Count Plots

Point Count Plot[1]	Habitat Type
1	Desert Pavement Plain; 3-10 meters Incised Washes
2	Desert Pavement Plain; 3-10 meters Incised Washes
3	Well-Developed Desert Pavement/Desert Pavement Plain; 3-10 meters Incised Washes
4	Well-Developed Desert Pavement
5a[2]	West of McCoy Wash/Shallow Runnels and Swales
6	Well-Developed Desert Pavement/Pebble Plain
7	Well-Developed Desert Pavement/Agriculture
8	Well-Developed Desert Pavement/Pebble Plain
9	McCoy Mountains Toeslopes and Mid-Bajada; Arboreal Washes
10	Lower Bajada; Few Drainages and Intermittent Low Sand Dunes and Swales
11	Sand Dunes
12	Lower Sand Dunes and Sandy Lower Bajada; Sheet Flow, Swales, and Percolation

[1] See Figure 3 for Project Area habitats and locations of APC plots.

[2] Winter 2011-2012 survey plots were the same as those surveyed in Spring 2011 with the exception of Plot 5. In winter, Plot 5a was surveyed in lieu of Plot 5 due to a shift in the Solar Plant Site boundary.

Raptor Surveys

Biologists also conducted raptor surveys (modified APC surveys) to gain an understanding of golden eagle and other raptor behavior (e.g., foraging, migrating) and use of the Project Area in winter. At each plot, one of the points was randomly chosen for a 30-minute survey during midday, when raptors are foraging following thermal lift and prey are still active (i.e., before temperatures are too high for diminished activity). Each point count had an unlimited distance in all directions, which allowed for tracking the movements of large birds over a large area. Raptor surveys were conducted on the same days as the APC surveys.

Data Collection and Analysis

Data collected during APC and raptor surveys included weather conditions (temperature, cloud cover, and wind speed), species and number observed, type of detection (audio or visual), behavior, and microhabitat.

The APC survey results were analyzed by dividing birds into species groups and calculating mean use and frequency. Avian mean use was derived by calculating the average number of birds observed per 10-minute survey at each plot. In addition, the number of observations is presented, where an observation can be either an individual bird or a discrete flock of birds. This information helps evaluate whether or not high mean use is driven by a single event (e.g., flock of birds). Because individual birds are not uniquely marked and identified, actual population size or abundance cannot be determined. One individual may be counted multiple times during a survey period or across survey periods. Therefore, avian use does not directly equate to abundance.

4.0 RESULTS AND DISCUSSION

The results of the winter avian point count surveys have furthered our understanding of the winter avian population in the Project Area, including both migratory and resident species. The results of these surveys do not alter the discussion within the *McCoy Solar Energy Project Biological Resource Technical Report* (Tetra Tech and Karl 2011).

4.1 Special-status Species

No state- or federally listed wildlife species were found during 192 winter APC surveys and 48 raptor surveys; however, one California Species of Special Concern, which is also a FWS Bird of Conservation Concern (BCC), was observed (loggerhead shrike [*Lanius ludovicianus*] and a second BCC species, (prairie falcon [*Falco mexicanus*]), was observed. No golden eagles (*Aquila chrysaetos*) were observed.

Loggerhead shrike (FWS: *Bird of Conservation Concern*; CDFG: *Species of Special Concern*)

Six loggerhead shrikes were observed during winter APC surveys, both on the Solar Plant Site (Plots 1, 3, and 5a) and on the Linear Corridor (Plots 10 and 12); each observation consisted of a single bird (Tables 2 and 3). Loggerhead shrikes are year-round residents of the Project Area (Yosef 1996) and were observed throughout the Project Area and nesting in ironwood and palo verde trees during Spring 2011 APC surveys. The entire Project Area is loggerhead shrike habitat because of the open and relatively low shrub vegetation that also contains taller structures. The latter are used for nesting and as lookout posts to spot potential predators and prey.

Prairie falcon (FWS: *Bird of Conservation Concern*)

One prairie falcon was observed perched on an ironwood tree and a wooden power pole during raptor point count surveys at Plot 10, along the Linear Corridor. Prairie falcons are year-round residents to the Project Vicinity. The prairie falcon is found in a variety of habitats, but is associated primarily with desert scrub and similar open habitats where it forages over the open terrain (Steenhof 1998). It uses open ledges and cliffs, such as those in adjacent mountain ranges to the Project, for perching and nesting. In Spring 2011, a pair of prairie falcons was observed nesting in the Big Maria Mountains, north of the Project, during helicopter surveys (WRI 2011). Although the Project Area does not provide suitable nesting habitat, it appears to provide suitable foraging habitat because of the openness and proximity to known nesting habitat. The single observation of the falcon confirms that there is minimal use of the Project Area and vicinity, probably for foraging.

4.2 Avian Point Count Surveys

A total of 711 birds, consisting of 25 identified and three unidentified species, was recorded during the winter avian point count surveys (Tables 2 and 3). The most commonly detected bird with the highest mean use was the house finch (*Carpodacus mexicanus*), which made up 47.4 percent of all birds observed, followed by the turkey vulture (*Cathartes aura*), which made up 9.8 percent of the observations. Each remaining species comprised less than 9 percent of the total number of birds observed. The sage sparrow (*Amphispiza belli*) was the most frequently detected bird as it was observed during 43.8 percent of all surveys.

The highest number of birds (189) was observed at Plot 12, at the Project proposed switchyard. Of the 189 birds at Plot 12, 180 were house finch. The plots with the second highest number of birds observed were Plots 11 and 7 (125 and 123 birds, respectively), both on the Linear Corridor. Plots 11 and 12 are located within areas of loose, wind-blown sand dunes and sand sheets with sheet flow and swales; the high numbers of house finch observed at these points may be attributed to the construction activities associated with the Colorado River Substation, which was actively under construction at the time of APC surveys. Watering to suppress dust could attract birds to this area. The high number of birds detected at point 7 was largely driven by a single flock of approximately 70 turkey vultures migrating over the area.

The greatest number of species (13) also was detected at Plot 7 (Table 3). Plot 7 species diversity is primarily attributed to its proximity to agriculture and a rural residence with livestock, both of which provide habitat and forage for a wide variety of species. Habitat diversity is also higher around Plot 7, represented by several anthropogenically altered habitat types, as well as native habitat. Plot 10 had the second highest number of species observed (12). This plot was near a solar development and a residential area, and within and immediately adjacent to several habitat types (arboreal washes, swales, creosote bush-white burr sage scrub, and dunes).

The number of birds detected during winter surveys is more than those detected during Spring 2011 surveys (a total of 711 birds detected during winter compared to 570 during spring); however, the species diversity was lower (45 identified species in spring versus 25 in winter) (Table 4). Six species were observed during the Winter 2011-2012 APC that were not observed during the Spring 2011 APC surveys, including the sage sparrow, rock wren (*Salpinctes obsoletus*), rock pigeon (*Columba livia*), Bewick's wren (*Thryomanes bewickii*), house wren (*Troglodytes aedon*), and Cooper's hawk (*Accipiter cooperii*). All of these species are winter residents except the rock pigeon, which is a year-round resident. Twenty-nine species were detected during the Spring 2011 surveys that were not detected during the winter surveys (Table 4). This is probably because spring surveys were conducted at a time when residents, breeders, and migrants were present. Also, birds are generally more active and observable during the nesting season as they perform courtship behavior, build nests, and forage to feed young.

Common ravens (*Corvus corax*) are a concern with respect to the development of the MSEP because they are a known desert tortoise (*Gopherus agassizii*) predator. Common ravens are also scavengers that are attracted to disturbed areas with human subsidies such as water, trash, and roadkill. In order to determine a change in the local raven population post-Project development, it is important to understand the pre-development raven populations. Twenty common ravens were detected during APC surveys in 10 observations in December and January surveys; no ravens were observed during November surveys. The maximum flock size was seven individuals on one occasion, observed at Plot 1. The second largest flock size was four individuals on two occasions (Plots 8 and 9). All other observations were of one or two birds flying over the Project vicinity or Project Area. Large (> 5 birds) flocks were uncommon and no large congregations or communal roosts were observed.

Table 2. Avian Species by Species Grouping, Observed during Winter 2011-2012 APC Surveys at the MSEP

Species Grouping	Overall Rank[1]	Number of Birds	Number of Observations	Mean Use (# birds per 10 min.)	Frequency (% of surveys detected by plot)	Percent Composition	
						Group	Overall
Songbirds							
House finch	1	337	57	1.76	39.6	54.5%	47.4%
sage sparrow	3	63	27	0.33	43.8	10.2%	8.9%
yellow-rumped warbler	4	45	20	0.23	20.8	7.3%	6.3%
white-crowned sparrow	5	44	20	0.23	27.1	7.1%	6.2%
verdin	6	23	18	0.12	27.1	3.7%	3.2%
common raven	7	20	10	0.10	16.7	3.2%	2.8%
Say's phoebe	8	16	15	0.08	25.0	2.6%	2.3%
black-tailed gnatcatcher	9	15	10	0.08	18.8	2.4%	2.1%
rock wren	10	13	8	0.07	8.3	2.1%	1.8%
horned lark	11	11	6	0.06	12.5	1.8%	1.5%
black-throated sparrow	12	9	3	0.05	6.3	1.5%	1.3%
loggerhead shrike	14	6	6	0.03	12.5	1.0%	0.8%
unidentified songbird	15	5	1	0.03	2.1	0.8%	0.7%
blue-gray gnatcatcher	18	4	4	0.02	8.3	0.6%	0.6%
Bewick's wren	19	2	2	0.01	4.2	0.3%	0.3%
western kingbird	22	1	1	0.01	2.1	0.2%	0.1%
tree swallow	22	1	1	0.01	2.1	0.2%	0.1%
northern mockingbird	22	1	1	0.01	2.1	0.2%	0.1%
house wren	22	1	1	0.01	2.1	0.2%	0.1%
ash-throated flycatcher	22	1	1	0.01	2.1	0.2%	0.1%
Group Total		**618**	**212**	**3.22**	**95.8**		**86.9**
Raptors							
turkey vulture	2	70	4	0.36	4.2	86.4%	9.8%
Red-tailed hawk	13	7	7	0.04	14.6	8.6%	1.0%
American kestrel	19	2	2	0.01	4.2	2.5%	0.3%
unidentified falcon	22	1	1	0.01	2.1	1.2%	0.1%
Cooper's hawk	22	1	1	0.01	2.1	1.2%	0.1%
Group Total		**81**	**15**	**0.43**	**20.8**		**11.4%**
Pigeons/Doves							
rock pigeon	15	5	1	0.03	2.1	50.0%	0.7%
mourning dove	15	5	3	0.03	4.2	50.0%	0.7%
Group Total		**10**	**4**	**0.05**	**6.3**		**1.4**
Swifts/Hummingbirds							
unidentified hummingbird	19	2	1	0.01	2.1	100.0%	0.3%
Group Total		**2**	**1**	**0.01**	**2.1**		**0.3%**
Grand Total		**711**	**232**	**3.70**			

[1] A ranking of 1 indicates highest mean use.

Table 3. Avian Species Observed by Plot during Winter 2011-2012 APC Surveys at the MSEP

Species	Number of Birds	Number of Obs.	Plots											
			1	2	3	4	5a	6	7	8	9	10	11	12
house finch	337	57	0	0	0	0	1	7	4	7	2	23	113	180
turkey vulture	70	4	0	0	0	0	0	0	70	0	0	0	0	0
sage sparrow	63	27	6	1	5	1	0	18	10	6	4	0	8	4
yellow-rumped warbler	45	20	0	4	0	0	4	0	1	5	25	6	0	0
white-crowned sparrow	44	20	5	21	4	3	0	0	10	0	0	1	0	0
verdin	23	18	1	3	0	0	1	2	7	3	5	1	0	0
common raven	20	10	8	0	0	0	1	1	2	7	0	0	1	0
Say's phoebe	16	15	0	1	0	0	1	2	1	0	2	7	1	1
black-tailed gnatcatcher	15	10	0	3	1	0	0	0	5	0	6	0	0	0
rock wren	13	8	0	1	0	12	0	0	0	0	0	0	0	0
horned lark	11	6	0	2	6	0	0	1	0	0	0	1	1	0
black-throated sparrow	9	3	0	0	0	0	0	0	9	0	0	0	0	0
red-tailed hawk	7	7	0	0	1	1	0	0	1	1	0	2	0	1
loggerhead shrike	6	6	1	0	1	0	1	0	0	0	0	2	0	1
unidentified songbird	5	1	0	0	0	0	0	0	0	0	0	5	0	0
rock pigeon	5	1	0	0	0	0	0	0	0	5	0	0	0	0
mourning dove	5	3	0	0	0	0	0	0	0	0	0	5	0	0
blue-gray gnatcatcher	4	4	0	2	1	0	0	0	0	0	1	0	0	0
unidentified hummingbird	2	1	0	0	0	0	0	0	2	0	0	0	0	0
Bewick's wren	2	2	0	0	1	0	0	0	0	0	0	1	0	0
American kestrel	2	2	0	0	0	0	0	0	0	0	0	0	1	1
western kingbird	1	1	0	0	0	0	1	0	0	0	0	0	0	0
unidentified falcon	1	1	0	0	0	0	0	0	0	0	0	0	0	1
tree swallow	1	1	0	0	0	0	0	0	1	0	0	0	0	0
northern mockingbird	1	1	0	1	0	0	0	0	0	0	0	0	0	0
house wren	1	1	0	1	0	0	0	0	0	0	0	0	0	0
Cooper's hawk	1	1	0	0	0	0	0	0	0	0	0	1	0	0
ash-throated flycatcher	1	1	0	0	0	0	0	0	0	0	1	0	0	0
Grand Total	711	232	21	40	20	17	10	31	123	34	46	55	125	189

Table 4. Avian Species Comparison Spring 2011 and Winter 2011-20112 for Avian Surveys at the MSEP

Species	Spring 2011		Winter 2011-2012		Overall	
	# Birds	# Obs.	# Birds	# Obs.	# Birds	# Obs.
house finch	15	14	337	57	352	71
turkey vulture	23	16	70	4	93	20
tree swallow	75	18	1	1	76	19
horned lark	65	43	11	6	76	49
sage sparrow	0	0	63	27	63	27
northern rough-winged swallow	60	22	0	0	60	22
yellow-rumped warbler	8	7	45	20	53	27
cliff swallow	51	16	0	0	51	16
common raven	30	14	20	10	50	24
white-crowned sparrow	1	1	44	20	45	21
loggerhead shrike	37	23	6	6	43	29
verdin	7	6	23	18	30	24
red-tailed hawk	22	12	7	7	29	19
barn swallow	28	16	0	0	28	16
black-tailed gnatcatcher	12	11	15	10	27	21
black-throated sparrow	13	10	9	3	22	13
ash-throated flycatcher	20	20	1	1	21	21
Say's phoebe	1	1	16	15	17	16
mourning dove	10	5	5	3	15	8
Brewer's sparrow	14	6	0	0	14	6
rock wren	0	0	13	8	13	8
cactus wren	13	9	0	0	13	9
Gambel's quail	9	9	0	0	9	9
western kingbird	7	5	1	1	8	6
blue-gray gnatcatcher	4	3	4	4	8	7
Eurasian collared-dove	6	3	0	0	6	3
American kestrel	4	4	2	2	6	6
Wilson's warbler	5	2	0	0	5	2
unidentified songbird	0	0	5	1	5	1
rock pigeon	0	0	5	1	5	1
unidentified hummingbird	2	2	2	1	4	3
Swainson’s hawk	4	4	0	0	4	4
white-throated swift	3	2	0	0	3	2
lesser nighthawk	3	3	0	0	3	3
unidentified falcon	1	1	1	1	2	2
orange-crowned warbler	2	1	0	0	2	1
northern mockingbird	1	1	1	1	2	2
Bewick's wren	0	0	2	2	2	2
yellow warbler	1	1	0	0	1	1
white-winged dove	1	1	0	0	1	1
violet-green swallow	1	1	0	0	1	1
red-winged blackbird	1	1	0	0	1	1
prairie falcon	1	1	0	0	1	1
phainopepla	1	1	0	0	1	1
northern harrier	1	1	0	0	1	1
house wren	0	0	1	1	1	1
greater roadrunner	1	1	0	0	1	1
great-tailed grackle	1	1	0	0	1	1
dusky flycatcher	1	1	0	0	1	1
Costa’s hummingbird	1	1	0	0	1	1
Cooper's hawk	0	0	1	1	1	1
common poorwill	1	1	0	0	1	1
Brewer's blackbird	1	1	0	0	1	1
black-headed grosbeak	1	1	0	0	1	1
Grand Total	**570**	**324**	**711**	**232**	**1281**	**556**

Shading indicates identified species observed during winter surveys only.

4.3 Raptor Surveys

Four raptor species were observed during raptor point count surveys, including turkey vulture, red-tailed hawk (*Buteo jamaicensis*), prairie falcon, and American kestrel (*Falco sparverius*) (Tables 5 and 6), all of which were observed in Spring 2011 and can be considered year-round residents in the Project vicinity. Red-tailed hawks were the most common species detected during raptor point count surveys, followed by turkey vulture. Both of these species were the most commonly observed during Spring 2011 surveys also; neither have special-status. The highest number of raptor observations was at Plot 12, near the switchyard. This may be due to the proximity to two existing transmission lines and towers, which provide tall structures for perching and nesting, or to the higher number of prey, both the smaller passerine birds and the rodents and lizards associated with the multiple habitats at that plot.

Table 5. Raptor Species Observed during Winter 2011-2012 Raptor Surveys at the MSEP

Species Grouping	Overall Rank[1]	Number of Birds	Number of Observations	Mean Use (# birds per 30 min.)	Frequency (% of surveys detected by plot)	Percent Composition
Raptors						
red-tailed hawk	1	19	17	0.40	20.8	54.3
turkey vulture	2	11	3	0.23	4.2	31.4
American kestrel	3	4	4	0.08	6.3	11.4
prairie falcon	4	1	1	0.02	2.1	2.9
Grand Total		**35**	**25**	**0.73**		**100%**

[1] A ranking of 1 indicates highest mean use.

Table 6. Raptor Species Observed by Plot during Winter 2011-2012 Raptor Surveys at the MSEP

Species	Number of Birds	Number of Obs.	Plots											
			1	2	3	4	5a	6	7	8	9	10	11	12
red-tailed hawk	19	17	0	0	1	0	0	0	0	1	3	0	6	8
turkey vulture	11	3	0	0	0	0	0	9	0	2	0	0	0	0
American kestrel	4	4	0	0	0	0	0	0	0	0	0	0	1	3
Prairie falcon	1	1	0	0	0	0	0	0	0	0	0	1	0	0
Grand Total	**35**	**25**	**0**	**0**	**1**	**0**	**0**	**9**	**0**	**3**	**3**	**1**	**7**	**11**

4.4 Incidental Observations

Four species were observed incidentally (i.e., flying outside of the 200 meter survey radius during point counts or observed while in transit to or from the survey location). None of these species was unique to the incidental sightings or was special-status (Table 7).

Table 7. Incidental Detections of Birds during Winter 2011-2012 Avian Surveys at the MSEP

Species	APC Surveys	Raptor Surveys
common raven		X
loggerhead shrike	X	X
horned lark	X	
house finch	X	

5.0 LITERATURE CITED

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FIGURES

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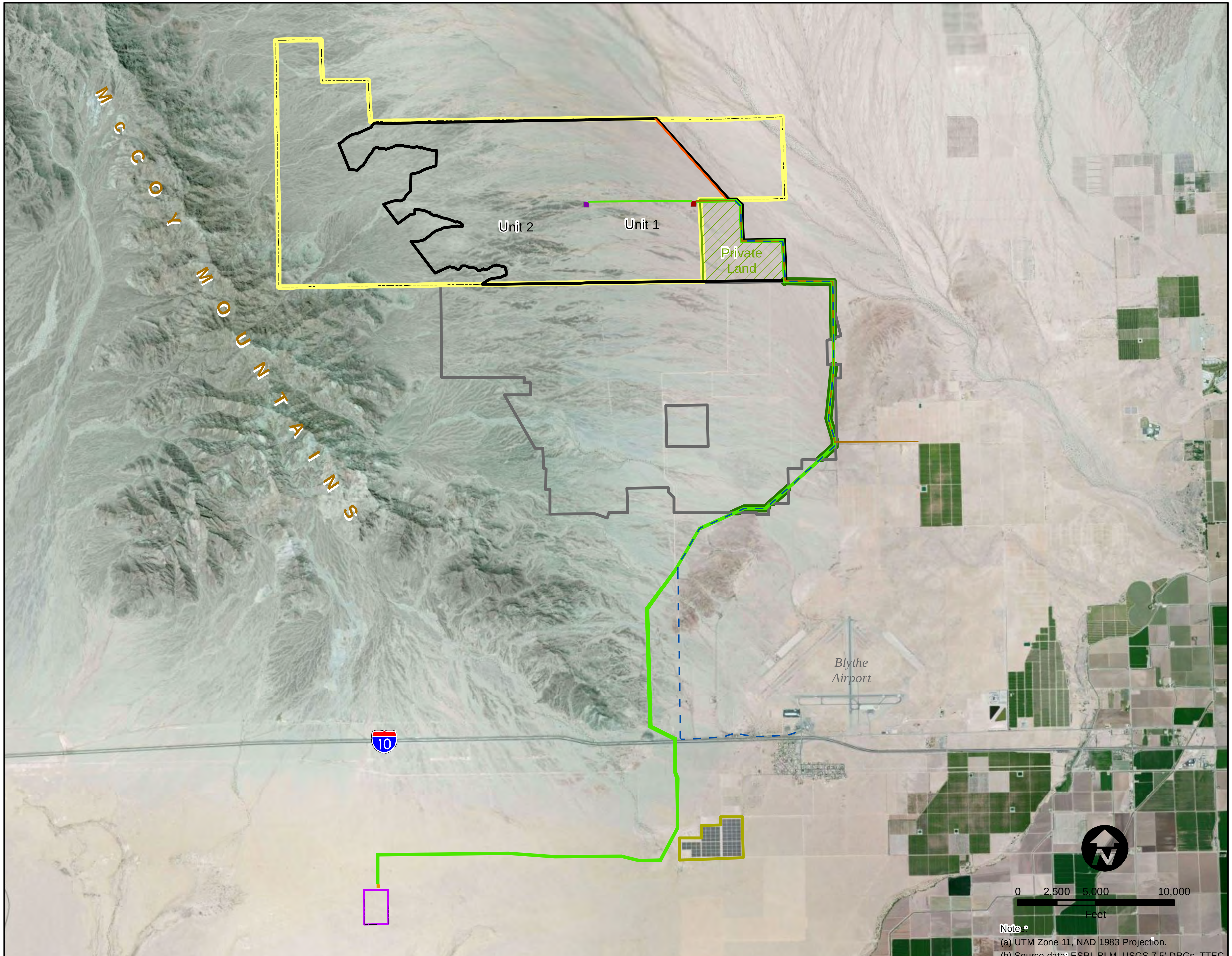
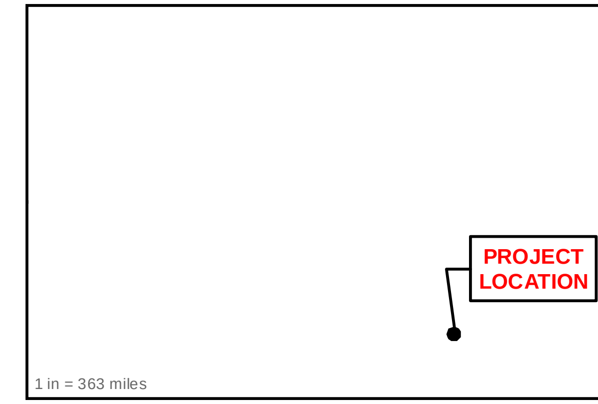


McCOY SOLAR ENERGY PROJECT RIVERSIDE COUNTY, CA



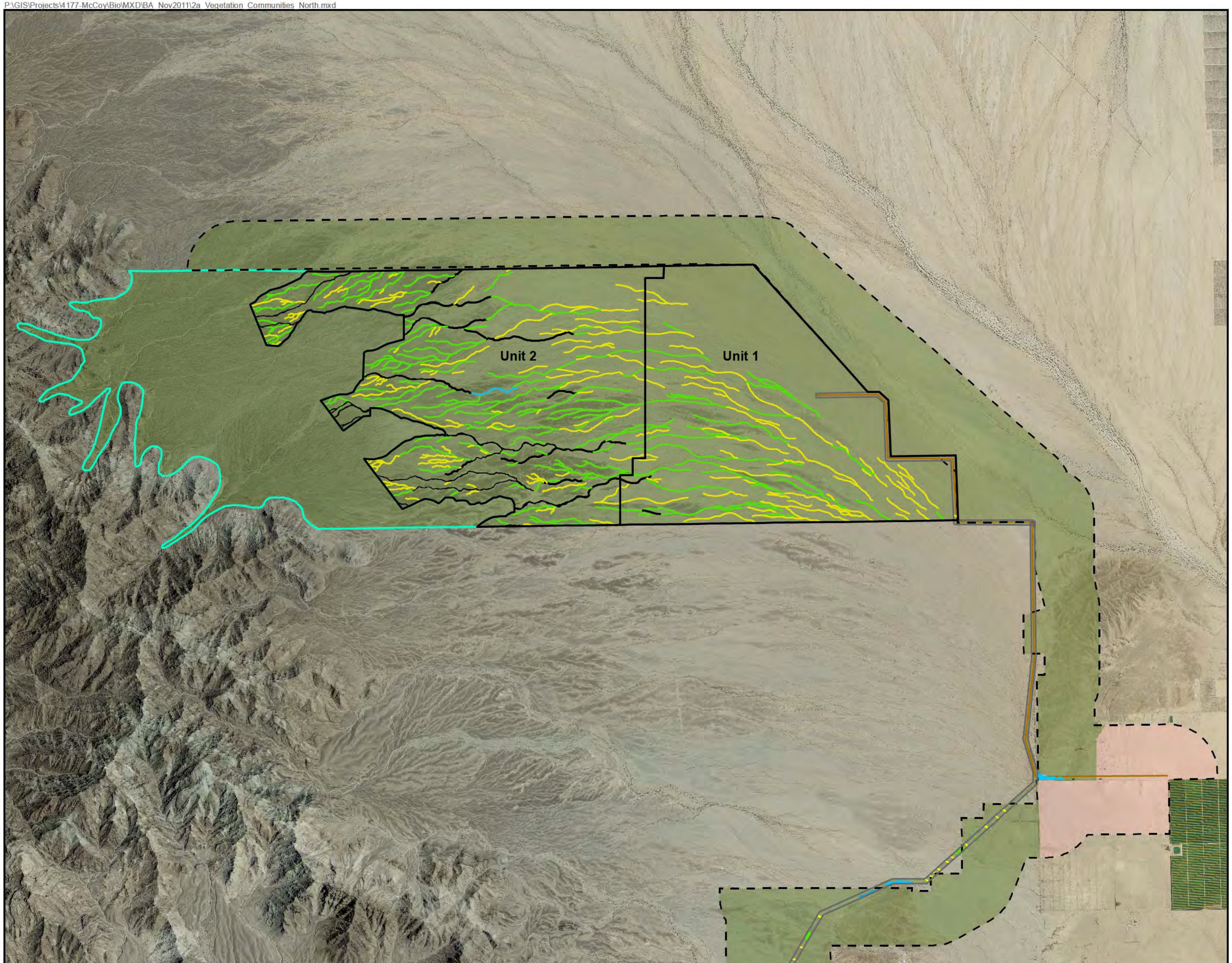
Legend

Project Features

- MSEP BLM ROW Grant Application Boundary (7,700 acres)
- MSEP Solar Plant Site Unit 1 - 2,194 acres
  - 1,717 acres BLM Land
  - 477 acres Private Land
- MSEP Solar Plant Site Unit 2 - 2,598 acres
  - 2,598 acres BLM Land
- Blythe Solar Power Project
- PV Solar Facility
- Linear Corridor
- 180 ft-wide Shared Corridor
- Distribution Line and Secondary Emergency Access
- MSEP Access Road Shared with Other Solar Projects
- Designated Linear Corridor for Potential Future Solar Projects to the North
- Switchyard
- SCE Colorado River Substation
- Unit 1 Substation
- Unit 2 Substation

FIGURE 1
OVERALL PROJECT LOCATION MAP

TETRA TECH EC, INC.



McCOY SOLAR ENERGY PROJECT
RIVERSIDE COUNTY, CA

Legend

- MSEP Solar Plant Site Boundary
- Linear Corridor
- Colorado River Substation (SCE)
- Switchyard
- Extent of Area Surveyed for Habitat
- Potential Primary Tortoise Recipient Area
- Distribution Line

Ephemeral "Riparian" Drainages

- Desert Dry Wash Woodland (Blue Palo Verde-Ironwood Woodland Alliance)
- Mesquite Bosque
- Vegetated Ephemeral Channels (Wash-dependent Vegetation with Sparsely Scattered Trees)
- Vegetated Ephemeral Channels (Vegetated with No Trees)
- Unvegetated (approximately less than or equal to 5% cover)

Upland Vegetation

- Sonoran Creosote Bush Scrub (Creosote Bush-White Burr Sage Scrub Alliance)
- Stabilized and Partially Stabilized Desert Dunes (Sand Sheets and Dunes: Creosote Bush-White Burr Sage-Galleta Grass)

Other Cover Types

- Agricultural (Crops, Ruderal Vegetation, or Bare Ground)
- Developed (No Vegetation)

Categories follow NECO and other BLM-requested terminology.

Data for the portions of the Linear Corridor that falls outside of the extent of the area surveyed were taken from AECOM 2010.

0 0.25 0.5 1
Miles

Notes:
(a) UTM Zone 11, NAD 1983 Projection.
(b) Source data: A. Karl, USDA.

FIGURE 2A
VEGETATION AND COVER TYPES

TETRA TECH EC, INC.

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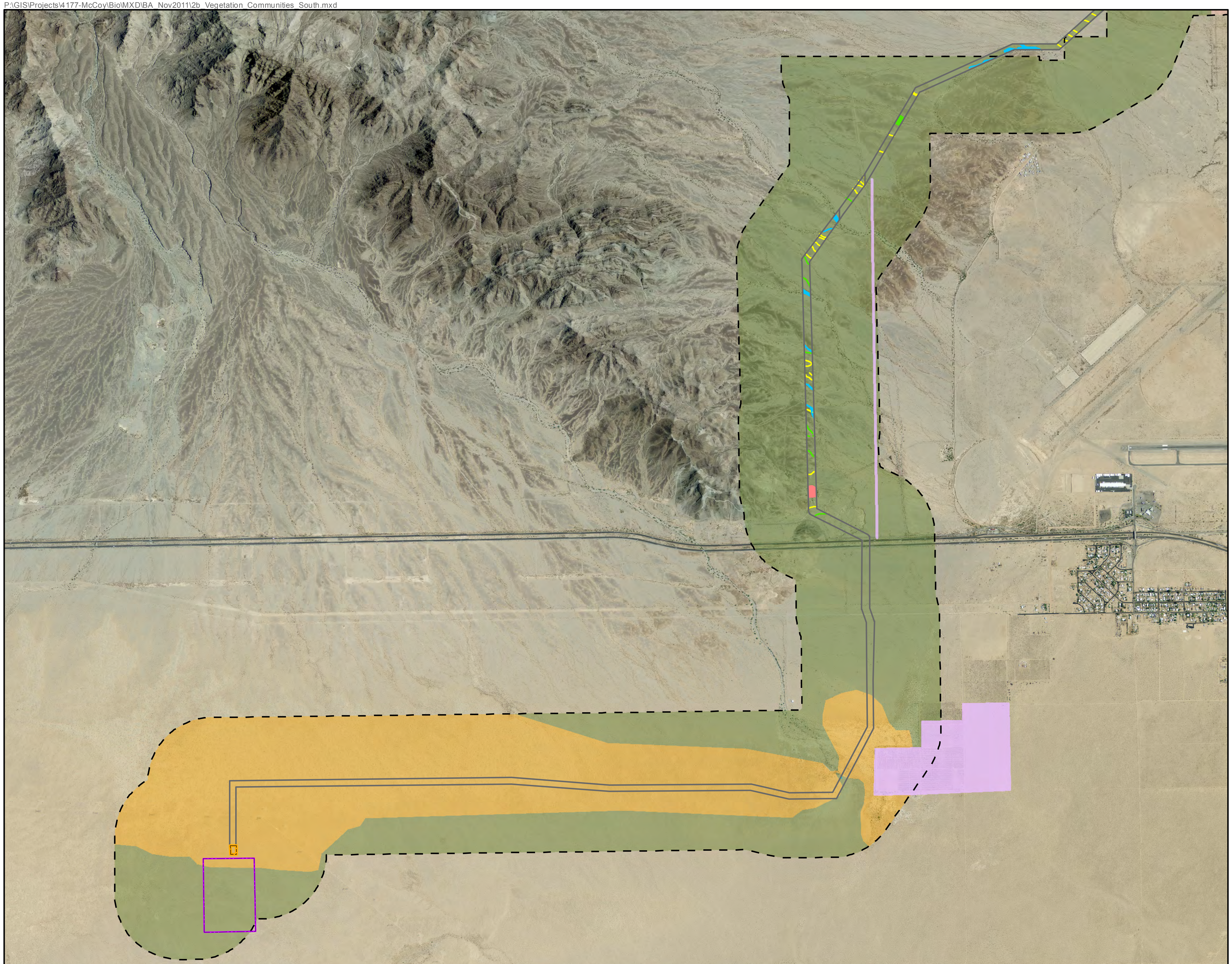

McCOY SOLAR
ENERGY PROJECT
RIVERSIDE COUNTY, CA

Legend

- MSEP Solar Plant Site Boundary
- Linear Corridor
- Colorado River Substation (SCE)
- Switchyard
- Extent of Area Surveyed for Habitat
- Potential Primary Tortoise Recipient Area
- Distribution Line

Ephemeral "Riparian" Drainages

- Desert Dry Wash Woodland (Blue Palo Verde-Ironwood Woodland Alliance)
- Mesquite Bosque
- Vegetated Ephemeral Channels (Wash-dependent Vegetation with Sparsely Scattered Trees)
- Vegetated Ephemeral Channels (Vegetated with No Trees)
- Unvegetated (approximately less than or equal to 5% cover)

Upland Vegetation

- Sonoran Creosote Bush Scrub (Creosote Bush-White Burr Sage Scrub Alliance)
- Stabilized and Partially Stabilized Desert Dunes (Sand Sheets and Dunes: Creosote Bush-White Burr Sage-Galleta Grass)

Other Cover Types

- Agricultural (Crops, Ruderal Vegetation, or Bare Ground)
- Developed (No Vegetation)

Categories follow NECO and other BLM-requested terminology.

Data for the portions of the Linear Corridor that falls outside of the extent of the area surveyed were taken from AECOM 2010.

N

0 0.25 0.5 1
Miles

Notes:
(a) UTM Zone 11, NAD 1983 Projection.
(b) Source data: A. Karl, USDA.

FIGURE 2B
VEGETATION AND COVER TYPES

TETRA TECH EC, INC.

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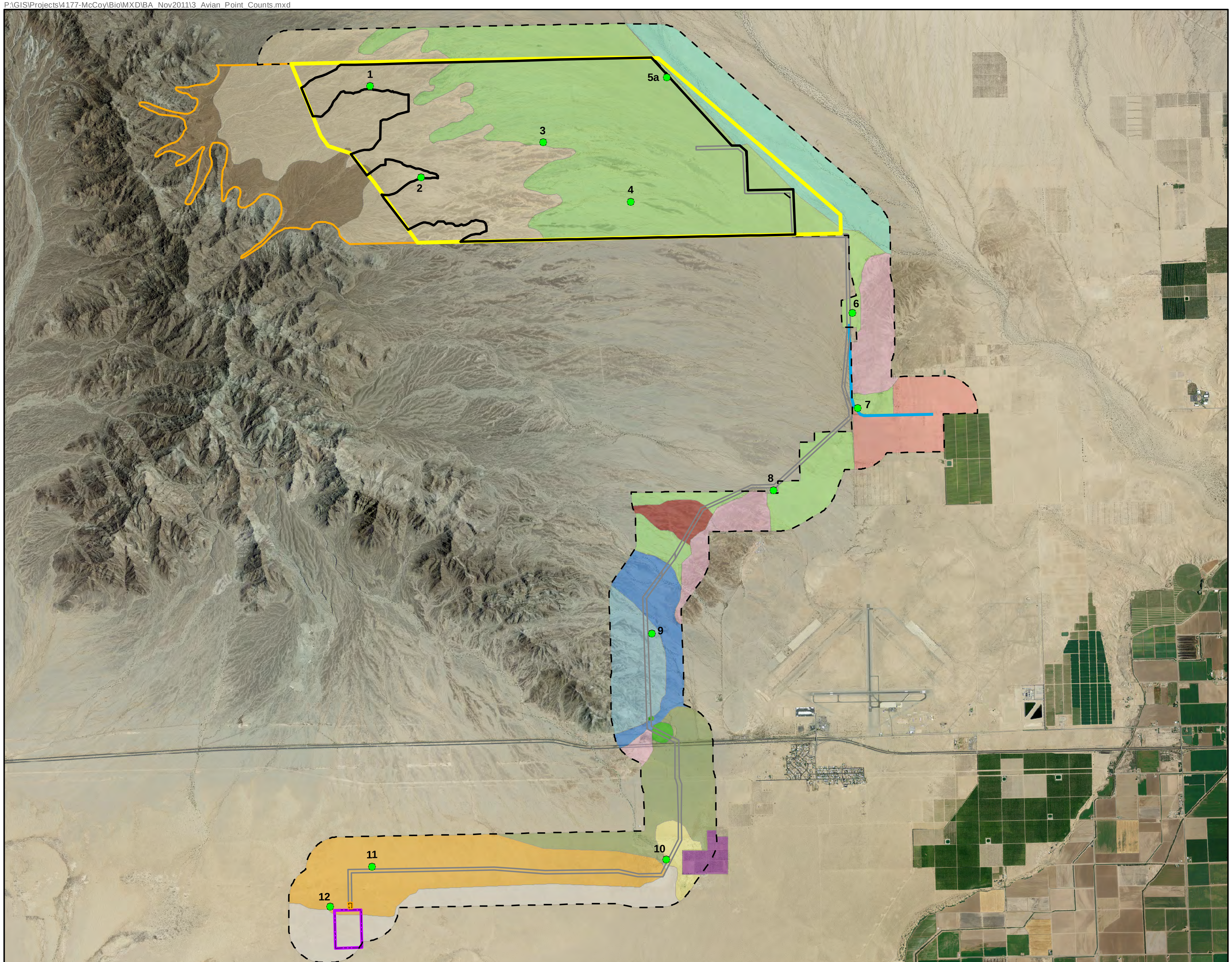


McCOY SOLAR
ENERGY PROJECT
RIVERSIDE COUNTY, CA

Legend

- Avian Point Count Plot
- MSEP Solar Plant Site Boundary
- Solar Plant Site Survey Area
- Proposed Linear Corridor
- Proposed Colorado River Substation (SCE)
- Switchyard
- Extent of Area Surveyed
- Primary Tortoise Recipient Area

Habitat

- Arboreal Wash
- Agriculture
- Borrow Pit and Depression
- Boulder Outflow
- Desert Pavement Plain; 3-10 m Incised Washes
- Intermittent Low Sand Dunes and Swales
- Lower Bajada; Few Drainages
- Lower Bajada; Shallow Runnels and Swales
- McCoy Mountains Toeslopes; Arboreal Washes
- McCoy Wash
- Mid-Bajada; Arboreal Washes
- PV Solar Facility
- Pebble Plain
- Sand Dunes
- Sandy Lower Bajada; Sheet Flow, Swales and Percolation
- Well-Developed Desert Pavement

0 0.5 1 2
Miles

Notes:
(a) UTM Zone 11, NAD 1983 Projection.
(b) Source data: A. Karl, ESRI, CNDDB, USDA.

FIGURE 3
WINTER 2011-2012 AVIAN POINT COUNT PLOTS

TETRA TECH EC, INC.

APPENDIX A

EXAMPLES OF SURVEY DATA SHEETS

PROJECT McCoy Solar Project Page 1/1

2012 BREEDING BIRD POINT COUNT

DATE 1/29/2012

TIME: Start 0628

End 0718

WEATHER:

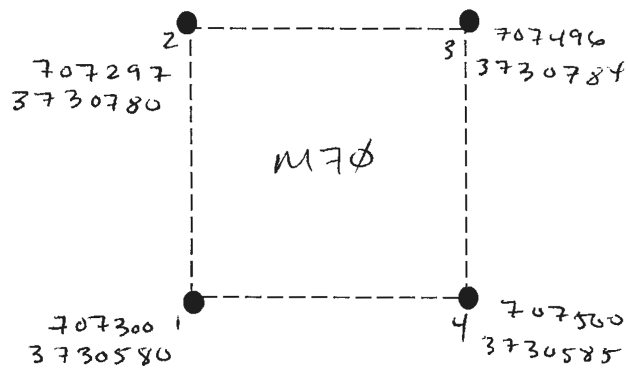
	Ta	Cloud Cover	Wind
Start	6.6°C	8%	0-1 W
End	5.6°C	1%	Ø mph

OBSERVER: NATHAN MUDRY

POINT LOCATION:CELL I.D. M7Ø

UTM (NAD 83) 707300 E 3730580 N

Draw Plot, with Points Labeled and UTMs at each Point:



GENERAL SITE DESCRIPTION:

VEGETATION SHRUB LAYER AND BUNCH GRASSES)

General Area:

Aspect Dominants

Common Species

% Cover

Specific Point Count Site:

Aspect Dominants

Common Species

% Cover

UNDERSTORY

Abundant Species

Exotics

See Original Data Sheets For Vegetation Descriptions

TOPOGRAPHY

General Description of Landforms and Drainages in the Area

Specific Description of Point Count Site

Elevation (state meters or feet)

HUMAN-RELATED DISTURBANCES (Onsite and Adjacent)

SITE PICTURE:

A - Form ☐

B – ☐

COMMENTS

1/29/12 McCoy Solar Project PAGE 2

M7Ø NATHAN MUDRY

TIME	Point	Species	#	Type of Detection	Behavior	Microhabitat
0628-0638	1	NO BIRDS				
0641-0651	2	SAGS	1	VIS	FORAGING ON GROUND	LATR HIRI
0653-0703	3	NO BIRDS				
0708-0718	4	ROWR	2	AUD	UNKNOWN	LATR

PROJECT McCoy Solar Energy Project

2012 RAPTOR OBSERVATION FORM

DATE 1/29/ 2012
TIME: Start 13:35
End 14:05
WEATHER:

OBSERVER: NATHAN MUDRY
POINT LOCATION:CELL I.D. M 70

UTM (NAD 83) 707300 E 3730580 N

	Ta	Cloud Cover	Wind
Start	22.2°c	15%	5-8mph N
End	22.8°c	30%	5-8mph N

Time	Species	#	Distance	Behavior
	NO BIRDS NO RAPTORS			