SAN DIEGO GAS & ELECTRIC COMPANY

TIE LINE 649
WOOD-TO-STEEL REPLACEMENT PROJECT
BURROWING OWL MONITORING AND MITIGATION PLAN

JUNE 2019

PREPARED BY:

INSIGNIA ENVIRONMENTAL

PREPARED FOR:

SDGE

A Sempra Energy utility℠

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1 – INTRODUCTION

This Burrowing Owl Monitoring and Mitigation Plan (Plan) describes the burrowing owl (*Athene cunicularia*) monitoring program that will be implemented by San Diego Gas & Electric Company (SDG&E) during construction of the Tie Line (TL) 649 Wood-to-Steel Replacement Project (Project). SDG&E will replace wood poles with steel poles along approximately seven miles of the existing 69 kilovolt (kV) single-circuit power line. The Project is located in the cities of San Diego and Chula Vista in California, as well as unincorporated San Diego County, as shown in Figure 1: Project Location Map. The Project extends east from Black Coral Way and Sea Lavender Way in the City of San Diego for approximately five miles, and then travels south for approximately two miles to just north of Otay Mesa Road in unincorporated San Diego County. Over this distance, the Project traverses private and public lands, including lands owned by the County of San Diego, the City of San Diego, the City of Chula Vista, the State of California, and SDG&E. Installation of steel poles will minimize damages to utilities in the event of a fire, thereby increasing system reliability, decreasing routine maintenance needs, and increasing the life span of both the poles and the entire power line.

Specifically, SDG&E will conduct the following activities as part of the Project:

- Remove approximately 132 existing wood power line and interset distribution line poles and replace them with approximately 117 galvanized steel structures. Of the 117 replacement structures, approximately 21 poles will require a pier foundation, approximately seven will require a micropile foundation, and the remaining 89 will be directly buried.

- Conduct overhead work on two existing power line poles and one existing distribution line pole.

- Convert approximately 430 feet of underground power line cable under State Route 125 to an overhead configuration.

- Transfer existing 69 kV power line conductors to the new steel poles.

- Transfer approximately 1.5 mile of existing distribution conductors and replace approximately 3.9 miles of distribution conductors with new aluminum conductor steel-reinforced distribution conductors.

SDG&E will utilize approximately 28 stringing sites, two temporary guard structures, and two staging areas during construction of the Project. Based on surveys conducted for the Project in 2014 and historical occurrences within the area, there is the potential for burrowing owl to occur throughout the Project area.

This Plan is prepared in accordance with Mitigation Measure (MM) BIO-17 as described in the Project's Final Initial Study/Mitigated Negative Declaration (MND) and Mitigation Monitoring, and Reporting Program (MMRP), as well as SDG&E's Subregional Natural Community Conservation Plan (NCCP) (SDG&E 1995). The Project is covered by the Subregional NCCP, which addresses impacts to sensitive plant and wildlife resources (including burrowing owl)

incurred during the development, maintenance, and repair of SDG&E facilities within the coverage area.

2 – OBJECTIVES

The objective of this Plan is to provide additional detail on how MM BIO-17 will be implemented during construction of the Project and to provide guidance on avoidance, minimization, and mitigation of potential impacts to burrowing owl if they are identified during the course of the Project. The monitoring and mitigation practices and activities in this Plan are intended to accomplish the following objectives:

- inform the California Department of Fish and Wildlife (CDFW) and California Public Utilities Commission (CPUC) on methods that will be used to avoid and minimize impacts to burrowing owl;
- establish pre-construction take avoidance survey protocols, as described in Appendix D of the CDFW Staff Report (CDFW 2012);
- provide active burrow avoidance guidelines and recommended setback distances;
- identify when construction monitoring, relocation, and/or exclusion activities will occur;
- determine when routine inspection of burrowing owl habitat areas suitable for occupancy will occur; and
- provide procedures for reporting and making recommendations to the appropriate agencies.

3 – MITIGATION REQUIREMENTS

The following MMs are included in the MMRP and pertain to the implementation of this Plan[1]:

"**MM BIO-16: Avoid and Minimize Impacts to Special-Status Raptors, Passerine Species, and other Birds Protected under the MBTA and California Fish and Game Code (Sections 3503, 3513, and 3800):** If ground- and vegetation-disturbing activities occur during the nesting bird season (generally between January 15 and August 31, but may be earlier or later depending on species, location, and weather conditions), a survey for nesting birds shall be conducted according to the following provisions:

- Nest surveys shall occur within five days prior to the start of ground-disturbing construction or vegetation trimming or removal activities. If there is no work in an area for seven days, it shall be considered a new work area if construction, vegetation trimming, or vegetation removal begins again.

[1] For the purposes of this Plan, excerpts from MM BIO-16 pertaining to general nesting birds and burrowing owl were included. The measure in its entirety is not presented in this Plan, but can be found in the Project MMRP.

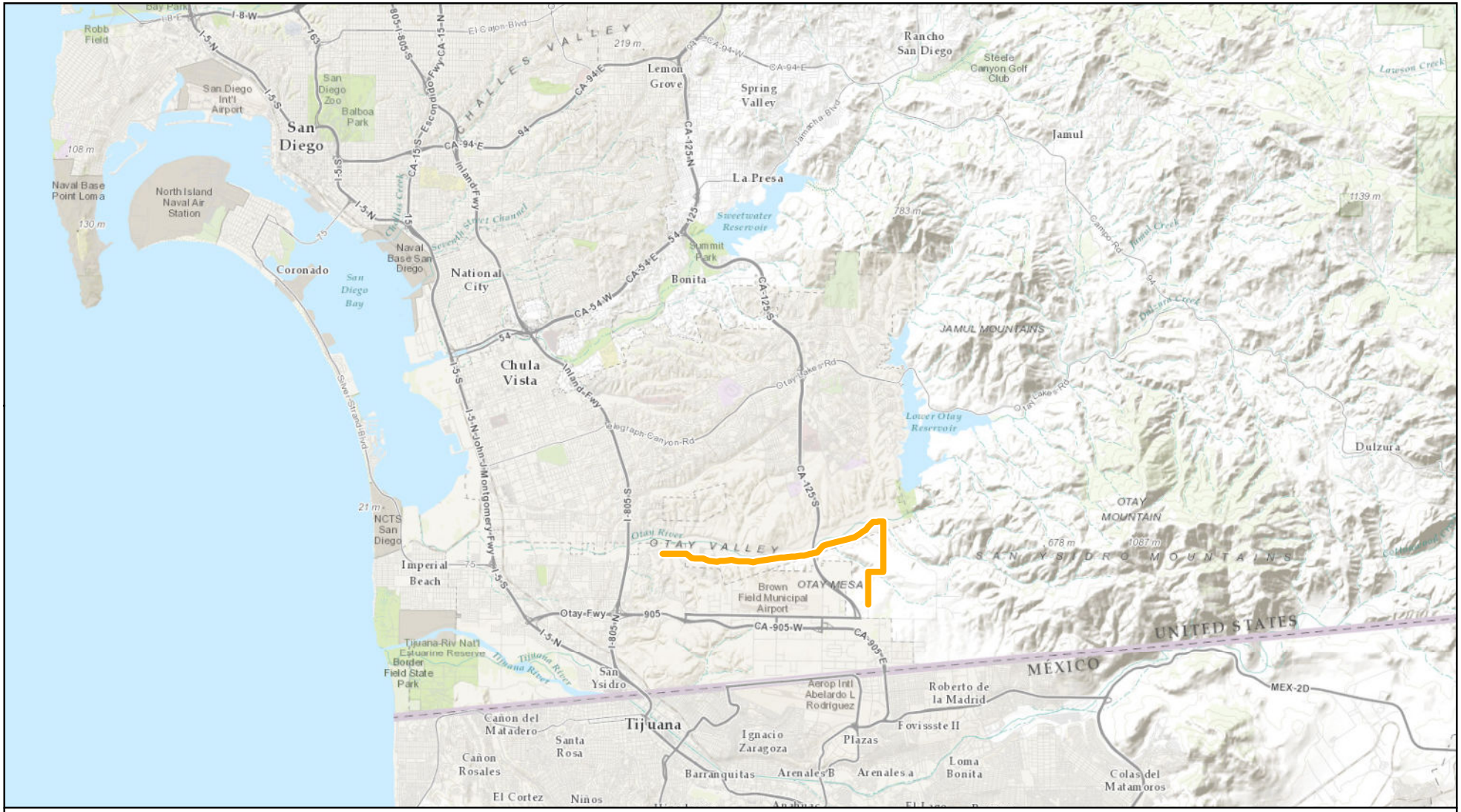

Figure 1: Project Location Map **Tie Line 649 Wood-to-Steel Replacement Project**

Project (TL 649)

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N

- Surveys shall be conducted with sufficient survey duration and intensity of effort necessary for the identification of active nests (a nest containing eggs or chicks). A nest is no longer an "active nest" if abandoned by the adult birds or once fledglings are no longer dependent on the nest.

- Surveys shall include nests of protected species within vegetation identified for removal and/or pruning, and within the following buffers of active work areas: 500 feet for raptors and listed passerine birds (including the CAGN and LBVI). Appropriate buffers for non-listed birds protected under the MBTA and Fish and Game Code will be established by the CPUC-approved biologist.

- Surveys shall be conducted during locally appropriate dates for nesting seasons determined in consultation with the USFWS and CDFW; note that generally the season is between January 15 and August 31 but may be earlier or later depending on species, location, and weather conditions. Species-specific nesting seasons for some species are identified below.

- The surveys shall be conducted by a CPUC-approved qualified biologist.

- Survey results shall be provided to CPUC.

- Work areas within which significant noise is not generated, such as work performed manually, by hand or on foot, and/or that would not cause significant disturbances to nesting birds (e.g., driving on access roads, and activities at staging and laydown areas) do not need to be surveyed prior to use. None of these activities shall result in physical contact with a nest.

Specific Requirements for Western Burrowing Owl

The 2014 and 2018 survey efforts indicated that BUOWs were not nesting in the survey area (see the Burrowing Owl Survey Report in Appendix I of the Biological Technical Survey Report, Chambers 2015). However, there is high-quality suitable habitat[2] for this species in the survey area, and this species may occur in future years. If this species were present in the survey area, direct and indirect impacts could occur. Implementation of MM BIO-17: Avoid or Minimize Impacts on Burrowing Owls would reduce impacts to a level that is less than significant with mitigation."

"MM BIO-17: Avoid or Minimize Impacts to Burrowing Owls: SDG&E shall prepare a BUOW Monitoring and Mitigation Plan consistent with the CDFW Staff Report on Burrowing

[2] Per Chambers Group Inc. (Chambers) "Results of the 2018 Burrowing Owl (*Athene cunicularia*) Focused Surveys for the Proposed Tie Line 649 Wood to Steel Pole Replacement Project, San Diego County, California", suitable burrowing owl habitat consists of "dry, open, native or non-native grasslands, deserts, and other arid environments with low-growing and low-density vegetation (Ehrlich 1988). It may occupy golf courses, cemeteries, road rights-of way (ROWs), airstrips, abandoned buildings, irrigation ditches, and vacant lots with holes or cracks suitable for use as burrows (TLMA 2006)." In addition, the report states that suitable burrowing owl habitat also consists of "man-made structures such as openings beneath cement or asphalt pavement, pipes, culverts, and nest boxes (TLMA 2006)."

Owl Mitigation (CDFW 2012). SDG&E shall submit the BOMMP to CDFW and CPUC. SDG&E shall be required to obtain approval from CDFW on the BOMMP prior to construction. SDG&E shall provide the approved BOMMP to the CPUC 30 days prior to construction.

> In accordance with the CDFW Staff Report on Burrowing Owl Mitigation (CDFW 2012) and the BOMMP, SDG&E shall conduct take avoidance pre-construction surveys for the BUOW within 30 days prior to initiating ground disturbance activities. In addition to preconstruction surveys, SDG&E will conduct periodic BUOW surveys in January and February in areas with suitable burrowing owl habitat. If BUOWs are detected, SDG&E shall implement the CDFW-approved BOMMP in coordination with CDFW. The BOMMP shall state that disturbance to active burrows shall be avoided during the nesting season (February 1 through August 31). Buffers shall be established around occupied burrows in accordance with guidance provided in the CDFW Staff Report on Burrowing Owl Mitigation (CDFW 2012) and the BOMMP[3].
>
> If work in these habitats is delayed or suspended for more than 30 days after the take avoidance pre-construction surveys, the site shall be resurveyed."

4 – EXISTING CONDITIONS

4.1 KNOWN OCCURRENCES

According to the California Natural Diversity Database (CNDDB), 18 occurrences of burrowing owl have been recorded within five miles of the Project, as shown in Figure 2: Burrowing Owl CNDDB Results. Several recent burrowing owl breeding records exist approximately 0.8 mile south of the Project within similar habitat in the Otay Mesa area near Brown Field Municipal Airport. The burrowing owl population at Brown Field Municipal Airport is considered one of the last large populations of burrowing owls in San Diego County and may support between five and 10 breeding pairs (Unitt 2004). Adult and juvenile burrowing owls from these territories may form breeding territories in future nesting seasons in similar locations within the Project area. Additionally, records of individual burrowing owls occur within 0.1 mile of the Project (eBird 2018).

4.2 SURVEY RESULTS FROM 2014 THROUGH 2019

In accordance with the 2012 CDFW Staff Report, breeding season and wintering season burrowing owl surveys were conducted by Chambers in 2014 and 2018 for the Project. An initial habitat assessment of the Project was conducted in April 2014 and again in 2018, including a 150-meter Project buffer.

4.2.0 Survey Results from 2014

Following the habitat assessment in 2014, biologists conducted three focused surveys for burrowing owl throughout the Project ROW and adjacent 150-meter buffer area

[3] Buffer distances in accordance with the CDFW Staff Report are discussed in Section 5.2 of this Plan.

Figure 2: Burrowing Owl CNDDB Results

Tie Line 649 Wood-to-Steel Replacement Project

- TL649 Line
- 5 Mile Project Buffer
- Burrowing Owl Location

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within suitable habitat identified during the habitat assessment. A total of five survey areas were mapped and surveyed as suitable burrowing owl habitat. Area 1 was located within the Amphitheater East Staging Yard between Pole Z81124 and Pole Z81114 and was approximately 32.72 acres in size. A total of 15 inactive burrows were found in spoil mounds along the northern and southern edges of Area 1; the majority of these burrows were occupied by ground squirrels (*Otospermophilus beecheyi*). No sign of current burrowing owl use was observed in Area 1. Area 2 was located between Pole Z81081 and Pole Z81078 and was approximately 3.87 acres in size. A total of four inactive burrows were found in a large spoil mound along the northern edge of Area 2. Area 3 was located between Pole Z31745 and Pole Z31759 and was approximately 115 acres in size. A total of seven inactive burrows suitable in size for burrowing owl were found in Area 3; the majority of these were clustered in small spoil mounds. One potentially active burrowing owl burrow was found adjacent to Pole Z31750. On April 30, during the first round of surveys, several very fresh scat were observed near this burrow. The scat mainly consisted of beetle exoskeleton, suggesting burrowing owl. No additional signs of burrowing owl use or occupancy were observed on subsequent rounds. Area 4 was located directly south of the Project access road entrance off Otay Mesa Road and was approximately 2.5 acres in size. No burrows were found in Area 4. Area 5 was located directly east of the proposed Otay Staging Yard and was approximately 6.4 acres in size. A total of 17 inactive burrows were found in Area 5; the majority of these burrows were occupied by ground squirrels.

In total, 44 inactive burrows were observed during the focused survey effort, as shown in Figure 2 of Attachment A: TL 649 Burrowing Owl Survey Report. No active burrows were observed nor were any burrowing owl individuals observed during the 2014 surveys. Given the results of the 2014 protocol surveys, it is assumed that burrowing owls did not use the survey area during the 2014 nesting season; however, burrowing owl has a high potential to occur within the survey area. The results of the 2014 habitat assessment and burrowing owl surveys are detailed in Attachment A: TL 649 Burrowing Owl Survey Report, which was included as an appendix of the Biological Technical Report for the Project (Chambers 2015).

4.2.1 Survey Results from 2018

The 2018 habitat assessment mapped six polygons of suitable burrowing owl habitat totaling approximately 163 acres; these areas were surveyed for burrowing owl, as shown in Attachment B: Results of the 2018 Burrowing Owl Focused Surveys for TL 649 (Chambers 2018). The survey area consisted of potential burrowing owl burrows, areas with evidence of burrowing activity, and isolated and sparse suitable habitat within debris piles. Area 1 was located within the Main Street Staging Yard and was comprised of bare ground with debris piles that could provide burrowing habitat for burrowing owl. Areas 2 through 4, mapped between Heritage Road and the Highway 125 bridge, consisted of bare ground, grassland, and sparse vegetation communities. Area 5 was located on the east side of Harvest Road and was dominated by grasslands. Area 6 was located north and east of the Otay Staging Yard. No burrowing owl, fresh burrowing owl sign, or active burrowing owl burrows were observed within the survey area during the 2018 breeding season burrowing owl surveys. Several burrows large enough to support burrowing owl were documented and checked during each survey for burrowing owl sign, but none was found; these burrows are labeled as “Potential Burrowing Owl Burrow: Inactive” in Attachment B: Results of the 2018 Burrowing Owl Focused Surveys for TL 649.

4.2.2 Survey Results from 2019

During wintering surveys conducted in January and February of 2019, Insignia Environmental (Insignia) biologists surveyed the original six polygons of suitable burrowing owl habitat and identified additional suitable habitat near the Project area as shown in Attachment D: 2019 Wintering Burrowing Owl Survey Report. Insignia biologists identified three burrowing owls within or near the survey area.

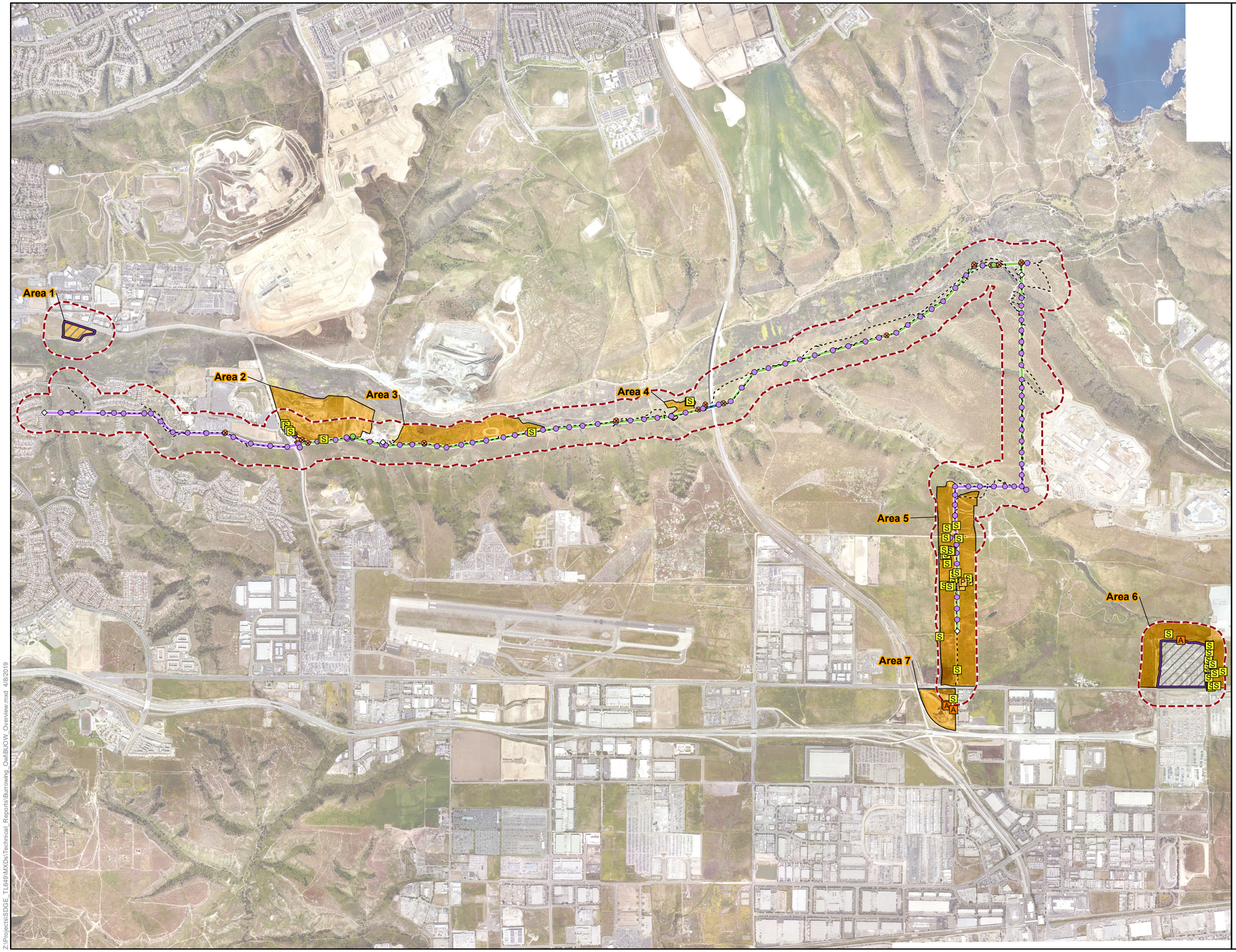
On January 30, one adult was observed within an active burrow within Area 7, which is southwest of Area 5. The individual was initially not detected and flushed westward when the burrow was inadvertently approached. The individual returned to a satellite burrow located approximately 40 feet southeast of the original burrow. As the biologists were returning to their vehicle, the individual flushed a final time to a culvert approximately 324 feet southwest of the burrows. Both active burrows were located approximately 470 feet southwest of the intersection of Otay Mesa Road and Harvest Road. Harvest Road is a Project access road. On February 11, an adult was observed displaying defensive behaviors at the entrance of the main burrow. On February 26, an adult was again seen displaying defensive behaviors at the entrance to the southern burrow. The adult had also begun collecting burrow decorations at the mouth of the southern burrow.

On January 30, Insignia biologists identified a second adult burrowing owl within a burrow approximately 561 feet south of the intersection of Otay Mesa Road and Harvest Road within Area 7. The individual was within the mouth of the burrow and did not display defensive or territorial behavior. A suitable, satellite/surrogate burrow was also observed approximately 280 feet north of the occupied burrow and approximately 350 feet south of the nearest Project feature, Harvest Road. The closest Project work area, Pole Z31759, is approximately 1,770 feet north of the occupied burrow. Neither burrow had white-wash, cast owl pellets, burrow decorations, or other sign on or near it. The individual was not observed on subsequent survey dates, nor was sign observed on or near either burrow.

On February 26, Insignia biologists observed a pair of adult breeding burrowing owls in suitable habitat on the northern edge of the Otay Mesa Yard. The burrow was approximately 33 feet north of the edge of the yard and was previously identified as suitable but unoccupied on February 12. The burrow consisted of a portion of exposed, purple polyvinyl chloride irrigation pipe and surrounding ground squirrel excavation. The mouth of the burrow was concealed by large tree tobacco (*Nicotiana glauca*) shrubs. Both the male and female owls flushed from the burrow when it was inadvertently approached; they eventually returned to the burrow. The male perched on a tree tobacco branch overhanging the mouth of the burrow, while the female retreated within the burrow. On February 13, Insignia biologists observed the male perched on the same branch while the female was not observed. Several cast pellets were observed near the mouth of the burrow. Figure 3: Suitable Burrowing Owl Habitat Overview Map shows the suitable habitat areas mapped in 2014, 2018, and 2019, as well as the observations of active burrowing owl sign.

Figure 3: Suitable Burrowing Owl Habitat Overview Map

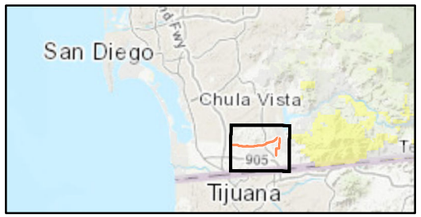
SDG&E Tie Line 649
Wood-to-Steel Replacement Project



- New Stub Pole
- New Steel Pole
- Wood-to-Steel Replacement Pole
- Overhead Work Only
- Pole Removal
- Wood-to-Steel Replacement
- Wood-to-Steel Replacement with Distribution Underbuild
- Wood-to-Steel Replacement Distribution Only
- Distribution Removal
- Underground to Overhead Conversion with Distribution Underbuild
- Existing Access Road
- Overland Travel Route
- Staging Yard

Burrowing Owl Survey Results

- A Active Burrow
- P Potential Burrow
- S Suitable Burrow
- Burrowing Owl Suitable Habitat
- Survey Area



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Creator: Brett Rocheleau
Date:4/8/2019
Requestor: Eden Nguyen
Source: Insignia, 2019, SDG&E 2019

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5 – PLAN IMPLEMENTATION

5.0 EMPLOYEE BIOLOGICAL TRAINING

MM BIO-3 in the MND and MMRP for the Project requires that all SDG&E personnel working within Project areas participate in an employee training program. SDG&E has developed a Worker Environmental Awareness Program (WEAP) that describes special-status plant and wildlife species, including burrowing owl; habitats that could occur within the Project work areas; protection afforded to these species and their habitats; and avoidance and minimization measures required to avoid and/or minimize impacts from the Project. All Project personnel working on the ROW will be required to attend the WEAP.

5.1 PRE-CONSTRUCTION SURVEY REQUIREMENTS

A take avoidance pre-construction survey of burrowing owl suitable habitat will be conducted within 30 days prior to the initiation of ground-disturbing construction activities[4]. Surveys will be conducted by walking straight-line transects spaced 23 to 66 feet apart, adjusting for vegetation height and density (Rosenberg et al. 2007). At the start of each transect (and, at least, every 328 feet), the entire visible Project area will be scanned for burrowing owls using binoculars. During walking surveys, all burrows potentially used by burrowing owls (as determined by the presence of burrowing owls, pellets, prey remains, whitewash, or decoration) will be recorded. Some burrowing owls may be detected by their calls, so observers will also listen for burrowing owls while conducting the survey. Time lapses between Project activities trigger subsequent take avoidance surveys, including a final survey conducted within 24 hours prior to ground disturbance. In addition to take avoidance pre-construction surveys and in compliance with MM BIO-17, SDG&E conducted burrowing owl surveys twice during January and February 2019 in areas with suitable burrowing owl habitat prior to and during construction. As per MM BIO-16, a pre-construction nest survey for all birds (including burrowing owls) will be performed within five days prior to the start of ground-disturbing construction, vegetation-trimming activities, or vegetation-removal activities.

In suitable burrowing owl habitat where no burrowing owls are found during pre-construction surveys or observed during construction, no further mitigation or avoidance is required. If work in these habitats is delayed or suspended for more than 30 days after the take avoidance pre-construction surveys, the site will be resurveyed. If burrowing owl is present during Project activities, then avoidance and minimization, monitoring, passive relocation and exclusion, reporting, and mitigation will be implemented, as described in Section 5.2 Avoidance, Minimization, and Monitoring and Section 5.3 Burrowing Owl Relocation and Exclusion.

[4] Suitable habitat for burrowing owl was identified in Attachment C: CDFW Staff Report on Burrowing Owl Mitigation.

5.2 AVOIDANCE, MINIMIZATION, AND MONITORING

If burrowing owls or active burrowing owl burrows are detected, the following avoidance, minimization, and monitoring measures will be implemented to protect burrowing owls during construction of the Project and in accordance with the 2012 CDFW Staff Report:

- Avoid disturbing occupied burrows during the nesting season (i.e., February 1 through August 31).

- Place visible markers near burrows to ensure that construction equipment does not collapse burrows. Markers will be placed in front of the burrow and set back away from the entrance to the burrow. Any significant staking behind the burrow entrance(s) may inadvertently provide perch points for raptors or other predators to pick off owls or chicks emerging from marked burrows, therefore only pin flagging or short stakes less than approximately 24 inches in height placed in front of the burrow entrances will be utilized.

- If burrowing owls and occupied habitat are observed within 500 feet of the Project site, site-specific monitoring to determine the development of buffers will occur. In addition, the use of visual screens or other measures may be implemented if needed to minimize disturbance impacts. Certified weed-free straw bales will be utilized when feasible, for auditory and visual barriers during low and medium levels of disturbance in place of larger and potentially more impactful visual/auditory screens. If certified weed-free straw bales are not available, a similar barrier that provides this function will be used.

- If an active burrow is observed during the nesting season within 500 feet of construction-related work activities and a qualified biologist determines that the nest may be impacted by construction-related work, a qualified biologist will conduct nest monitoring and/or provide recommendations for adaptive mitigation (e.g., installing hay bales around noise epicenters in order to reduce impacts to nesting burrowing owl) in discussion and collaboration with the CDFW and the CPUC. The qualified biologist has the authority to stop work at any time if a burrowing owl is observed within the work area or has the potential to be harmed by Project activity. The CDFW will be notified and coordinated with if and when any owls are located within the Project area during the Project duration.

- Nest buffers will be established around active burrows according the 2012 CDFW Staff Report and Table 1: Approximate Nest Buffer Distance. Level of disturbance examples were interpreted from Petroleum Industry Activity Guidelines for Wildlife Species at Risk in the Prairie and Northern Region (Environment Canada 2009). The nest buffer refers to the distance from the active nest within which construction is managed in order to avoid impacts to the nest. The buffers will be determined based on the level of construction activity and disturbance. Several environmental factors will be taken into account when determining the level of disturbance and appropriate buffer, including obstructions to noise and visual screening by terrain or other obstacles, the tolerance of the individual owl(s), the distance of construction activity from the active burrow, and whether the individuals are nesting or wintering. In addition, due to the fact that burrowing owls may not outwardly express signs of distress and may be more tolerant of certain activities than others, the size of the buffers shall be as conservative as possible.

Coordination with the CDFW will occur prior to any active burrow buffer reductions will be implemented by the biological monitor.

- Spoil piles, stockpiled poles, and equipment will be properly covered and equipped with deterrents if determined necessary by the on-site biologist to prevent burrowing owls from inhabiting these features during construction.

Table 1: Approximate Nest Buffer Distance

Location	Time of Year	Level of Disturbance		
		Low	Medium	High
Nesting sites	April 1 to August 15	650 feet	1,640 feet	1,640 feet
Nesting sites	August 16 to October 15	650 feet	650 feet	1,640 feet
Nesting sites	October 16 to March 31	165 feet	650 feet	1,640 feet

Table 2: Example Activities Associated with Levels of Disturbance

Level	Activities
Low	Surveying, vehicular ingress and egress, use of hand tools
Medium	Construction lasting 15 minutes to two hours occurring at less than 49 decibels, restoration work
High	Construction lasting more than two hours occurring at 49 decibels or higher, use of helicopters, pole replacement/installation, trenching, grading, vegetation trimming/removal, ground disturbance

- Monitoring will be conducted to ensure that the appropriate nest buffers, as determined by the qualified biologist and in coordination with the CDFW, are adhered to and that they are adequate to prevent take of burrowing owl. When construction occurs adjacent to a nest buffer, a qualified biologist will be present during construction activities to monitor the behavior of the nesting burrowing owl until the nest buffer is confirmed to be adequate. If the biologist observes signs of disturbance (e.g., changes in burrowing owl behavior as a result of construction) or other indications of distress, the work activity will be immediately stopped and coordination with wildlife agencies regarding the next appropriate actions will occur prior to the resumption of work. If the construction activity adjacent to the buffer increases in intensity, an additional three-day monitoring period will be implemented to ensure the buffer is adequate under the new circumstances. It may be appropriate to reevaluate and potentially reduce the buffer if construction disturbance levels diminish substantially, there is evidence that the young have fledged and the pair are not re-nesting, or the breeding season is over. However, before a buffer reduction is implemented, the biologist will ensure there is a substantial need to reduce the buffer. If there is no substantial need to reduce the buffer, the original size of the buffer will remain in effect. If a buffer reduction is implemented, daily monitoring will be conducted during construction by a qualified biologist until the qualified biologist has determined that the young have fledged or until one week after construction ends within the reduced buffer/work area (whichever occurs first).

- If an active burrowing owl burrow is detected during the non-breeding season (i.e., September 1 to January 31), a buffer will be erected for avoidance according to the buffer distances recommended in the 2012 CDFW Staff Report based upon the level of disturbance.

- Work crews will follow the operational protocols stated in the SDG&E Subregional NCCP to avoid, minimize, or mitigate impacts to this species as a result of Project-related activities.

5.3 BURROWING OWL RELOCATION AND EXCLUSION

If burrowing owl occupancy within the Project ROW is confirmed and relocation is necessary, the CDFW will be notified. A request to CDFW for relocation will only occur if all other avoidance measures have been determined to be infeasible. The following procedures for relocation and exclusion may be modified, based on site-specific conditions, through consultation with the CDFW:

- If an active burrowing owl burrow is observed within the Project ROW and/or could be impacted by Project activities, passive relocation and possibly burrow excavation may occur during the non-breeding season (i.e., September 1 to January 31) with approval from the CDFW. The passive relocation and burrow excavation methods will be in accordance with the 2012 CDFW Staff Report, under the supervision of a qualified biologist, and in collaboration with the CDFW.

- The need for artificial burrow construction and burrowing owl exclusion methods will be assessed as outlined in the 2012 CDFW Staff Report. If artificial burrow construction or

exclusion methods are required, the CDFW will be notified and Project personnel will adhere to guidelines from the 2012 CDFW Staff Report.

5.4 REPORTING

Results of the take avoidance pre-construction surveys of burrowing owl suitable habitat will be reported to the CPUC and CDFW once construction has commenced, as outlined in the 2012 CDFW Staff Report. If nesting burrowing owls are identified within the Project ROW, burrow locations and nest buffer distances will be provided to the CPUC and CDFW. In accordance with MM BIO-16, each nest identified in the Project area will be included in a Nest Monitoring Log (NML). The NMLs will be updated daily and submitted to the CPUC on a weekly basis. The NMLs will provide a summary of each nest identified, the status of the nest, buffer information, and fledge or failure data. The NMLs allow for tracking the success and failure of the buffers and will provide data on the adequacy of the buffers for burrowing owl. Additionally, following burrowing owl exclusion or passive relocation, a report with pertinent information will be submitted to the CDFW and CPUC, as outlined in the 2012 CDFW Staff Report.

5.5 MITIGATION

Implementation of MMRP MM BIO-17 will avoid occupied burrows and their surrounding foraging areas to the extent feasible, establish nest buffers, and avoid nest abandonment as a result of construction activities. As a result, direct impacts to burrowing owl are not anticipated and no mitigation beyond what is described in this Plan is proposed. Impacts to suitable habitat will be mitigated through SDG&E's Subregional NCCP as required.

6 – REFERENCES

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ATTACHMENT A: TL 649 BURROWING OWL SURVEY REPORT

2014
TIE-LINE 649 WOOD TO STEEL POLE REPLACEMENT PROJECT
BURROWING OWL
SURVEY REPORT

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February 2015

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SECTION 1.0 – INTRODUCTION

The purpose of this report is to document the results of the protocol western burrowing owl (*Athene cunicularia hypogea*; BUOW) surveys conducted by Chambers Group, Inc. (Chambers Group) during the 2014 bird breeding season and the 2015 non-breeding season (winter) for the San Diego Gas & Electric (SDG&E) Tie-Line (TL) 649 Wood to Steel Pole Replacement Project (Project).

1.1 PROJECT DESCRIPTION

SDG&E proposes the Tie Line (TL) 649 Wood-to-Steel Pole Replacement Project (Proposed Project or Project) in an effort to fire-harden existing facilities in SDG&E's service territory. SDG&E proposes to replace wood poles with steel poles along approximately seven miles of the existing 69-kilovolt (kV) single-circuit power line. This segment of the Proposed Project is located in the cities of San Diego and Chula Vista, California (State), as well as unincorporated San Diego County (County). The Proposed Project extends east from Black Coral Way and Sea Lavender Way in the City of San Diego for approximately five miles; then travels south for approximately two miles to just north of Otay Mesa Road in unincorporated San Diego County. Over this distance, the Project traverses private and public lands, including lands owned by the County of San Diego, the City of San Diego, the City of Chula Vista, the State of California, and SDG&E. Installation of steel poles will minimize damages to utilities in the event of a fire, thereby increasing system reliability, decreasing routine maintenance needs, and increasing the life span of both the poles and the entire power line.

Specifically, SDG&E proposes to conduct the following activities as part of the Proposed Project:

- Remove approximately 132 existing wood power line and interset distribution line poles and replace them with approximately 117 galvanized steel structures. Of the 117 replacement structures, approximately 21 poles will require a pier foundation, approximately seven will require a micropile foundation, and the remaining 89 will be directly buried;
- Conduct overhead work on approximately two existing power line poles and approximately one existing distribution line pole;
- Convert approximately 430 feet of underground power line cable under State Route (SR) 125 to an overhead configuration;
- Transfer existing 69 kV power line conductors to the new steel poles;
- Transfer approximately 1.5 miles of existing distribution conductors and replace approximately 3.9 miles of distribution conductors with new aluminum conductor steel-reinforced distribution conductors.

SDG&E will utilize approximately 28 stringing sites, two temporary guard structures, and two staging areas during construction of the Proposed Project. The Proposed Project is consistent with SDG&E's efforts to improve reliability in fire-prone areas through fire-hardening projects and other enhancements. SDG&E prioritizes the maintenance of poles in each power line according to the existing vegetation and fuel conditions, the history of high-speed winds in the area, and the age and condition of the existing facilities as part of an overall strategy to strengthen power lines for improved system reliability. SDG&E periodically reviews and updates the prioritization of these poles for replacement based on changes in field conditions, such as increases in the density of vegetation (fire fuel)

surrounding existing poles. The Proposed Project incorporates updated design standards to reduce fire risks and will implement a Project-specific fire plan to minimize fire risks during construction.

1.2 BURROWING OWL

The BUOW is a California Species of Special Concern (SSC), California BLM Sensitive Animal, and a narrow endemic (NE) species covered under SDG&E's Natural Community Conservation Plan (NCCP). Impacts to species designated as NE under SDG&E's NCCP are to be avoided as a primary means of mitigation. If impacts may occur to NE species, SDG&E will coordinate with United States Fish and Wildlife Service (USFWS) and California Department of Fish and Wildlife (CDFW) regarding additional mitigation for potential impacts.

This species breeds in open plains from western Canada and the western United States, Mexico through Central America, and into South America to Argentina (Klute et al. 2003). This species inhabits dry, open, native or non-native grasslands, deserts, and other arid environments with low-growing and low-density vegetation (Ehrlich et al. 1988). It may occupy golf courses, cemeteries, road rights-of-way (ROWs), airstrips, abandoned buildings, irrigation ditches, and vacant lots with holes or cracks suitable for use as burrows (TLMA 2006). It occupies mammal burrows such as badger, prairie dog, and ground squirrel burrows for subterranean shelter and nesting (Trulio 1997). When burrows are scarce, the burrowing owl may use man-made structures such as openings beneath cement or asphalt pavement, pipes, culverts, and nest boxes (TLMA 2006). One burrow is typically selected for use as the nest; however, satellite burrows are usually found in the immediate vicinity of the nest burrow within the defended territory of the owl.Burrowing owls are active day and night, with peak times at dawn and dusk (Klute et al. 2003). Breeding typically occurs from March through August, with peak periods in May and July.

The burrowing owl is a small, ground-dwelling owl with a round, grey-brown, tuftless head; long, bare, yellow legs; bright yellow iris; brown back; and buffy-white underparts with brown barring (Klute et al. 2003). Insects form the bulk of its diet in the summer and small mammals, birds, and reptiles in the winter (Klute et al. 2003).

Threats to burrowing owl populations include the loss of and destruction of habitat from agriculture and urban development, the destruction of burrows, and indirect poisoning via rodent eradication efforts (Klute et al. 2003).

SECTION 2.0 – METHODOLOGY

2.1 SURVEY AREA

The survey area included suitable habitat, as determined during an initial habitat assessment described in the following section, within 150 meters from the Proposed Project ROW and Project components(

Figure 1). Habitat adjacent to the survey area was opportunistically surveyed in order to increase the chance of detecting the target species near the Project ROW that may disperse within the survey area..

2.2 HABITATASSESSMENT

In accordance with the California Department of Fish and Wildlife (CDFW) Burrowing Owl Staff Report (2012) an initial habitat assessment was conducted on April 18. Prior to conducting the field surveys, existing documentation relevant to the Survey Area was reviewed. The most recent records of the CDFW California Natural Diversity Database (CNDDB 2014) were reviewed for the quadrangles containing and surrounding the Survey Area (i.e., Imperial Beach and Otay Mesa USGS 7.5-minute quadrangles); a 5-mile radius surrounding the Proposed Project ROW was reviewed. Written descriptions and maps of the biological settings, including location (Section, Township, Range, baseline and meridian), acreage, topography, soils, geographic and hydrologic characteristics, land use and management history on and adjoining the site are provided in the Biological Technical Report for the Project. The field assessment was performed by systematically searching for potential foraging and nesting habitat within 150 meters of proposed Project components. According to the 2012 CDFW Burrowing Owl Staff Report burrowing owl habitat generally includes, but is not limited to, short or sparse vegetation (at least at some time of year), presence of burrows, burrow surrogates or presence of fossorial mammal dens, well-drained soils, and abundant and available prey. Burrow surrogates include culverts, piles of concrete rubble, piles of soil, burrows created along soft banks of ditches and canals, pipes, and similar structures. Foraging habitat is habitat within the estimated home range of an occupied burrow, supports suitable prey base, and allows for effective hunting (CDFW 2012).

2.3 BREEDING AND NON-BREEDING SEASON FOCUSED SURVEYS

Following the initial habitat assessment, Chambers Group biologists conducted three focused breeding surveys for a total of four breeding season surveys, and four focused non-breeding surveys for BUOW throughout the Project ROW and adjacent 150-meter buffer area within suitable habitat identified during the habitat assessment. Each survey was conducted by walking transects spaced no more than 100 feet apart throughout the survey area to allow for 100 percent visual ground coverage. The locations of all suitable burrows and surrogates, sign, and individuals observed were recorded and mapped using Global Positioning Systems (GPS) coordinates. Burrows were mapped as active, potential, or inactive. Active burrows were determined by presence of eggs or chicks. Potential burrows were determined by the presence of fresh pellets, prey remains, whitewash, or decorations. Inactive burrows were determined as those capable of supporting BUOW but with no signs of recent use.

Surveys were conducted during weather that would not adversely affect the ability to detect BUOW or their sign. The survey was not performed during periods of rain or dense fog, high winds (greater than 20 mph), or temperatures over 90 degrees Fahrenheit(°F). Surveys were conducted within one hour before sunrise to two hours after sunrise to provide the highest detection probabilities. Survey dates, personnel, and weather conditions are provided within **Error! Reference source not found.**.

SECTION 3.0 – RESULTS

A total of six survey areas were mapped and surveyed as suitable BUOW habitat. All suitable habitats occurred within non-native grasslands, disturbed habitat, and bare ground. Areas characterized as non-native annual grasslands were comprised predominately of non-native grass species averaging under one foot in height at time of survey. Dominant plant species observed within this community included several different non-native brome grass species (*Bromus* spp.), wild oat (*Avena* sp.), black mustard (*Brassica nigra*), fennel (*Foeniculum vulgare*), and shortpod mustard (*Hirschfeldia incana*). Areas characterized by disturbed habitat had prior evidence of human or natural disturbance. These areas were primarily dominated by various combinations of brome grass species, prickly Russian thistle (*Salsola tragus*), slender wild oat (*Avena fatua*), tocalote (*Centaurea melitensis*), stork's bill (*Erodium cicutarium*), lambsquarters (*Chenopodium album*), and hairy crabgrass (*Digitaria sanguinalis*). Areas characterized as bare ground habitats include areas with exposed soils, rocky substrate, access roads, and disturbed areas devoid of plant cover. Area 1 is located on the east side of Heritage Road between location 18 and 24 and is 32.72 acres in size. A total of 15 inactive burrows were found in dirt mounds along the northern and southern edges of this area. The majority of these burrows were occupied by ground squirrels. No signs of current use by BUOW were observed. Area 2 is located between locations 47 and 50 and is 3.87 acres in size. A total of four inactive burrows were found. These were all located in a large dirt mound along the northern edge of the survey area and suitable in size for BUOW. Area 3 is located directly north of Otay Mesa Road between locations 103 and 116 extending and is 115 acres in size. A total of seven inactive burrows suitable in size for BUOW were found. The majority of these were clustered in small dirt mounds. One potentially active BUOW burrow was found adjacent to location 108. On April 30, during the first round of surveys, several very fresh scat were observed near this burrow. The scat consisted of mainly beetle exoskeleton, suggesting BUOW. No addition signs of use of occupancy were observed on subsequent rounds. Area 4 is located directly south of the Project access road entrance off Otay Mesa Road and is 2.5 acres in size. No burrows were found inside this survey area. Area 5 is located directly east of the proposed Otay Staging Yard and is 6.4 acres in size. A total of 17 inactive burrows were found. The majority of these burrows were occupied by ground squirrels and suitable in size for BUOW. Area 6 is located approximately 300 feet east of proposed stringing site 21 adjacent to location 76 and is 0.84 aces in size. One inactive cluster of burrow was found on a north facing hillside suitable in size for burrowing owl in this area.

The Main Street Staging Yard was incorporated into the Proposed Project after BUOW assessments and focused surveys were conducted. Suitable habitat for BUOW was identified on November 3, 2014 within the Main Street Staging Yard. Wintering BUOW surveys were conducted within the entire Proposed Project Survey Area, including the Main Street Staging Yard. No occupied wintering habitat was observed within the Survey Area. No occupied wintering habitat was observed within the Survey Area.

SECTION 4.0 – DISCUSSION

Given the results of the 2014/2015 protocol surveys, it is assumed that BUOW did not use the survey area during the 2014 nesting season or non-breeding season; however, BUOW has a high potential to occur within the survey area in future years. CNDDB lists 17 records of occurrence within 5 miles of the Project with three records being within 1,500 feet of the ROW. In addition, several recent breeding records exist for BUOW in the Otay Mesa area in similar habitat closer to Brown Field Municipal Airport roughly 2.0 miles west of survey Area 3. The BUOW population at Brown Field is considered one of the last large populations of BUOW in San Diego County and may support between 5 and 10 breeding pairs (Unitt 2004). Adult and juvenile BUOW from these territories may form breeding territories in future nesting seasons in similar locations along the Proposed Project ROW.

SECTION 5.0 – REFERENCES

California Department of Fish and Wildlife (CDFW)
2012 Burrowing Owl Staff Report

Ehrlich P.R., D.S. Dobkin, and D. Wheye
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1997 Strategies for Protecting Western Burrowing Owls ("*Athene cunicularia hypugaea*") from Human Activities. In: Duncan, James R.; Johnson, David H.; Nicholls, Thomas H., eds. Biology and Conservation of Owls of the Northern Hemisphere: 2nd International symposium. Gen. Tech. Rep. NC-190. St. Paul, MN: United States Department of Agriculture, Forest Service, North Central Forest Experiment Station. 461-465.

Unitt, P.
2004 San Diego County Bird Atlas. San Diego Natural History Museum. San Diego, CA.

Table 1: Survey Conditions Summary

Date	Personnel	Time		Temp. (°F)	Wind (mph)	Sky (% Cloud)
Habitat Assessment						
4/18/2014	P. Howard	Start	0725	67	0-5	75
		End	1600	72	5-10	40
Breeding Season Survey Round 1						
4/30/2014	P. Howard, S. Howard	Start	0600	65	0-3	5
		End	1030	79	0-3	5
5/2/2014	P. Howard	Start	0600	63	0-3	5
		End	1030	80	0-3	5
Breeding Season Survey Round 2						
6/9/2014	P. Howard	Start	0600	68	0	60
		End	1030	72	0	40
6/10/2014	P. Howard, R. Meszaros	Start	0615	65	0-3	75
		End	1030	72	0	60
6/11/2014	P. Howard, R. Meszaros, S. Howard	Start	0630	67	0-2	20
		End	1030	70	0-2	10
Breeding Season Survey Round 3						
7/14/2014	J. Khalili	Start	0630	67	4-6	100
		End	1030	69	4-6	100
7/15/2014	J. Khalili, M. Dao	Start	0630	67	4-6	100
		End	1030	69	4-6	100
Wintering Survey Round 1						
12/18/14	P. Howard, C. Klein	Start	0730	57	1-2	80
		End	1200	69	1-2	0
Wintering Survey Round 2						
1/10/2015	P. Howard, S. Howard	Start	0600	54	3-5	80
		End	1030	61	3-5	60
1/12/2015	P. Howard, S. Howard	Start	0600	54	4-6	100
		End	1030	62	4-6	80
Wintering Survey Round 3						
1/22/2015	P. Howard	Start	0600	51	2-4	60

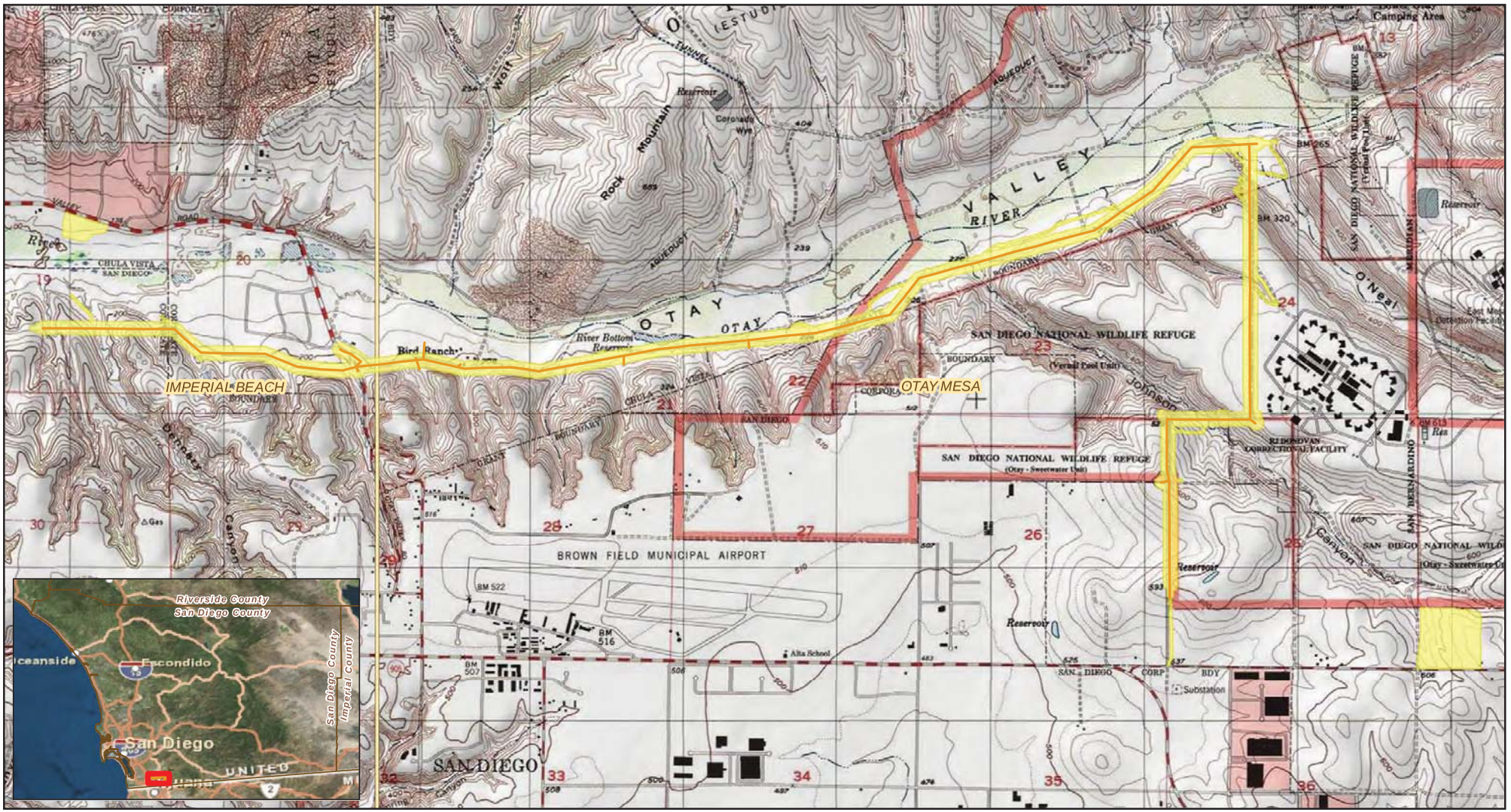
Table 1: Survey Conditions Summary

Date	Personnel	Time		Temp. (°F)	Wind (mph)	Sky (% Cloud)
		End	1030	67	2-4	50
1/23/2015	P. Howard	Start	0600	50	0-2	60
		End	1030	68	0-2	40
Wintering Survey Round 4						
1/30/2015	P. Howard	Start	0700	56	4-6	100
		End	1200	62	4-6	100

Table 2: Burrow Observations

Nest Status	Created Date	Latitude	Longitude	Area
Potential Nest	4/30/2014	32.578347	-116.944871	3
Inactive	4/30/2014	32.572467	-116.946373	3
Inactive	4/30/2014	32.571931	-116.944764	3
Inactive	4/30/2014	32.571813	-116.944742	3
Inactive	4/30/2014	32.571630	-116.944828	3
Inactive	4/30/2014	32.571577	-116.944699	3
Inactive	4/30/2014	32.568422	-116.944251	3
Inactive	4/30/2014	32.568305	-116.944356	5
Inactive	4/30/2014	32.567950	-116.922340	5
Inactive	4/30/2014	32.568101	-116.922469	5
Inactive	4/30/2014	32.568251	-116.922383	5
Inactive	4/30/2014	32.568358	-116.922448	5
Inactive	4/30/2014	32.568433	-116.922898	5
Inactive	4/30/2014	32.568315	-116.922748	5
Inactive	4/30/2014	32.568541	-116.922619	5
Inactive	4/30/2014	32.568691	-116.922662	5
Inactive	4/30/2014	32.568959	-116.922791	5
Inactive	4/30/2014	32.569109	-116.922941	5
Inactive	4/30/2014	32.569324	-116.922834	5
Inactive	5/2/2014	32.585524	-116.999956	1
Inactive	5/2/2014	32.585506	-117.000346	1
Inactive	5/2/2014	32.585507	-117.000768	1
Inactive	5/2/2014	32.588395	-116.967995	2
Inactive	5/2/2014	32.588367	-116.968088	2
Inactive	5/2/2014	32.598330	-116.936362	6
Inactive	6/9/2014	32.586297	-117.002120	1
Inactive	6/9/2014	32.588861	-117.001648	1
Inactive	6/9/2014	32.585717	-116.999373	1
Inactive	6/9/2014	32.588539	-117.000253	1
Inactive	6/9/2014	32.588528	-116.999717	1
Inactive	6/9/2014	32.588475	-116.999631	1
Inactive	6/9/2014	32.588475	-116.999481	1
Inactive	6/9/2014	32.588443	-116.999288	1
Inactive	6/9/2014	32.588582	-116.999094	1
Inactive	6/9/2014	32.588646	-116.998944	1

Nest Status	Created Date	Latitude	Longitude	Area
Inactive	6/9/2014	32.585653	-116.999674	1
Inactive	6/10/2014	32.589220	-117.003749	1
Inactive	6/10/2014	32.588271	-116.969934	2
Inactive	6/10/2014	32.588207	-116.969354	2
Inactive	6/10/2014	32.569474	-116.923306	5
Inactive	6/10/2014	32.570504	-116.923070	5
Inactive	6/10/2014	32.570665	-116.923435	5
Inactive	6/10/2014	32.569109	-116.923392	5
Inactive	6/10/2014	32.570365	-116.922855	5
Inactive	6/10/2014	32.569592	-116.922770	5



Legend

- Transmission Centerline
- Survey Corridor
- USGS 7.5-min Quadrangle

N

0 0.25 0.5 1
Miles

Figure 1
Burrowing Owl Survey
Overview Map

Scale = 1:24,000

Name: 20775 BUOW Fig1 Overview Map.Mxd
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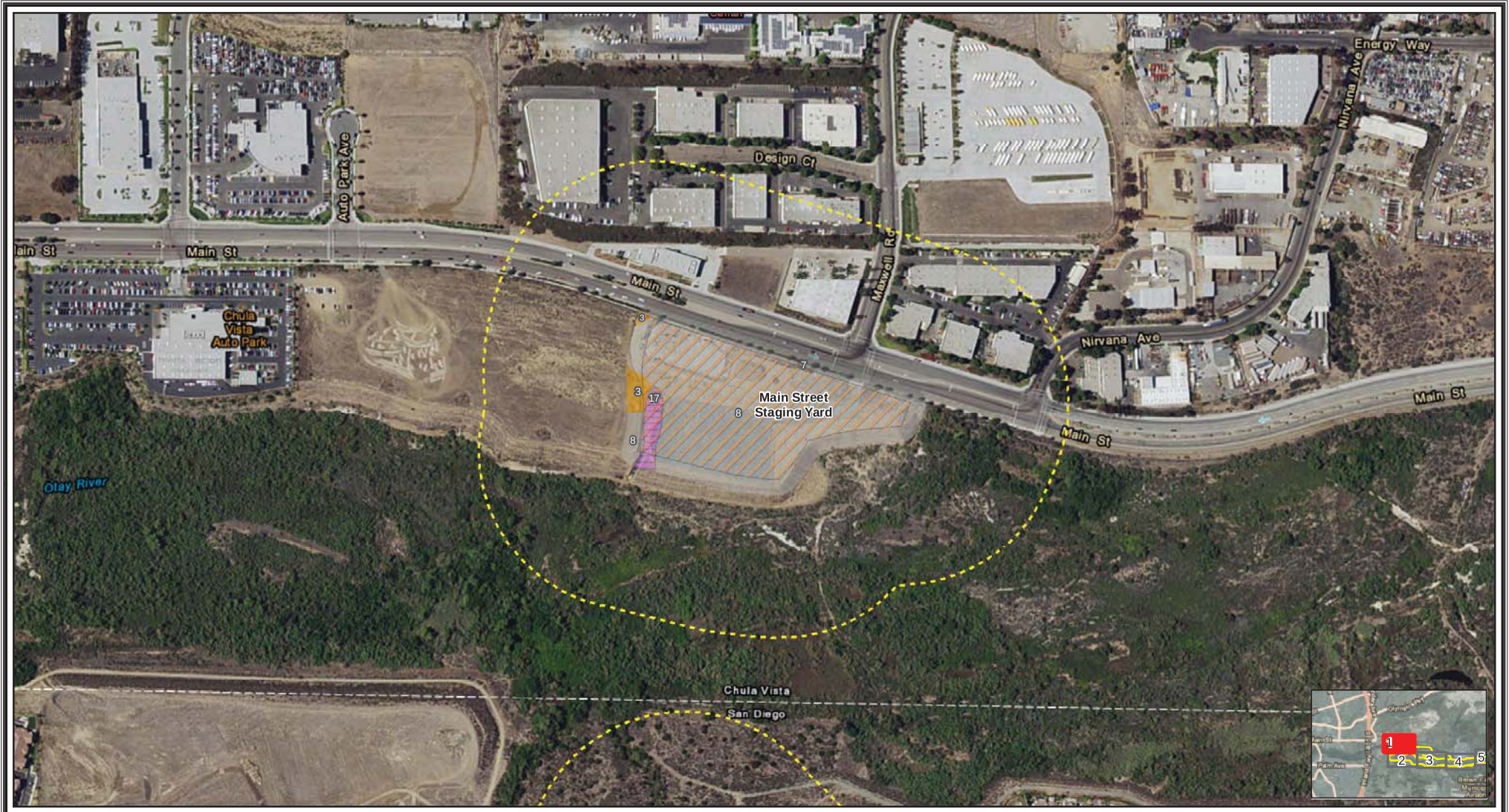


Legend

Survey Buffer - 500 feet

Work Area Type

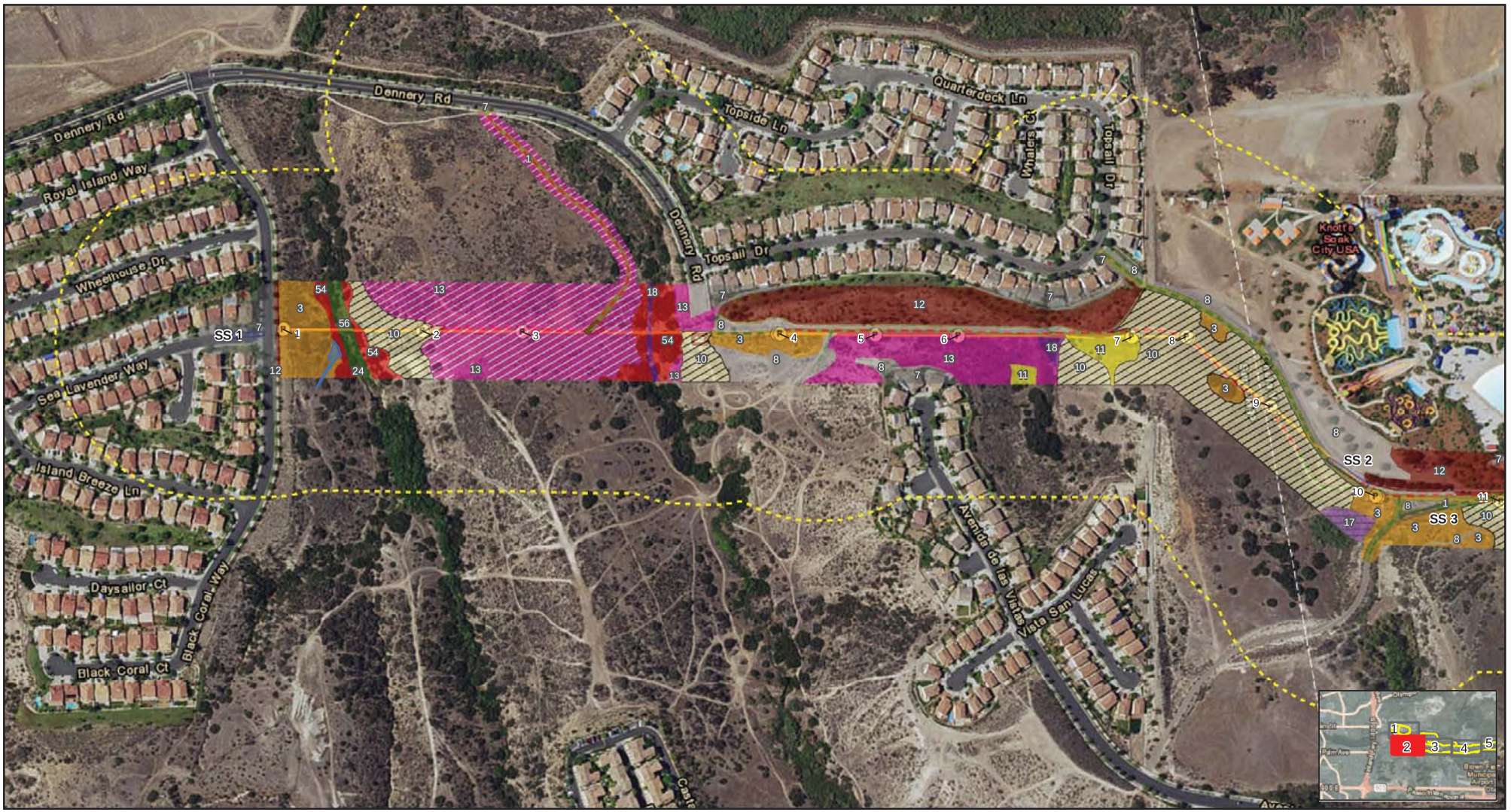
Proposed Staging Yard

Figure 2
Burrowing Owl Survey Results Map

N

0 125 250 500
Feet

Name: 20775 BUOW Fig2 BUOW Results.Mxd
Print Date: 7/30/2015, Author: msimmons



Legend

- Survey Buffer - 500 feet
- Project Pole

Work Area Type

- Proposed String Site
- Proposed Turnaround Area

Access Type

- Existing Non-TCM Access Road
- Access Road

BUOW Survey Results

- BUOW Suitable Habitat

N

0 125 250 500

Feet

Figure 2

Burrowing Owl Survey Results Map

Name: 20775 BUOW Fig2 BUOW Results.Mxd
Print Date: 7/30/2015, Author: msimmons

Legend

- Survey Buffer - 500 feet
- Project Pole
- Guard Structure

Work Area Type

- Proposed String Site
- Proposed Turnaround Area

Access Type

- Existing Non-TCM Access Road
- Access Road

BUOW Nest

- Suitable Inactive BUOW Burrow

BUOW Survey Results

- BUOW Suitable Habitat

N

0 125 250 500

Feet

Figure 2

Burrowing Owl Survey Results Map

Name: 20775 BUOW Fig2 BUOW Results.Mxd
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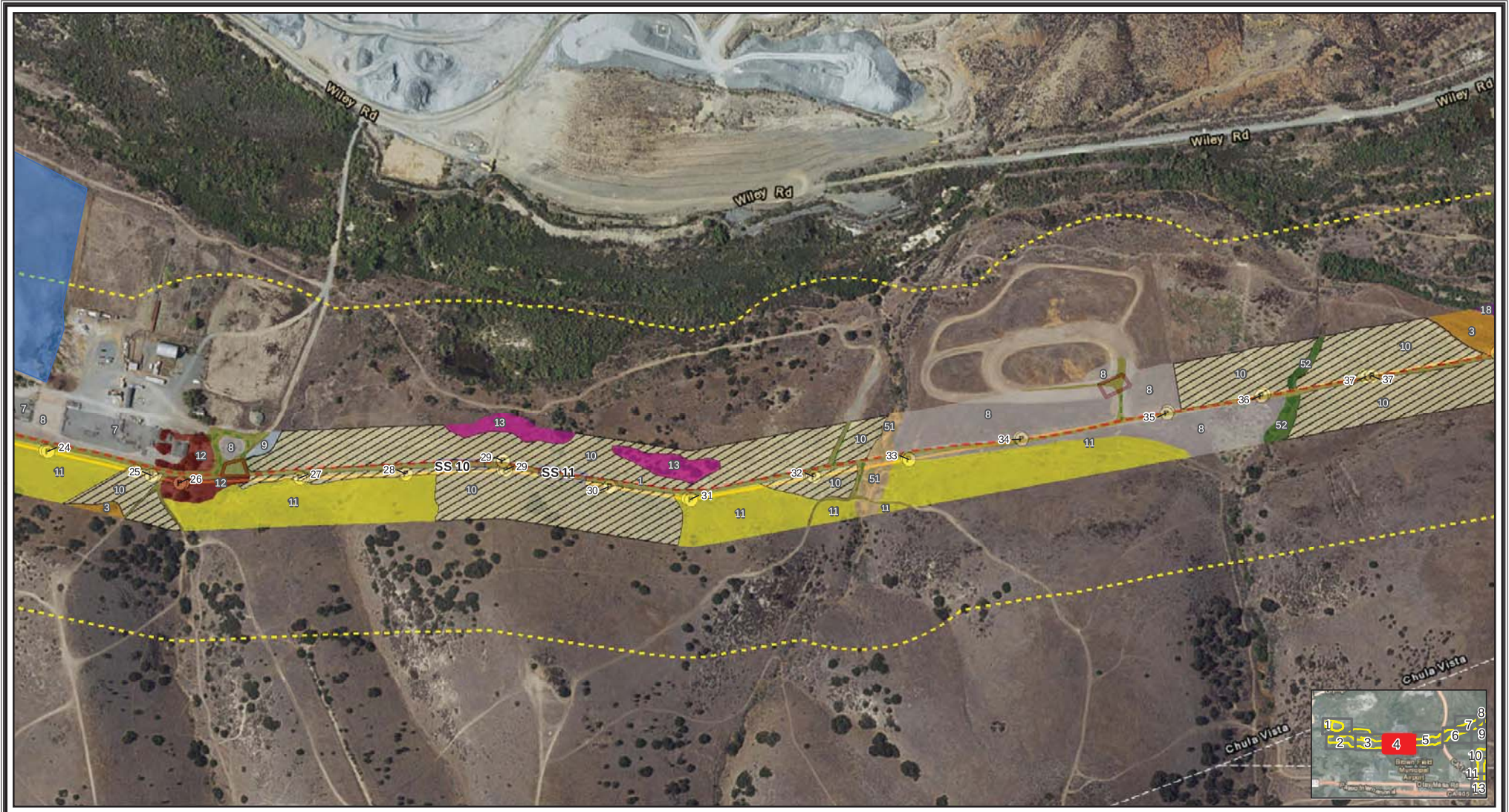


Legend

- Survey Buffer - 500 feet
- Project Pole

Work Area Type

- Proposed String Site
- Proposed Turnaround Area

Access Type

- Existing Non-TCM Access Road
- Access Road

BUOW Survey Results

- BUOW Suitable Habitat

N

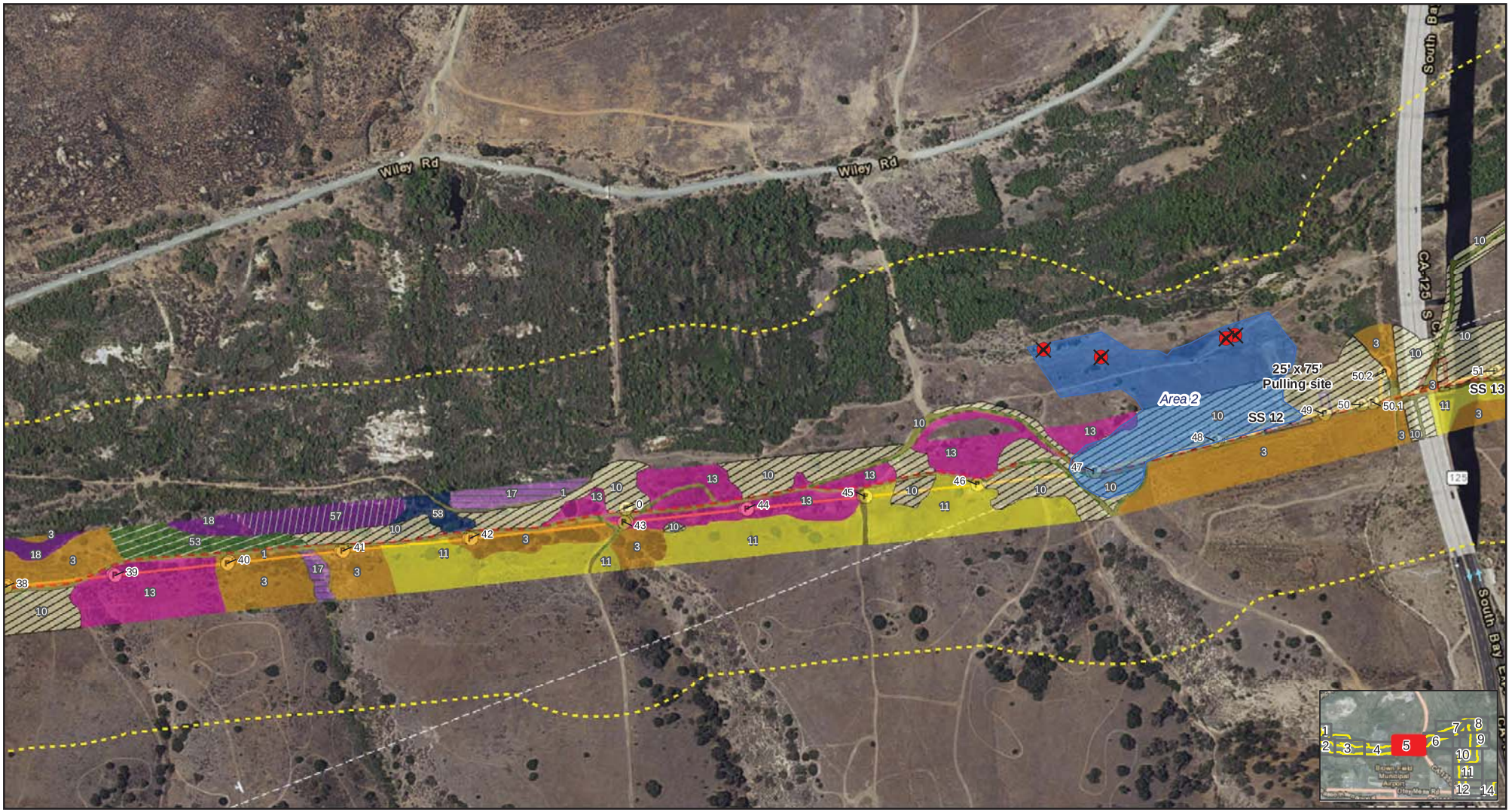
0 125 250 500

Feet

Figure 2

Burrowing Owl Survey Results Map

Name: 20775 BUOW Fig2 BUOW Results.Mxd
Print Date: 7/30/2015, Author: msimmons



Legend

- Survey Buffer - 500 feet
- Project Pole

Work Area Type

- Proposed String Site
- Proposed Turnaround Area

Access Type

- Existing Non-TCM Access Road
- Access Road
- Overland Travel

BUOW Nest

- Suitable Inactive BUOW Burrow

BUOW Survey Results

- BUOW Suitable Habitat

N

0 125 250 500

Feet

Figure 2

Burrowing Owl Survey Results Map

Name: 20775 BUOW Fig2 BUOW Results.Mxd
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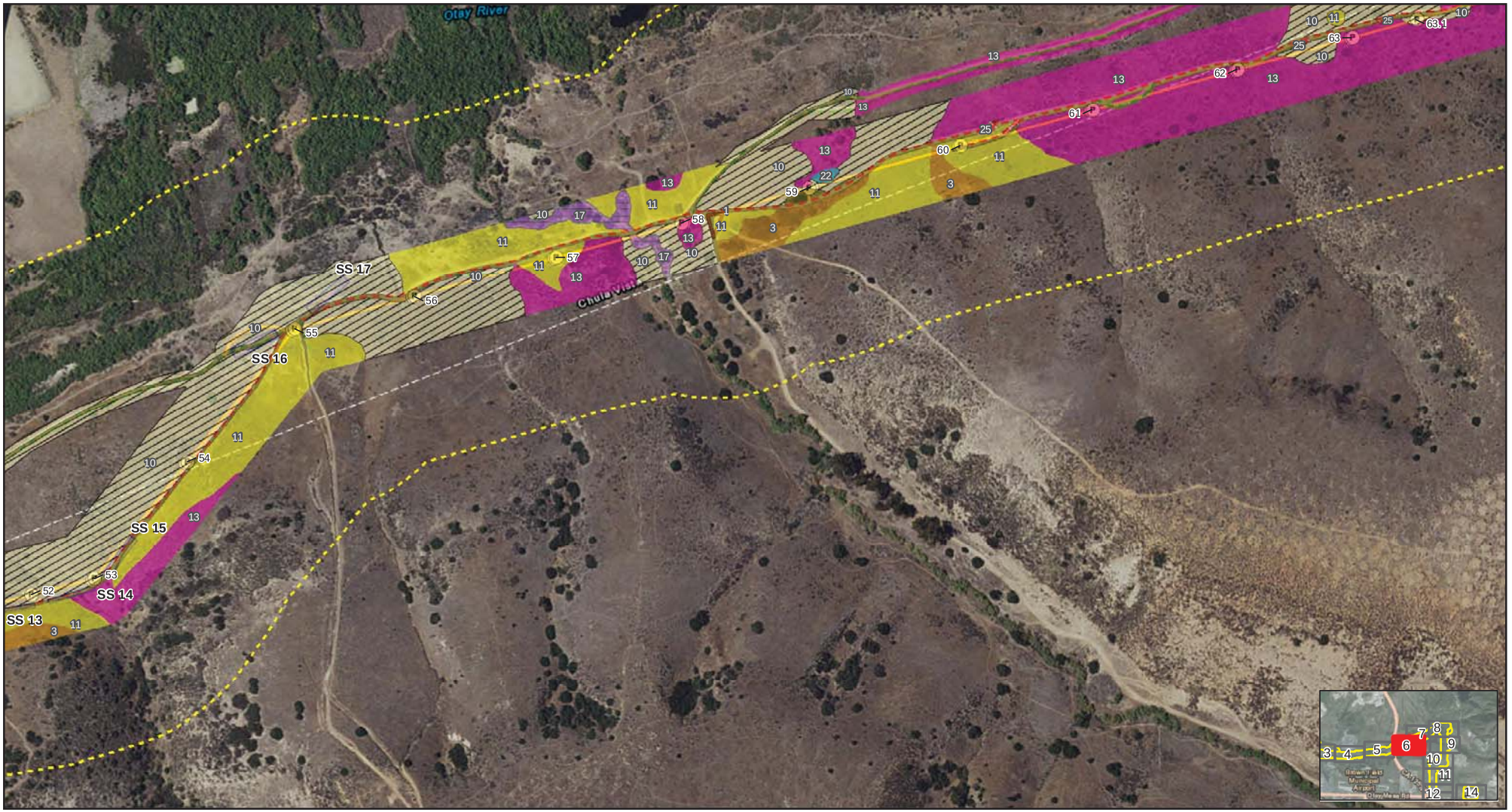


Legend

- Survey Buffer - 500 feet
- Project Pole
- Overland Travel

Work Area Type

- Proposed String Site
- Proposed Turnaround Area

Access Type

- Existing Non-TCM Access Road
- Access Road

Figure 2

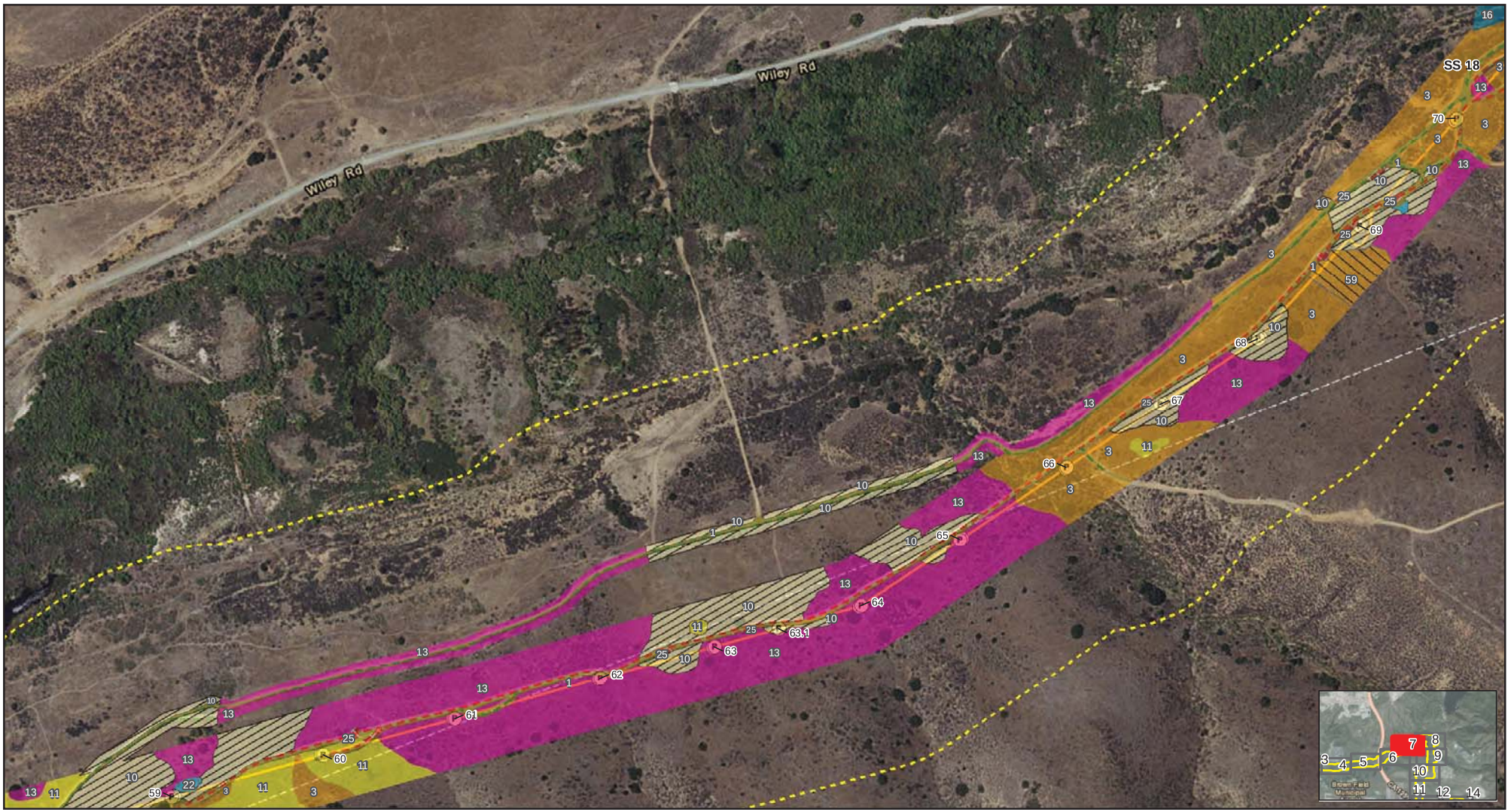
Burrowing Owl Survey Results Map

N

0 125 250 500

Feet

Name: 20775 BUOW Fig2 BUOW Results.Mxd
Print Date: 7/30/2015, Author: msimmons



Legend

- Survey Buffer - 500 feet
- Project Pole

Work Area Type

- Proposed String Site

Access Type

- Existing Non-TCM Access Road
- Access Road
- Overland Travel

N

0 125 250 500

Feet

Figure 2

Burrowing Owl Survey Results Map

Name: 20775 BUOW Fig2 BUOW Results.Mxd
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Legend

- Survey Buffer - 500 feet
- Project Pole

Work Area Type

- Proposed String Site
- Proposed Turnaround Area

Access Type

- Existing Non-TCM Access Road
- Access Road
- Overland Travel

BUOW Nest

- Suitable Inactive BUOW Burrow

BUOW Survey Results

- BUOW Suitable Habitat

N

0 125 250 500

Feet

Figure 2
Burrowing Owl Survey
Results Map

Name: 20775 BUOW Fig2 BUOW Results.Mxd
Print Date: 7/30/2015, Author: msimmons

Legend

- Survey Buffer - 500 feet
- Project Pole

Access Type

- Existing Non-TCM Access Road
- Access Road
- Overland Travel

N

0 125 250 500

Feet

Figure 2

Burrowing Owl Survey Results Map

Name: 20775 BUOW Fig2 BUOW Results.Mxd
Print Date: 7/30/2015, Author: msimmons

CHAMBERS GROUP

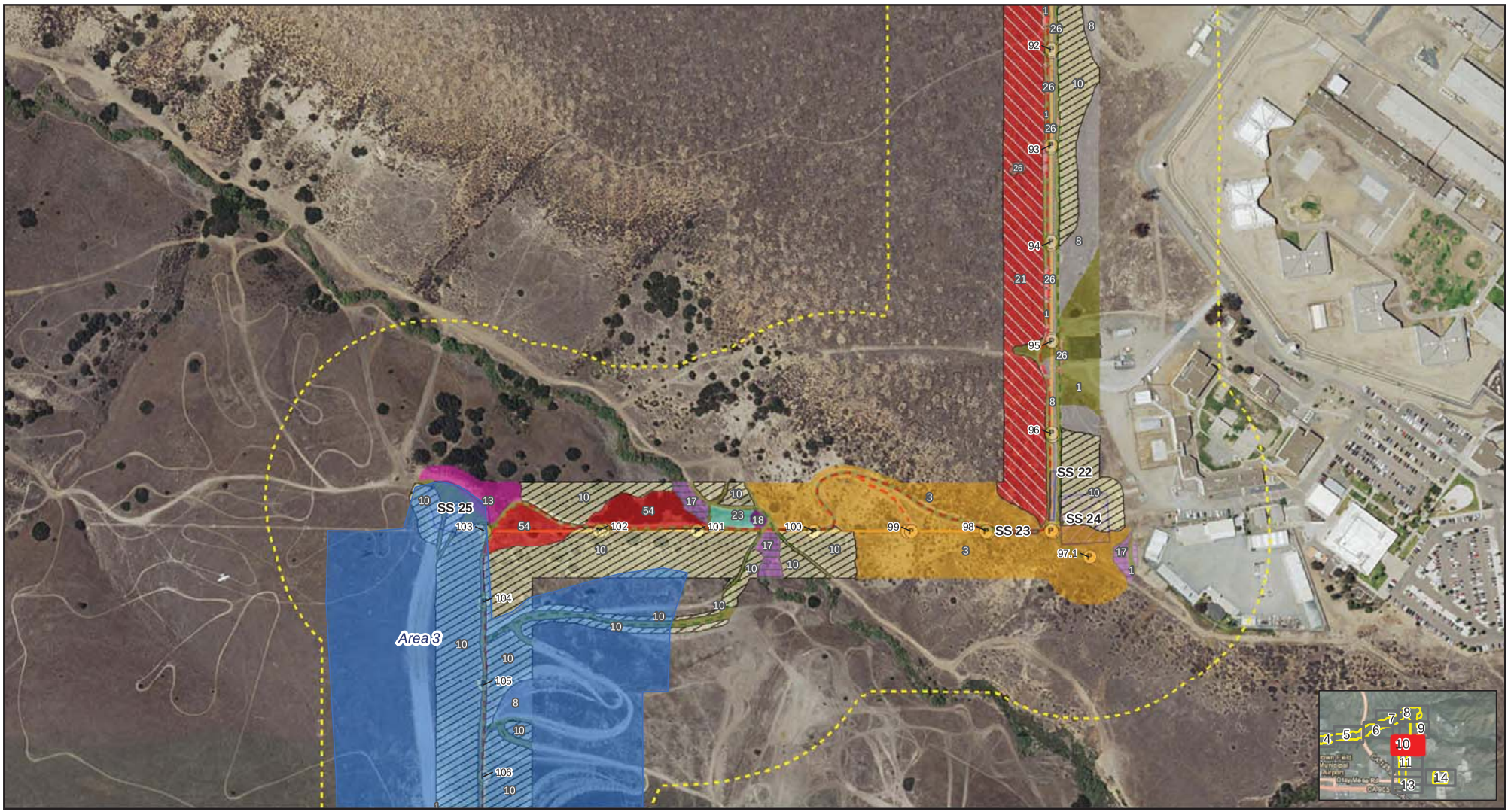


Figure 2
Burrowing Owl Survey
Results Map

Name: 20775 BUOW Fig2 BUOW Results.Mxd
Print Date: 7/30/2015, Author: msimmons

Legend

- Survey Buffer - 500 feet
- Project Pole

Work Area Type

- Proposed String Site

Access Type

- Existing Non-TCM Access Road
- Access Road
- Overland Travel

BUOW Nest

- Potentially Active BUOW Burrow

BUOW Survey Results

- BUOW Suitable Habitat

N

0 125 250 500

Feet

Figure 2

Burrowing Owl Survey Results Map

Name: 20775 BUOW Fig2 BUOW Results.Mxd
Print Date: 7/30/2015, Author: msimmons

Legend

- Survey Buffer - 500 feet
- Project Pole

Work Area Type

- Proposed String Site

Access Type

- Existing Non-TCM Access Road
- Access Road

BUOW Nest

- Suitable Inactive BUOW Burrow

BUOW Survey Results

- BUOW Suitable Habitat

N

0 125 250 500

Feet

Figure 2
Burrowing Owl Survey
Results Map

Name: 20775 BUOW Fig2 BUOW Results.Mxd
Print Date: 7/30/2015, Author: msimmons

Legend

Survey Buffer - 500 feet

Access Type

Existing Non-TCM Access Road

Access Road

BUOW Nest

Suitable Inactive BUOW Burrow

BUOW Survey Results

BUOW Suitable Habitat

N

0 125 250 500

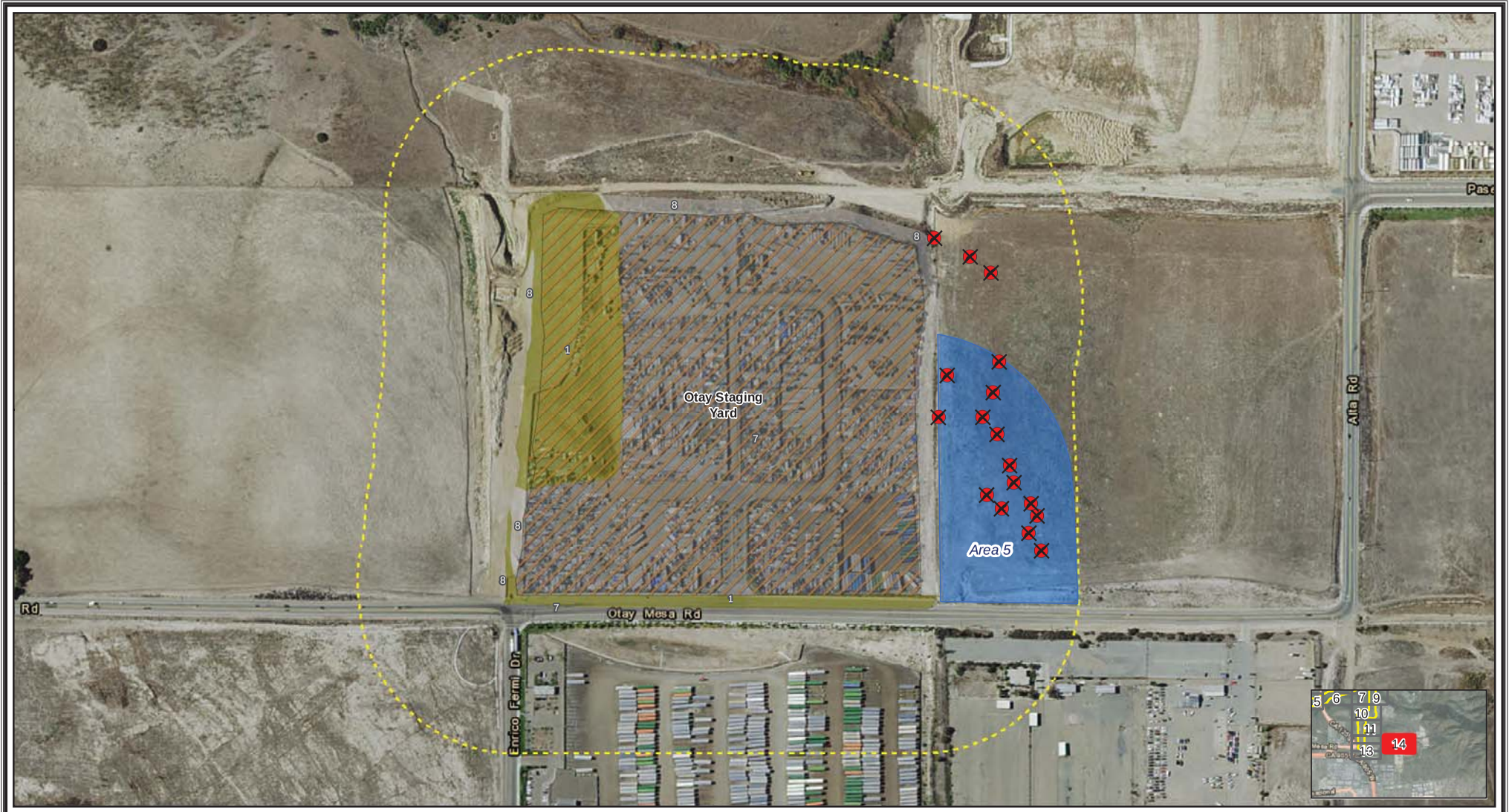
Feet

Figure 2

Burrowing Owl Survey Results Map

Name: 20775 BUOW Fig2 BUOW Results.Mxd
Print Date: 7/30/2015, Author: msimmons

CHAMBERS GROUP



Legend

Survey Buffer - 500 feet

Work Area Type

Proposed Staging Yard

BUOW Nest

Suitable Inactive BUOW Burrow

BUOW Survey Results

BUOW Suitable Habitat

N

0 125 250 500

Feet

Figure 2

Burrowing Owl Survey Results Map

Name: 20775 BUOW Fig2 BUOW Results.Mxd
Print Date: 7/30/2015, Author: msimmons

APPENDIX A – AVIAN SPECIES OBSERVED

APPENDIX A: Avian Species Observed

Scientific name	Common Name	Special Status
Class Aves	**BIRDS**	
Order Anseriformes	**Geese,Swans, and Ducks**	
Anasplatyrhynchos	mallard	
Order Galliformes	**Gallinaceous Birds**	
Family Odontophoridae	**New World Quail**	
Callipeplacalifornica	California quail	
Order Podicipediformes	**Grebes**	
Podilymbuspodiceps	pied-billed grebe	
Order Pelecaniformes	**Totipalmate Birds**	
Family Phalacrocoracidae	**Cormorants**	
Phalacrocoraxauritus	double-crested cormorant	WL
Order Ciconiiformes	**Herons, Ibises, Storks, American Vultures, and Allies**	
Family Ardeidae	**Herons, Bitterns, and Allies**	
Ardeaherodias	great blue heron	
Egrettathula	snowy egret	
Butoridesvirescens	green heron	
Family Threskiornithidae	**Ibises**	
Plegadischihi	white-faced ibis	WL
Family Cathartidae	**New World Vultures**	
Cathartes aura	turkey vulture	
Order Falconiformes	**Diurnal Birds of Prey**	
Family Accipitridae	**Hawks, Kites, Eagles, and Allies**	
Pandionhaliaetus	osprey	WL
Elanusleucurus	white-tailed kite	FP, WL
Circus cyaneus	northern harrier	SSC
Accipiter cooperii	Cooper's hawk	WL
Buteolineatus	red-shouldered hawk	
Buteojamaicensis	red-tailed hawk	
Family Falconidae	**Falcons**	
Falco sparverius	American kestrel	
Order Gruiformes	**Rails, Cranes, and Allies**	
Family Rallidae	**Rails, Gallinules, and Coots**	
Ralluslimicola	Virginia rail	
Gallinulagaleata	common gallinule	
Fulicaamericana	American coot	

Scientific name	Common Name	Special Status
Order Charadriiformes	**Shorebirds, Gulls, Auks, and Allies**	
Family Charadriidae	**Plover**	
Charadriusvociferus	killdeer	
Family Laridae	**Gulls, Terns, and Skimmers**	
Larusoccidentalis	western gull	
Order Columbiformes	**Pigeons and Doves**	
Family Columbidae	**Pigeons and Doves**	
Columba livia	rock pigeon	I
Zenaidamacroura	mourning dove	
Order Cuculiformes	**Cuckoos and Allies**	
Family Cuculidae	**Cuckoos and Roadrunners**	
Geococcyxcalifornianus	greater roadrunner	
Order Strigiformes	**Owls**	
Family Tytonidae	**Barn Owls**	
Tyto alba	barn owl	
Order Caprimulgiformes	**Goatsuckers and Allies**	
Family Caprimulgidae	**Goatsuckers**	
Chordeilesacutipennis	lesser nighthawk	
Order Apodiformes	**Swifts and Hummingbirds**	
Family Apodidae	**Swifts**	
Aeronautessaxatalis	white-throated swift	
Family Trochilidae	**Hummingbirds**	
Calypteanna	Anna's hummingbird	
Calypte costae	Costa's hummingbird	
Selasphorussasin	Allen's hummingbird	
Order Piciformes	**Woodpeckers and Allies**	
Family Picidae	**Woodpeckers**	
Melanerpesformicivorus	acorn woodpecker	
Picoidesnuttallii	Nuttall's woodpecker	
Picoidespubescens	downy woodpecker	
Colaptesauratus	northern flicker	
Order Passeriformes	**Perching Birds**	
Family Tyrannidae	**Tyrant Flycatchers**	
Contopuscooperi	olive-sided flycatcher	SSC
Empidonaxtrailliibrewsteri	little willow flycatcher	SE
Empidonaxtrailliiextimus	southwestern willow flycatcher	FE, SE
Empidonaxdifficilis	Pacific-slope flycatcher	
Sayornisnigricans	black phoebe	
Sayornissaya	Say's phoebe	

Scientific name	Common Name	Special Status
Myiarchuscinerascens	ash-throated flycatcher	
Tyrannusvociferans	Cassin's kingbird	
Tyrannusverticalis	western kingbird	
Family Vireonidae	**Vireos**	
Vireo belliipusillus	least Bell's vireo	SE, FE
Vireo huttoni	Hutton's vireo	
Family Corvidae	**Crows and Jays**	
Aphelocomacalifornica	western scrub-jay	
Corvusbrachyrhynchos	American crow	
Corvuscorax	common raven	
Family Alaudidae	**Larks**	
Eremophilaalpestrisactia	California horned lark	WL
Family Hirundinidae	**Swallows**	
Tachycineta bicolor	tree swallow	
Stelgidopteryxserripennis	northern rough-winged swallow	
Hirundopyrrhonota	cliff swallow	
Family Aegithalidae	**Bushtits**	
Psaltriparusminimus	bushtit	
Family Troglodytidae	**Wrens**	
Campylorhynchusbrunneicapilluscousei	coastal cactus wren	SSC*
Salpinctesobsoletus	rock wren	
Thryomanesbewickii	Bewick's wren	
Troglodytes aedon	house wren	
Cistothoruspalustrisclarkae	Clark’s marsh wren	SSC
Family Sylviidae	**Gnatcatchers**	
Polioptilacaerulea	blue-gray gnatcatcher	
Polioptilacalifornicacalifornica	coastal California gnatcatcher	FT, SSC
Family Turdidae	**Thrushes**	
Sialiamexicana	western bluebird	
Catharusguttatus	hermit thrush	
Family Timaliidae	**Babblers**	
Chamaeafasciata	wrentit	
Family Mimidae	**Mockingbirds and Thrashers**	
Mimuspolyglottos	northern mockingbird	
Toxostomaredivivum	California thrasher	
Family Sturnidae	**Starlings**	
Sturnus vulgaris	European starling	I

Scientific name	Common Name	Special Status
Family Ptilogonatidae	**Silky-flycatchers**	
Phainopeplanitens	phainopepla	
FamilyParulidae	**Wood-Warblers**	
Vermivoracelata	orange-crowned warbler	
Dendroicapetechiabrewsteri	yellow warbler	SSC*
Geothlypistrichas	common yellowthroat	
Wilsoniapusilla	Wilson's warbler	
Icteriavirens	yellow-breasted chat	SSC
Family Emberizidae	**Embrezids**	
Pipilomaculatus	spotted towhee	
Pipilocrissalis	California towhee	
Aimophilaruficepscanescens	southern California rufous-crowned sparrow	WL
Ammodramussavannarum	grasshopper sparrow	SSC
Zonotrichialeucophrys	white-crowned sparrow	
Family Cardinalidae	**Cardinals and Allies**	
Pheucticusmelanocephalus	black-headed grosbeak	
Passerinacaerulea	blue grosbeak	
Family Icteridae	**Blackbirds**	
Agelaiusphoeniceus	red-winged blackbird	
Sturnellaneglecta	western meadowlark	
Euphaguscyanocephalus	Brewer's blackbird	
Molothrusater	brown-headed cowbird	
Icterus cucullatus	hooded oriole	
Icterus bullockii	Bullock's oriole	
Family Fringillidae	**Fringilline and Cardueline Finches and Allies**	
Carpodacusmexicanus	house finch	
Carduelispsaltria	lesser goldfinch	
Carduelislawrencei	Lawrence's goldfinch	
Carduelistristis	American goldfinch	

I= Introduced Species
X= Extirpated
*=species with extremely limited distributions
FE= Federally Endangered
FT= Federally Threatened
SE= State Endangered
ST= State Threatened
SSC= CDFWSpecies of Special Concern
WL= CDFWList of Taxa to Watch
FP= CDFWFully Protected

ATTACHMENT B: RESULTS OF THE 2018 BURROWING OWL FOCUSED SURVEYS FOR TL 649

September 28, 2018
20775.01

Ms. Eden Nguyen
SDG&E Environmental Services
571 Enterprise Street, SD1460
Escondido, CA 92029-1244

SUBJECT: RESULTS OF THE 2018 BURROWING OWL (*ATHENE CUNICULARIA*) FOCUSED SURVEYS FOR THE PROPOSED TIE LINE 649 WOOD TO STEEL POLE REPLACEMENT PROJECT, SAN DIEGO COUNTY, CALIFORNIA

Dear Ms. Nguyen:

Chambers Group, Inc. (Chambers Group) was contracted by San Diego Gas and Electric Company (SDG&E) to conduct focused surveys for burrowing owl *(Athene cunicularia*; BUOW) during the 2018 breeding season for the proposed Tie Line (TL) 649 Wood to Steel Pole Replacement Project located in San Diego County, California. Four breeding season BUOW surveys were conducted within suitable habitat in order to determine presence or absence of BUOW.

Project Background

As part of continuing system upgrades, SDG&E is proposing the Tie Line (TL) 649 Wood-to-Steel Replacement Project (Proposed Project). The Proposed Project would replace wood poles with steel poles, supporting the power lines of an approximately 7-mile-long portion of an existing 69 kilovolt (kV) single-circuit power line (TL 649). The portion of TL 649 where existing poles would be replaced is in the southeastern portion of San Diego County, California, approximately 12 miles southeast of downtown San Diego and approximately 1.5 miles north of the United States–Mexico border, as shown in Attachment 1: Figure 1, Project Location Map. SDG&E proposes to replace wood poles with steel poles along approximately 7.0 miles of the existing 69-kilovolt (kV) single-circuit power line. The Proposed Project extends east from Black Coral Way and Sea Lavender Way in the City of San Diego for approximately 5.0 miles; then travels south for approximately 2.0 miles to just north of Otay Mesa Road in unincorporated San Diego County (Attachment 1: Figure 2, BUOW Survey Area on USGS 7.5-Minute Quadrangle Topographic Map). Over this distance, TL 649 traverses private and public lands, including lands owned by the County of San Diego, the City of San Diego, the City of Chula Vista, the State of California, and SDG&E. Installation of steel poles will minimize damages to utilities in the event of a fire, thereby increasing system reliability, decreasing routine maintenance needs, and increasing the life span of both the poles and the entire line.

BUOW Natural History

The BUOW is a California Species of Special Concern (SSC) and a covered species under the *SDG&E Natural Community Conservation Plan* (NCCP). It is broadly distributed across the western United States, with populations in Florida and Central and South America. The BUOW breeds in open plains from western Canada and the western United States, Mexico through Central America and into South America to Argentina (Klute et al. 2003). This species inhabits dry, open, native or non-native grasslands, deserts, and other arid environments with low-growing and low-density vegetation (Ehrlich 1988). It may occupy golf courses, cemeteries, road rights-of way, airstrips, abandoned buildings, irrigation ditches, and vacant lots with holes or cracks suitable for use as burrows (TLMA 2006). The BUOW typically uses burrows made by mammals such as California ground squirrels (*Spermophilus beecheyi*), foxes, or badgers (Trulio 1997). When burrows are scarce, BUOW may use man-made structures such as openings beneath cement or asphalt pavement, pipes, culverts, and nest boxes (TLMA 2006). The BUOW often is found within, under, or in close proximity to man-made structures. Prey sources for this species include small rodents; arthropods such as spiders, crickets, centipedes,

and grasshoppers; smaller birds; amphibians; reptiles; and carrion. Threats to the BUOW include loss of nesting burrows, habitat loss, and mortality from motor vehicles.

Methods

Habitat Assessment

The Survey Area for BUOW was determined by conducting a habitat assessment within the Proposed Project Biological Survey Area (BSA), consisting of a 150-foot buffer on either side of the power line alignment (300 feet total width); a 50-foot buffer around substations and proposed work areas (if outside the 150-foot buffer); and a 20-foot buffer out from the edges of access roads. Suitable habitat for BUOW was mapped within this BSA, and contiguous habitat extending beyond the BSA was mapped out to a 500-foot buffer on either side of the alignment (1,000 feet total width). Therefore, the BUOW Survey Area consisted of suitable habitat within the BSA, plus contiguous suitable habitat within the 500-foot buffer on either side of the alignment.

The BUOW habitat assessment was conducted in accordance with the California BUOW Consortium (CBOC)'s BUOW Survey Protocol and Mitigation Guidelines (Consortium Guidelines; CBOC 1993) and the California Department of Fish and Game (CDFG) Staff Report on BUOW Mitigation (CDFG Staff Report; CDFG 2012). According to the CDFG Staff Report, BUOW habitat within California must consist of "*suitable year-round habitat, primarily for breeding, foraging, wintering and dispersal habitat consisting of short or sparse vegetation (at least at some time of year), presence of burrows, burrow surrogates or presence of fossorial mammal dens, well-drained soils, and abundant and available prey within close proximity to the burrow*."

Prior to entering the field, a literature search was performed of the CDFW California Natural Diversity Database (CNDDB; CDFW 2018) for BUOW records of occurrence within 5 miles of the BSA. In addition, Google Earth satellite images and results from the updated 2018 vegetation mapping effort for the BSA were reviewed to identify habitat potentially suitable for BUOW, including grassland, disturbed, open scrub, bare ground, and developed areas with potential burrow sites and ample foraging habitat. These areas were then ground-truthed and refined by Chambers Group with Handheld Global Positioning System (GPS) units during the first focused BUOW survey. Biologists noted the general vegetation types, species observed, and the potential for BUOW to occur within the BUOW Survey Area. Plant communities and associations were determined in accordance with the categories set forth in Sawyer et al. (2009). Plant nomenclature follows that of Hickman (1993).

Focused Surveys

Qualified biologists conducted focused surveys during the breeding season of 2018 within habitat that was determined to be suitable for BUOW during the habitat assessment (Attachment 2: BUOW Suitable Habitat and Survey Results Map). Four breeding season surveys were conducted by biologists Corinne Klein, Maya Mazon, Laurie Gorman, Clark Austin, Brian Cropper, Colin Durkin, Natalie Borchardt, Justine Lepore, and April Hillman. Breeding season surveys were conducted between April 2 and July 9, 2018.

The focused BUOW surveys were conducted in accordance with the Consortium Guidelines and the CDFG Staff Report. Survey periods generally occurred between morning civil twilight and 1000. Each survey was conducted during favorable weather conditions to maximize detection probability. The biologists walked transects, spaced approximately 7 to 20 meters (roughly 20 to 70 feet) apart, throughout the Survey Area, using appropriate vantage points and binoculars to achieve 100 percent visual ground coverage, where feasible.

The locations of any detected BUOW, BUOW burrows, BUOW sign (including whitewash, pellets, and feathers), and other sensitive species incidentally detected were recorded using handheld GPS units and photo-documented when

possible. Chambers Group biologists compiled all wildlife species observed or detected during each survey day into a single comprehensive species list for the combined survey effort.

Results

Habitat Assessment

Based on the literature search, there are 16 CNDDB and one USFWS historical records of occurrence for BUOW documented within five miles of the Proposed Project. Of the 17 historical occurrences, five were located within one mile of the Proposed BSA, the closest being approximately 1,200 feet west of the BSA in 2003. The most recent documented occurrence within one mile was from 2016, where BUOW were well documented utilizing artificial burrows in a restoration area on the eastern edge of Brown Field. No BUOW have been documented by the CNDDB or USFWS within the BSA (CDFW 2018).

Six polygons of suitable BUOW habitat, totaling approximately 163 acres, were mapped as the Survey Area for BUOW; these polygons have been labeled as Areas 1-6 in Attachment 2, BUOW Suitable Habitat and Survey Results Map. The Survey Area consisted of isolated and sparse suitable habitat with debris piles, potential BUOW burrows, and/or evidence of burrowing activity. Portions of the BSA that contained dense vegetation, including areas that were so matted with non-native grasses that they did not support burrowing activity, were excluded from the Survey Area. Area 1 was located within the Main Street Staging Yard and consisted of bare ground with debris piles that could provide burrowing habitat for BUOW. Areas 2-4, mapped between Heritage Road and the Highway 125 bridge, consisted of bare ground, grassland, and sparse vegetation communities. Area 5 was located on the east side of Harvest Road and was dominated by grasslands. Area 6 was located north and east of the Otay Staging Yard.

The paragraphs below provide information on the following specific vegetation communities and habitat types found within Areas 1-6 described by Sawyer et al. (2009): sparse California Sagebrush-California Buckwheat Scrub, Purple Needlegrass Grassland, Annual Brome Grassland, Disturbed Areas, Urban/Developed, and bare ground.

California Sagebrush– California Buckwheat Scrub (*Artemisia californica-Eriogonum fasiculatum* Shrubland Alliance)

California sagebrush – California buckwheat scrub is dominated equally by California sagebrush (*Artemisia californica*) and California buckwheat (*Eriogonum fasciculatum*) in the shrub canopy. Most shrubs are less than two meters (6.6 feet) in height. The canopy is two-tiered and intermittent to continuous in which some shrubs such as laurel sumac (*Malosma laurina*) and lemonadeberry (*Rhus integrifolia*) can reach up to five meters (16.4 feet) in height. An herbaceous layer is generally seasonally present. This vegetation community can be found on steep slopes that are typically south-facing and in soils that are colluvium-derived. Dominant plant species observed within the Survey Area include California sagebrush, coastal California buckwheat (*Eriogonum fasciculatum* var. *fasciculatum*), toyon (*Heteromeles arbutifolia*), laurel sumac, and black sage (*Salvia mellifera*).

Purple Needlegrass Grassland (*Stipa pulchra* Herbaceous Alliance)

In this vegetation type, purple needlegrasss (*Stipa pulchra*), foothill needlegrass (*Stipa lepida*), and nodding needlegrass (*Stipa cernua*) are dominant or characteristically present in an open to continuous herbaceous layer less than one meter (3.3 feet) in height. Emergent shrubs such as California sagebrush, California buckwheat, and some trees may be present in low cover. Areas between native grasses and shrubs within the Survey Area are dominated by nonnative grasses. Other dominant plant species observed within this vegetation type include native sand-aster (*Corethrogyne filaginifolia*), long-stemmed buckwheat (*Eriogonum elongatum* var. *elongatum*), California buckwheat, coast goldenbush (*Isocoma menziesii*), nodding needlegrass, foothill needlegrass, and nonnative species including rose clover (*Trifolium hirtum*), ripgut grass (*Bromus diandrus*), and red brome (*Bromus madritensis*).

Annual brome grassland (*Bromus [diandrus, hordeaceus] – Brachypodium distachyon* Semi-Natural Herbaceous Stands)

Annual brome (*Bromus ssp.*) grassland is dominated by various brome grasses such as ripgut grass, soft chess (*Bromus hordeaceus*), red brome, and false brome (*Brachypodium distachyon*). Emergent trees and shrubs may be present at low cover. Herbs are less than 75 centimeters (30 inches) in height within an intermittent to continuous herbaceous layer. This vegetation type can be found in all topographic settings in foothills, waste places, rangelands, and openings in woodlands. Dominant plant species observed within this vegetation community in the Survey Area include several different nonnative brome grass species, slender wild oat (*Avena barbata*), rose clover, black mustard (*Brassica nigra*), filaree (*Erodium spp.*), and shortpod mustard (*Hirschfeldia incana*).

Disturbed Areas

Disturbed areas are mostly devoid of vegetation due to recent disturbances. The small amount of vegetation that begins to reclaim the soil is dominated by non-native, weedy species that are adapted to frequent disturbance. The vegetation in these areas is adapted to living in compact soils where water does not readily penetrate the soil. Areas characterized as disturbed have no or negligible ecological value and, within the Survey Area, are primarily dominated by various combinations of non-native species including prickly Russian thistle (*Salsola australis*), red brome, tocalote (*Centaura melitensis*), cut-leaf plantain (*Plantago coronopus*), sweetclover (*Melilotus* spp.), prickly sow-thistle (*Sonchus asper*), fountain grass (*Pennisetum setaceum*), prickly lettuce (*Lactuca serriola*), slender wild oat, and filaree. Within the Survey Area, Russian thistle is particularly dominant. Scattered individuals or remnants of native scrub, including California buckwheat, California sagebrush, and deerweed, occur in low frequencies.

Urban/Developed

Urban/Developed areas are areas that have been altered by humans and now display man-made structures such as houses, paved roads, buildings, parks, and other maintained areas. These areas are devoid of vegetation and lack the potential to ever support native plant species. Areas within the Survey Area considered Urban/Developed include paved roads and areas covered with decomposed granite.

Bare Ground

Areas characterized as Bare Ground include areas with exposed soils, rocky substrate, access roads, and disturbed areas devoid of plant cover. Areas within the Survey Area considered Bare Ground include existing dirt access roads or previously graded areas.

Focused Surveys

No BUOW, fresh BUOW sign, or active BUOW burrows were observed within Survey Area during the 2018 breeding season BUOW surveys. Several burrows large enough to support BUOW were documented and checked during each survey for BUOW sign, but none was found; these burrows are labeled as Potential BUOW Burrow: Inactive in Attachment 2: BUOW Suitable Habitat and Survey Results Map.

Several sensitive wildlife species, including the coastal California gnatcatcher (*Polioptila californica californica*; CAGN), least Bell's vireo (*Vireo bellii pusillus*; LBVI), coastal cactus wren (*Campylorhynchus brunneicapillus*; CACW), white-tailed kite (*Elanus leucurus*; WTKI), yellow-breasted chat (*Icteria virens*; YBCH), grasshopper sparrow (*Ammodramus savannarum*; GRSP), and black-tailed jackrabbit (*Lepus californicus*) were detected incidentally during the surveys. The CAGN is federally listed as threatened and is considered a SSC by the CDFW. The LBVI is federally and state-listed as endangered. The WTKI is considered Fully Protected by the CDFW; and the GRSP, YBCH and black-tailed jackrabbit are considered SSC by the CDFW. Sensitive wildlife species detected across all avian focused surveys conducted by Chambers Group through July 2018, including BUOW, CAGN, LBVI, southwestern willow flycatcher (*Empidonax traillii extimus*; SWFL) (Chambers Group 2018a-b) are shown in Attachment 3, Incidental Sensitive Wildlife Map. Other wildlife

species detected during the surveys were typical of scrub habitat in San Diego County and included red-tailed hawk (*Buteo jamaicensis*), California quail (*Callipepla californica*), Cassin's kingbird (*Tyrannus vociferans*), California towhee (*Melozone crissalis*), white-crowned sparrow (*Zonotrichia leucophrys*), California ground squirrel (*Lepus californicus*), and desert cottontail (*Sylvilagus audubonii*).

A complete list of wildlife species detected during the 2018 avian focused surveys is provided in Attachment 4, Wildlife Species Detected. Survey conditions were suitable for detecting BUOW throughout the focused survey effort and are provided in Attachment 5, BUOW Survey Conditions. Attachment 6, Site Photographs, contains representative photographs of the Survey Area.

Discussion

No BUOW, fresh BUOW sign, or active BUOW burrows were detected during the 2018 survey effort within the Proposed BSA.

Please call me at (949) 933-9432 or email me at lgorman@chambersgroupinc.com if you have any questions or comments regarding this letter report.

Sincerely,

CHAMBERS GROUP, INC.

Laurie Gorman
Senior Biologist

Attachments

Attachment 1 – Figures
Attachment 2 – BUOW Suitable Habitat and Survey Results Map
Attachment 3 – Incidental Sensitive Wildlife Map
Attachment 4 – Wildlife Species Detected
Attachment 5 – BUOW Survey Conditions
Attachment 6 – Site Photographs

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2018b *Results of the 2018 Coastal California Gnatcatcher (*Polioptila Californica Californica*) and coastal cactus wren* (Campylorhynchus brunneicapillus) *Focused Surveys for the Proposed Tie Line 649 Wood to Steel Pole Replacement Project, San Diego County, California.* September 2018. Draft.

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ATTACHMENT C: CDFW STAFF REPORT ON BURROWING OWL MITIGATION

Staff Report on Burrowing Owl Mitigation

State of California

Natural Resources Agency

Department of Fish and Game

March 7, 2012[1]

[1] This document replaces the Department of Fish and Game 1995 Staff Report On Burrowing Owl Mitigation.

TABLE OF CONTENTS

INTRODUCTION AND PURPOSE

Maintaining California's rich biological diversity is dependent on the conservation of species and their habitats. The California Department of Fish and Game (Department) has designated certain species as "species of special concern" when their population viability and survival is adversely affected by risk factors such as precipitous declines or other vulnerability factors (Shuford and Gardali 2008). Preliminary analyses of regional patterns for breeding populations of burrowing owls (*Athene cunicularia*) have detected declines both locally in their central and southern coastal breeding areas, and statewide where the species has experienced modest breeding range retraction (Gervais et al. 2008). In California, threat factors affecting burrowing owl populations include habitat loss, degradation and modification, and eradication of ground squirrels resulting in a loss of suitable burrows required by burrowing owls for nesting, protection from predators, and shelter (See Appendix A).

The Department recognized the need for a comprehensive conservation and mitigation strategy for burrowing owls, and in 1995 directed staff to prepare a report describing mitigation and survey recommendations. This report, "1995 Staff Report on Burrowing Owl Mitigation," (Staff Report) (CDFG 1995), contained Department-recommended burrowing owl and burrow survey techniques and mitigation measures intended to offset the loss of habitat and slow or reverse further decline of this species. Notwithstanding these measures, over the past 15+ years, burrowing owls have continued to decline in portions of their range (DeSante et al. 2007, Wilkerson and Siegel, 2010). The Department has determined that reversing declining population and range trends for burrowing owls will require implementation of more effective conservation actions, and evaluating the efficacy of the Department's existing recommended avoidance, minimization and mitigation approaches for burrowing owls.

The Department has identified three main actions that together will facilitate a more viable, coordinated, and concerted approach to conservation and mitigation for burrowing owls in California. These include:

1. Incorporating burrowing owl comprehensive conservation strategies into landscape-based planning efforts such as Natural Community Conservation Plans (NCCPs) and multi-species Habitat Conservation Plans (HCPs) that specifically address burrowing owls.
2. Developing and implementing a statewide conservation strategy (Burkett and Johnson, 2007) and local or regional conservation strategies for burrowing owls, including the development and implementation of a statewide burrowing owl survey and monitoring plan.
3. Developing more rigorous burrowing owl survey methods, working to improve the adequacy of impacts assessments; developing clear and effective avoidance and minimization measures; and developing mitigation measures to ensure impacts to the species are effectively addressed at the project, local, and/or regional level (the focus of this document).

This Report sets forth the Department's recommendations for implementing the third approach identified above by revising the 1995 Staff Report, drawing from the most relevant and current knowledge and expertise, and incorporating the best scientific information

available pertaining to the species. It is designed to provide a compilation of the best available science for Department staff, biologists, planners, land managers, California Environmental Quality Act (CEQA) lead agencies, and the public to consider when assessing impacts of projects or other activities on burrowing owls.

This revised Staff Report takes into account the California Burrowing Owl Consortium's Survey Protocol and Mitigation Guidelines (CBOC 1993, 1997) and supersedes the survey, avoidance, minimization and mitigation recommendations in the 1995 Staff Report. Based on experiences gained from implementing the 1995 Staff Report, the Department believes revising that report is warranted. This document also includes general conservation goals and principles for developing mitigation measures for burrowing owls.

DEPARTMENT ROLE AND LEGAL AUTHORITIES

The mission of the Department is to manage California's diverse fish, wildlife and plant resources, and the habitats upon which they depend, for their ecological values and for their use and enjoyment by the public. The Department has jurisdiction over the conservation, protection, and management of fish, wildlife, native plants, and habitats necessary to maintain biologically sustainable populations of those species (Fish and Game Code (FGC) §1802). The Department, as trustee agency pursuant to CEQA (See CEQA Guidelines, §15386), has jurisdiction by law over natural resources, including fish and wildlife, affected by a project, as that term is defined in Section 21065 of the Public Resources Code. The Department exercises this authority by reviewing and commenting on environmental documents and making recommendations to avoid, minimize, and mitigate potential negative impacts to those resources held in trust for the people of California.

Field surveys designed to detect the presence of a particular species, habitat element, or natural community are one of the tools that can assist biologists in determining whether a species or habitat may be significantly impacted by land use changes or disturbance. The Department reviews field survey data as well as site-specific and regional information to evaluate whether a project's impacts may be significant. This document compiles the best available science for conducting habitat assessments and surveys, and includes considerations for developing measures to avoid impacts or mitigate unavoidable impacts.

CEQA

CEQA requires public agencies in California to analyze and disclose potential environmental impacts associated with a project that the agency will carry out, fund, or approve. Any potentially significant impact must be mitigated to the extent feasible. Project-specific CEQA mitigation is important for burrowing owls because most populations exist on privately owned parcels that, when proposed for development or other types of modification, may be subject to the environmental review requirements of CEQA.

Take

Take of individual burrowing owls and their nests is defined by FGC section 86, and prohibited by sections 3503, 3503.5 and 3513. Take is defined in FGC Section 86 as "hunt, pursue, catch, capture or kill, or attempt to hunt, pursue, catch, capture or kill."

Migratory Bird Treaty Act

The Migratory Bird Treaty Act (MBTA) implements various treaties and conventions between the United States and Canada, Japan, Mexico, and Russia for the protection of migratory birds, including the burrowing owl (50 C.F.R. § 10). The MBTA protects migratory bird nests from possession, sale, purchase, barter, transport, import and export, and collection. The other prohibitions of the MBTA - capture, pursue, hunt, and kill - are inapplicable to nests. The regulatory definition of take, as defined in Title 50 C.F.R. part 10.12, means to pursue, hunt, shoot, wound, kill, trap, capture, or collect, or attempt to hunt, shoot, wound, kill, trap, capture, or collect. Only the verb "collect" applies to nests. It is illegal to collect, possess, and by any means transfer possession of any migratory bird nest. The MBTA prohibits the destruction of a nest when it contains birds or eggs, and no possession shall occur during the destruction (see Fish and Wildlife Service, Migratory Bird Permit Memorandum, April 15, 2003). Certain exceptions to this prohibition are included in 50 C.F.R. section 21. Pursuant to Fish & Game Code section 3513, the Department enforces the Migratory Bird Treaty Act consistent with rules and regulations adopted by the Secretary of the Interior under provisions of the Migratory Treaty Act.

Regional Conservation Plans

Regional multiple species conservation plans offer long-term assurances for conservation of covered species at a landscape scale, in exchange for biologically appropriate levels of incidental take and/or habitat loss as defined in the approved plan. California's NCCP Act (FGC §2800 et seq.) governs such plans at the state level, and was designed to conserve species, natural communities, ecosystems, and ecological processes across a jurisdiction or a collection of jurisdictions. Complementary federal HCPs are governed by the Endangered Species Act (7 U.S.C. § 136, 16 U.S.C.§ 1531 et seq.) (ESA). Regional conservation plans (and certain other landscape-level conservation and management plans), may provide conservation for unlisted as well as listed species. Because the geographic scope of NCCPs and HCPs may span many hundreds of thousands of acres, these planning tools have the potential to play a significant role in conservation of burrowing owls, and grasslands and other habitats.

Fish and Game Commission Policies

There are a number of Fish and Game Commission policies (see FGC §2008) that can be applied to burrowing owl conservation. These include policies on: Raptors, Cooperation, Endangered and Threatened Species, Land Use Planning, Management and Utilization of Fish and Wildlife on Federal Lands, Management and Utilization of Fish and Wildlife on Private Lands, and Research.

GUIDING PRINCIPLES FOR CONSERVATION

Unless otherwise provided in a statewide, local, or regional conservation strategy, surveying and evaluating impacts to burrowing owls, as well as developing and implementing avoidance, minimization, and mitigation and conservation measures incorporate the following principles. These principles are a summary of Department staff expert opinion and were used to guide the preparation of this document.

1. Use the Precautionary Principle (Noss et al.1997), by which the alternative of increased conservation is deliberately chosen in order to buffer against incomplete knowledge of burrowing owl ecology and uncertainty about the consequences to burrowing owls of potential impacts, including those that are cumulative.
2. Employ basic conservation biology tenets and population-level approaches when determining what constitutes appropriate avoidance, minimization, and mitigation for impacts. Include mitigation effectiveness monitoring and reporting, and use an adaptive management loop to modify measures based on results.
3. Protect and conserve owls in wild, semi-natural, and agricultural habitats (conserve is defined at FGC §1802).
4. Protect and conserve natural nest burrows (or burrow surrogates) previously used by burrowing owls and sufficient foraging habitat and protect auxiliary "satellite" burrows that contribute to burrowing owl survivorship and natural behavior of owls.

CONSERVATION GOALS FOR THE BURROWING OWL IN CALIFORNIA

It is Department staff expert opinion that the following goals guide and contribute to the short and long-term conservation of burrowing owls in California:

1. Maintain size and distribution of extant burrowing owl populations (allowing for natural population fluctuations).
2. Increase geographic distribution of burrowing owls into formerly occupied historical range where burrowing owl habitat still exists, or where it can be created or enhanced, and where the reason for its local disappearance is no longer of concern.
3. Increase size of existing populations where possible and appropriate (for example, considering basic ecological principles such as carrying capacity, predator-prey relationships, and inter-specific relationships with other species at risk).
4. Protect and restore self-sustaining ecosystems or natural communities which can support burrowing owls at a landscape scale, and which will require minimal long-term management.
5. Minimize or prevent unnatural causes of burrowing owl population declines (e.g., nest burrow destruction, chemical control of rodent hosts and prey).
6. Augment/restore natural dynamics of burrowing owl populations including movement and genetic exchange among populations, such that the species does not require future listing and protection under the California Endangered Species Act (CESA) and/or the federal Endangered Species Act (ESA).
7. Engage stakeholders, including ranchers; farmers; military; tribes; local, state, and federal agencies; non-governmental organizations; and scientific research and education communities involved in burrowing owl protection and habitat management.

ACTIVITIES WITH THE POTENTIAL TO TAKE OR IMPACT BURROWING OWLS

The following activities are examples of activities that have the potential to take burrowing owls, their nests or eggs, or destroy or degrade burrowing owl habitat: grading, disking, cultivation, earthmoving, burrow blockage, heavy equipment compacting and crushing burrow tunnels, levee maintenance, flooding, burning and mowing (if burrows are impacted), and operating wind turbine collisions (collectively hereafter referred to as "projects" or "activities"

whether carried out pursuant to CEQA or not). In addition, the following activities may have impacts to burrowing owl populations: eradication of host burrowers; changes in vegetation management (i.e. grazing); use of pesticides and rodenticides; destruction, conversion or degradation of nesting, foraging, over-wintering or other habitats; destruction of natural burrows and burrow surrogates; and disturbance which may result in harassment of owls at occupied burrows.

PROJECT IMPACT EVALUATIONS

The following three progressive steps are effective in evaluating whether projects will result in impacts to burrowing owls. The information gained from these steps will inform any subsequent avoidance, minimization and mitigation measures. The steps for project impact evaluations are: 1) habitat assessment, 2) surveys, and 3) impact assessment. Habitat assessments are conducted to evaluate the likelihood that a site supports burrowing owl. Burrowing owl surveys provide information needed to determine the potential effects of proposed projects and activities on burrowing owls, and to avoid take in accordance with FGC sections 86, 3503, and 3503.5. Impact assessments evaluate the extent to which burrowing owls and their habitat may be impacted, directly or indirectly, on and within a reasonable distance of a proposed CEQA project activity or non-CEQA project. These three site evaluation steps are discussed in detail below.

Biologist Qualifications

The current scientific literature indicates that only individuals meeting the following minimum qualifications should perform burrowing owl habitat assessments, surveys, and impact assessments:

1. Familiarity with the species and its local ecology;
2. Experience conducting habitat assessments and non-breeding and breeding season surveys, or experience with these surveys conducted under the direction of an experienced surveyor;
3. Familiarity with the appropriate state and federal statutes related to burrowing owls, scientific research, and conservation;
4. Experience with analyzing impacts of development on burrowing owls and their habitat.

Habitat Assessment Data Collection and Reporting

A habitat assessment is the first step in the evaluation process and will assist investigators in determining whether or not occupancy surveys are needed. Refer to Appendix B for a definition of burrowing owl habitat. Compile the detailed information described in Appendix C when conducting project scoping, conducting a habitat assessment site visit and preparing a habitat assessment report.

Surveys

Burrowing owl surveys are the second step of the evaluation process and the best available scientific literature recommends that they be conducted whenever burrowing owl habitat or sign (see Appendix B) is encountered on or adjacent to (within 150 meters) a project site

(Thomsen 1971, Martin 1973). Occupancy of burrowing owl habitat is confirmed at a site when at least one burrowing owl, or its sign at or near a burrow entrance, is observed within the last three years (Rich 1984). Burrowing owls are more detectable during the breeding season with detection probabilities being highest during the nestling stage (Conway et al. 2008). In California, the burrowing owl breeding season extends from 1 February to 31 August (Haug et al. 1993, Thompsen 1971) with some variances by geographic location and climatic conditions. Several researchers suggest three or more survey visits during daylight hours (Haug and Diduik 1993, CBOC 1997, Conway and Simon 2003) and recommend each visit occur at least three weeks apart during the peak of the breeding season, commonly accepted in California as between 15 April and 15 July (CBOC 1997). Conway and Simon (2003) and Conway et al. (2008) recommended conducting surveys during the day when most burrowing owls in a local area are in the laying and incubation period (so as not to miss early breeding attempts), during the nesting period, and in the late nestling period when most owls are spending time above ground.

Non-breeding season (1 September to 31 January) surveys may provide information on burrowing owl occupancy, but do not substitute for breeding season surveys because results are typically inconclusive. Burrowing owls are more difficult to detect during the non-breeding season and their seasonal residency status is difficult to ascertain. Burrowing owls detected during non-breeding season surveys may be year-round residents, young from the previous breeding season, pre-breeding territorial adults, winter residents, dispersing juveniles, migrants, transients or new colonizers. In addition, the numbers of owls and their pattern of distribution may differ during winter and breeding seasons. However, on rare occasions, non-breeding season surveys may be warranted (i.e., if the site is believed to be a wintering site only based on negative breeding season results). Refer to Appendix D for information on breeding season and non-breeding season survey methodologies.

Survey Reports

Adequate information about burrowing owls present in and adjacent to an area that will be disturbed by a project or activity will enable the Department, reviewing agencies and the public to effectively assess potential impacts and will guide the development of avoidance, minimization, and mitigation measures. The survey report includes but is not limited to a description of the proposed project or proposed activity, including the proposed project start and end dates, as well as a description of disturbances or other activities occurring on-site or nearby. Refer to Appendix D for details included in a survey report.

Impact Assessment

The third step in the evaluation process is the impact assessment. When surveys confirm occupied burrowing owl habitat in or adjoining the project area, there are a number of ways to assess a project's potential significant impacts to burrowing owls and their habitat. Richardson and Miller (1997) recommended monitoring raptor behavior prior to developing management recommendations and buffers to determine the extent to which individuals have been sensitized to human disturbance. Monitoring results will also provide detail necessary for developing site-specific measures. Postovit and Postovit (1987) recommended an analytical approach to mitigation planning: define the problem (impact), set goals (to guide mitigation development), evaluate and select mitigation methods, and monitor the results.

Define the problem. The impact assessment evaluates all factors that could affect burrowing owls. Postovit and Postovit (1987) recommend evaluating the following in assessing impacts to raptors and planning mitigation: type and extent of disturbance, duration and timing of disturbance, visibility of disturbance, sensitivity and ability to habituate, and influence of environmental factors. They suggest identifying and addressing all potential direct and indirect impacts to burrowing owls, regardless of whether or not the impacts will occur during the breeding season. Several examples are given for each impact category below; however, examples are not intended to be used exclusively.

Type and extent of the disturbance. The impact assessment describes the nature (source) and extent (scale) of potential project impacts on occupied, satellite and unoccupied burrows including acreage to be lost (temporary or permanent), fragmentation/edge being created, increased distance to other nesting and foraging habitat, and habitat degradation. Discuss any project activities that impact either breeding and/or non-breeding habitat which could affect owl home range size and spatial configuration, negatively affect onsite and offsite burrowing owl presence, increase energetic costs, lower reproductive success, increase vulnerability to predation, and/or decrease the chance of procuring a mate.

Duration and timing of the impact. The impact assessment describes the amount of time the burrowing owl habitat will be unavailable to burrowing owls (temporary or permanent) on the site and the effect of that loss on essential behaviors or life history requirements of burrowing owls, the overlap of project activities with breeding and/or non-breeding seasons (timing of nesting and/or non-breeding activities may vary with latitude and climatic conditions, which should be considered with the timeline of the project or activity), and any variance of the project activities in intensity, scale and proximity relative to burrowing owl occurrences.

Visibility and sensitivity. Some individual burrowing owls or pairs are more sensitive than others to specific stimuli and may habituate to ongoing visual or audible disturbance. Site-specific monitoring may provide clues to the burrowing owl's sensitivities. This type of assessment addresses the sensitivity of burrowing owls within their nesting area to humans on foot, and vehicular traffic. Other variables are whether the site is primarily in a rural versus urban setting, and whether any prior disturbance (e.g., human development or recreation) is known at the site.

Environmental factors. The impact assessment discusses any environmental factors that could be influenced or changed by the proposed activities including nest site availability, predators, prey availability, burrowing mammal presence and abundance, and threats from other extrinsic factors such as human disturbance, urban interface, feral animals, invasive species, disease or pesticides.

Significance of impacts. The impact assessment evaluates the potential loss of nesting burrows, satellite burrows, foraging habitat, dispersal and migration habitat, wintering habitat, and habitat linkages, including habitat supporting prey and host burrowers and other essential habitat attributes. This assessment determines if impacts to the species will result in significant impacts to the species locally, regionally and range-wide per CEQA Guidelines §15382 and Appendix G. The significance of the impact to habitat depends on the extent of habitat disturbed and length of time the habitat is unavailable (for example: minor – several days, medium – several weeks to months, high - breeding season affecting juvenile survival,

or over winter affecting adult survival).

Cumulative effects. The cumulative effects assessment evaluates two consequences: 1) the project's proportional share of reasonably foreseeable impacts on burrowing owls and habitat caused by the project or in combination with other projects and local influences having impacts on burrowing owls and habitat, and 2) the effects on the regional owl population resulting from the project's impacts to burrowing owls and habitat.

Mitigation goals. Establishing goals will assist in planning mitigation and selecting measures that function at a desired level. Goals also provide a standard by which to measure mitigation success. Unless specifically provided for through other FGC Sections or through specific regulations, take, possession or destruction of individual burrowing owls, their nests and eggs is prohibited under FGC sections 3503, 3503.5 and 3513. Therefore, a required goal for all project activities is to avoid take of burrowing owls. Under CEQA, goals would consist of measures that would avoid, minimize and mitigate impacts to a less than significant level. For individual projects, mitigation must be roughly proportional to the level of impacts, including cumulative impacts, in accordance with the provisions of CEQA (CEQA Guidelines, §§ 15126.4(a)(4)(B), 15064, 15065, and 16355). In order for mitigation measures to be effective, they must be specific, enforceable, and feasible actions that will improve environmental conditions. As set forth in more detail in Appendix A, the current scientific literature supports the conclusion that mitigation for permanent habitat loss necessitates replacement with an equivalent or greater habitat area for breeding, foraging, wintering, dispersal, presence of burrows, burrow surrogates, presence of fossorial mammal dens, well drained soils, and abundant and available prey within close proximity to the burrow.

MITIGATION METHODS

The current scientific literature indicates that any site-specific avoidance or mitigation measures developed should incorporate the best practices presented below or other practices confirmed by experts and the Department. The Department is available to assist in the development of site-specific avoidance and mitigation measures.

Avoiding. A primary goal is to design and implement projects to seasonally and spatially avoid negative impacts and disturbances that could result in take of burrowing owls, nests, or eggs. Other avoidance measures may include but not be limited to:

- Avoid disturbing occupied burrows during the nesting period, from 1 February through 31 August.
- Avoid impacting burrows occupied during the non-breeding season by migratory or non-migratory resident burrowing owls.
- Avoid direct destruction of burrows through chaining (dragging a heavy chain over an area to remove shrubs), disking, cultivation, and urban, industrial, or agricultural development.
- Develop and implement a worker awareness program to increase the on-site worker's recognition of and commitment to burrowing owl protection.
- Place visible markers near burrows to ensure that farm equipment and other machinery does not collapse burrows.
- Do not fumigate, use treated bait or other means of poisoning nuisance animals in areas where burrowing owls are known or suspected to occur (e.g., sites observed with nesting

owls, designated use areas).
- Restrict the use of treated grain to poison mammals to the months of January and February.

Take avoidance (pre-construction) surveys. Take avoidance surveys are intended to detect the presence of burrowing owls on a project site at a fixed period in time and inform necessary take avoidance actions. Take avoidance surveys may detect changes in owl presence such as colonizing owls that have recently moved onto the site, migrating owls, resident burrowing owls changing burrow use, or young of the year that are still present and have not dispersed. Refer to Appendix D for take avoidance survey methodology.

Site surveillance. Burrowing owls may attempt to colonize or re-colonize an area that will be impacted; thus, the current scientific literature indicates a need for ongoing surveillance at the project site during project activities is recommended. The surveillance frequency/effort should be sufficient to detect burrowing owls if they return. Subsequent to their new occupancy or return to the site, take avoidance measures should assure with a high degree of certainty that take of owls will not occur.

Minimizing. If burrowing owls and their habitat can be protected in place on or adjacent to a project site, the use of buffer zones, visual screens or other measures while project activities are occurring can minimize disturbance impacts. Conduct site-specific monitoring to inform development of buffers (see Visibility and sensitivity above). The following general guidelines for implementing buffers should be adjusted to address site-specific conditions using the impact assessment approach described above. The CEQA lead agency and/or project proponent is encouraged to consult with the Department and other burrowing owl experts for assistance in developing site-specific buffer zones and visual screens.

Buffers. Holroyd et al. (2001) identified a need to standardize management and disturbance mitigation guidelines. For instance, guidelines for mitigating impacts by petroleum industries on burrowing owls and other prairie species (Scobie and Faminow, 2000) may be used as a template for future mitigation guidelines (Holroyd et al. 2001). Scobie and Faminow (2000) developed guidelines for activities around occupied burrowing owl nests recommending buffers around low, medium, and high disturbance activities, respectively (see below).

Recommended restricted activity dates and setback distances by level of disturbance for burrowing owls (Scobie and Faminow 2000).

Location	Time of Year	Level of Disturbance		
		Low	Med	High
Nesting sites	April 1-Aug 15	200 m*	500 m	500 m
Nesting sites	Aug 16-Oct 15	200 m	200 m	500 m
Nesting sites	Oct 16-Mar 31	50 m	100 m	500 m

* meters (m)

Based on existing vegetation, human development, and land uses in an area, resource managers may decide to allow human development or resource extraction closer to these area/sites than recommended above. However, if it is decided to allow activities closer than

the setback distances recommended, a broad-scale, long-term, scientifically-rigorous monitoring program ensures that burrowing owls are not detrimentally affected by alternative approaches.

Other minimization measures include eliminating actions that reduce burrowing owl forage and burrowing surrogates (e.g. ground squirrel), or introduce/facilitate burrowing owl predators. Actions that could influence these factors include reducing livestock grazing rates and/or changing the timing or duration of grazing or vegetation management that could result in less suitable habitat.

Burrow exclusion and closure. Burrow exclusion is a technique of installing one-way doors in burrow openings during the non-breeding season to temporarily exclude burrowing owls, or permanently exclude burrowing owls and close burrows after verifying burrows are empty by site monitoring and scoping. Exclusion in and of itself is not a take avoidance, minimization or mitigation method. Eviction of burrowing owls is a potentially significant impact under CEQA.

The long-term demographic consequences of these techniques have not been thoroughly evaluated, and the fate of evicted or excluded burrowing owls has not been systematically studied. Because burrowing owls are dependent on burrows at all times of the year for survival and/or reproduction, evicting them from nesting, roosting, and satellite burrows may lead to indirect impacts or take. Temporary or permanent closure of burrows may result in significant loss of burrows and habitat for reproduction and other life history requirements. Depending on the proximity and availability of alternate habitat, loss of access to burrows will likely result in varying levels of increased stress on burrowing owls and could depress reproduction, increase predation, increase energetic costs, and introduce risks posed by having to find and compete for available burrows. Therefore, exclusion and burrow closure are not recommended where they can be avoided. The current scientific literature indicates consideration of all possible avoidance and minimization measures before temporary or permanent exclusion and closure of burrows is implemented, in order to avoid take.

The results of a study by Trulio (1995) in California showed that burrowing owls passively displaced from their burrows were quickly attracted to adjacent artificial burrows at five of six passive relocation sites. The successful sites were all within 75 meters (m) of the destroyed burrow, a distance generally within a pair's territory. This researcher discouraged using passive relocation to artificial burrows as a mitigation measure for lost burrows without protection of adjacent foraging habitat. The study results indicated artificial burrows were used by evicted burrowing owls when they were approximately 50-100 m from the natural burrow (Thomsen 1971, Haug and Oliphant 1990). Locating artificial or natural burrows more than 100 m from the eviction burrow may greatly reduce the chances that new burrows will be used. Ideally, exclusion and burrow closure is employed only where there are adjacent natural burrows and non-impacted, sufficient habitat for burrowing owls to occupy with permanent protection mechanisms in place. Any new burrowing owl colonizing the project site after the CEQA document has been adopted may constitute changed circumstances that should be addressed in a re-circulated CEQA document.

The current scientific literature indicates that burrow exclusion should only be conducted by qualified biologists (meeting the Biologist's Qualifications above) during the non-breeding

season, before breeding behavior is exhibited and after the burrow is confirmed empty by site surveillance and/or scoping. The literature also indicates that when temporary or permanent burrow exclusion and/or burrow closure is implemented, burrowing owls should not be excluded from burrows unless or until:

- A Burrowing Owl Exclusion Plan (see Appendix E) is developed and approved by the applicable local DFG office;
- Permanent loss of occupied burrow(s) and habitat is mitigated in accordance with the Mitigating Impacts sections below. Temporary exclusion is mitigated in accordance with the item #1 under Mitigating Impacts below.
- Site monitoring is conducted prior to, during, and after exclusion of burrowing owls from their burrows sufficient to ensure take is avoided. Conduct daily monitoring for one week to confirm young of the year have fledged if the exclusion will occur immediately after the end of the breeding season.
- Excluded burrowing owls are documented using artificial or natural burrows on an adjoining mitigation site (if able to confirm by band re-sight).

Translocation (Active relocation offsite >100 meters). At this time, there is little published information regarding the efficacy of translocating burrowing owls, and additional research is needed to determine subsequent survival and breeding success (Klute et al. 2003, Holroyd et al. 2001). Study results for translocation in Florida implied that hatching success may be decreased for populations of burrowing owls that undergo translocation (Nixon 2006). At this time, the Department is unable to authorize the capture and relocation of burrowing owls except within the context of scientific research (FGC §1002) or a NCCP conservation strategy.

Mitigating impacts. Habitat loss and degradation from rapid urbanization of farmland in the core areas of the Central and Imperial valleys is the greatest of many threats to burrowing owls in California (Shuford and Gardali, 2008). At a minimum, if burrowing owls have been documented to occupy burrows (see Definitions, Appendix B) at the project site in recent years, the current scientific literature supports the conclusion that the site should be considered occupied and mitigation should be required by the CEQA lead agency to address project-specific significant and cumulative impacts. Other site-specific and regionally significant and cumulative impacts may warrant mitigation. The current scientific literature indicates the following to be best practices. If these best practices cannot be implemented, the lead agency or lead investigator may consult with the Department to develop effective mitigation alternatives. The Department is also available to assist in the identification of suitable mitigation lands.

1. Where habitat will be temporarily disturbed, restore the disturbed area to pre-project condition including decompacting soil and revegetating. Permanent habitat protection may be warranted if there is the potential that the temporary impacts may render a nesting site (nesting burrow and satellite burrows) unsustainable or unavailable depending on the time frame, resulting in reduced survival or abandonment. For the latter potential impact, see the permanent impact measures below.
2. Mitigate for permanent impacts to nesting, occupied and satellite burrows and/or burrowing owl habitat such that the habitat acreage, number of burrows and burrowing owls impacted are replaced based on the information provided in Appendix A. Note: A

minimum habitat replacement recommendation is not provided here as it has been shown to serve as a default, replacing any site-specific analysis and discounting the wide variation in natal area, home range, foraging area, and other factors influencing burrowing owls and burrowing owl population persistence in a particular area.

3. Mitigate for permanent impacts to nesting, occupied and satellite burrows and burrowing owl habitat with (a) permanent conservation of similar vegetation communities (grassland, scrublands, desert, urban, and agriculture) to provide for burrowing owl nesting, foraging, wintering, and dispersal (i.e., during breeding and non-breeding seasons) comparable to or better than that of the impact area, and (b) sufficiently large acreage, and presence of fossorial mammals. The mitigation lands may require habitat enhancements including enhancement or expansion of burrows for breeding, shelter and dispersal opportunity, and removal or control of population stressors. If the mitigation lands are located adjacent to the impacted burrow site, ensure the nearest neighbor artificial or natural burrow clusters are at least within 210 meters (Fisher et al. 2007).
4. Permanently protect mitigation land through a conservation easement deeded to a non-profit conservation organization or public agency with a conservation mission, for the purpose of conserving burrowing owl habitat and prohibiting activities incompatible with burrowing owl use. If the project is located within the service area of a Department-approved burrowing owl conservation bank, the project proponent may purchase available burrowing owl conservation bank credits.
5. Develop and implement a mitigation land management plan to address long-term ecological sustainability and maintenance of the site for burrowing owls (see Management Plan and Artificial Burrow sections below, if applicable).
6. Fund the maintenance and management of mitigation land through the establishment of a long-term funding mechanism such as an endowment.
7. Habitat should not be altered or destroyed, and burrowing owls should not be excluded from burrows, until mitigation lands have been legally secured, are managed for the benefit of burrowing owls according to Department-approved management, monitoring and reporting plans, and the endowment or other long-term funding mechanism is in place or security is provided until these measures are completed.
8. Mitigation lands should be on, adjacent or proximate to the impact site where possible and where habitat is sufficient to support burrowing owls present.
9. Where there is insufficient habitat on, adjacent to, or near project sites where burrowing owls will be excluded, acquire mitigation lands with burrowing owl habitat away from the project site. The selection of mitigation lands should then focus on consolidating and enlarging conservation areas located outside of urban and planned growth areas, within foraging distance of other conserved lands. If mitigation lands are not available adjacent to other conserved lands, increase the mitigation land acreage requirement to ensure a selected site is of sufficient size. Offsite mitigation may not adequately offset the biological and habitat values impacted on a one to one basis. Consult with the Department when determining offsite mitigation acreages.
10. Evaluate and select suitable mitigation lands based on a comparison of the habitat attributes of the impacted and conserved lands, including but not limited to: type and structure of habitat being impacted or conserved; density of burrowing owls in impacted and conserved habitat; and significance of impacted or conserved habitat to the species range-wide. Mitigate for the highest quality burrowing owl habitat impacted first and foremost when identifying mitigation lands, even if a mitigation site is located outside of

a lead agency's jurisdictional boundary, particularly if the lead agency is a city or special district.

11. Select mitigation lands taking into account the potential human and wildlife conflicts or incompatibility, including but not limited to, human foot and vehicle traffic, and predation by cats, loose dogs and urban-adapted wildlife, and incompatible species management (i.e., snowy plover).
12. Where a burrowing owl population appears to be highly adapted to heavily altered habitats such as golf courses, airports, athletic fields, and business complexes, permanently protecting the land, augmenting the site with artificial burrows, and enhancing and maintaining those areas may enhance sustainability of the burrowing owl population onsite. Maintenance includes keeping lands grazed or mowed with weed-eaters or push mowers, free from trees and shrubs, and preventing excessive human and human-related disturbance (e.g., walking, jogging, off-road activity, dog-walking) and loose and feral pets (chasing and, presumably, preying upon owls) that make the environment uninhabitable for burrowing owls (Wesemann and Rowe 1985, Millsap and Bear 2000, Lincer and Bloom 2007). Items 4, 5 and 6 also still apply to this mitigation approach.
13. If there are no other feasible mitigation options available and a lead agency is willing to establish and oversee a Burrowing Owl Mitigation and Conservation Fund that funds on a competitive basis acquisition and permanent habitat conservation, the project proponent may participate in the lead agency's program.

Artificial burrows. Artificial burrows have been used to replace natural burrows either temporarily or long-term and their long-term success is unclear. Artificial burrows may be an effective addition to in-perpetuity habitat mitigation if they are augmenting natural burrows, the burrows are regularly maintained (i.e., no less than annual, with biennial maintenance recommended), and surrounding habitat patches are carefully maintained. There may be some circumstances, for example at airports, where squirrels will not be allowed to persist and create a dynamic burrow system, where artificial burrows may provide some support to an owl population.

Many variables may contribute to the successful use of artificial burrows by burrowing owls, including pre-existence of burrowing owls in the area, availability of food, predators, surrounding vegetation and proximity, number of natural burrows in proximity, type of materials used to build the burrow, size of the burrow and entrance, direction in which the burrow entrance is facing, slope of the entrance, number of burrow entrances per burrow, depth of the burrow, type and height of perches, and annual maintenance needs (Belthoff and King 2002, Smith et al. 2005, Barclay et al. 2011). Refer to Barclay (2008) and (2011) and to Johnson et al. 2010 (unpublished report) for guidance on installing artificial burrows including recommendations for placement, installation and maintenance.

Any long-term reliance on artificial burrows as natural burrow replacements must include semi-annual to annual cleaning and maintenance and/or replacement (Barclay et al. 2011, Smith and Conway 2005, Alexander et al. 2005) as an ongoing management practice. Alexander et al. (2005), in a study of the use of artificial burrows found that all of 20 artificial burrows needed some annual cleaning and maintenance. Burrows were either excavated by predators, blocked by soil or vegetation, or experienced substrate erosion forming a space beneath the tubing that prevented nestlings from re-entering the burrow.

Mitigation lands management plan. Develop a Mitigation Lands Management Plan for projects that require off-site or on-site mitigation habitat protection to ensure compliance with and effectiveness of identified management actions for the mitigation lands. A suggested outline and related vegetation management goals and monitoring success criteria can be found in Appendix E.

Mitigation Monitoring and Reporting

Verify the compliance with required mitigation measures, the accuracy of predictions, and ensure the effectiveness of all mitigation measures for burrowing owls by conducting follow-up monitoring, and implementing midcourse corrections, if necessary, to protect burrowing owls. Refer to CEQA Guidelines Section 15097 and the CEQA Guidelines for additional guidance on mitigation, monitoring and reporting. Monitoring is qualitatively different from site surveillance; monitoring normally has a specific purpose and its outputs and outcomes will usually allow a comparison with some baseline condition of the site before the mitigation (including avoidance and minimization) was undertaken. Ideally, monitoring should be based on the Before-After Control-Impact (BACI) principle (McDonald et al. 2000) that requires knowledge of the pre-mitigation state to provide a reference point for the state and change in state after the project and mitigation have been implemented.

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Appendix A. Burrowing Owl Natural History and Threats

Diet

Burrowing owl diet includes arthropods, small rodents, birds, amphibians, reptiles, and carrion (Haug et al. 1993).

Breeding

In California, the breeding season for the burrowing owl typically occurs between 1 February and 31 August although breeding in December has been documented (Thompson 1971, Gervais et al. 2008); breeding behavior includes nest site selection by the male, pair formation, copulation, egg laying, hatching, fledging, and post-fledging care of young by the parents. The peak of the breeding season occurs between 15 April and 15 July and is the period when most burrowing owls have active nests (eggs or young). The incubation period lasts 29 days (Coulombe 1971) and young fledge after 44 days (Haug et al. 1993). Note that the timing of nesting activities may vary with latitude and climatic conditions. Burrowing owls may change burrows several times during the breeding season, starting when nestlings are about three weeks old (Haug et al. 1993).

Dispersal

The following discussion is an excerpt from Gervais et al (2008):

> "The burrowing owl is often considered a sedentary species (e.g., Thomsen 1971). A large proportion of adults show strong fidelity to their nest site from year to year, especially where resident, as in Florida (74% for females, 83% for males; Millsap and Bear 1997). In California, nest-site fidelity rates were 32%–50% in a large grassland and 57% in an agricultural environment (Ronan 2002, Catlin 2004, Catlin et al. 2005). Differences in these rates among sites may reflect differences in nest predation rates (Catlin 2004, Catlin et al. 2005). Despite the high nest fidelity rates, dispersal distances may be considerable for both juveniles (natal dispersal) and adults (postbreeding dispersal), but this also varied with location (Catlin 2004, Rosier et al. 2006). Distances of 53 km to roughly 150 km have been observed in California for adult and natal dispersal, respectively (D. K. Rosenberg and J. A. Gervais, unpublished data), despite the difficulty in detecting movements beyond the immediate study area (Koenig et al. 1996)."

Habitat

The burrowing owl is a small, long-legged, ground-dwelling bird species, well-adapted to open, relatively flat expanses. In California, preferred habitat is generally typified by short, sparse vegetation with few shrubs, level to gentle topography and well-drained soils (Haug et al. 1993). Grassland, shrub steppe, and desert are naturally occurring habitat types used by the species. In addition, burrowing owls may occur in some agricultural areas, ruderal grassy fields, vacant lots and pastures if the vegetation structure is suitable and there are useable burrows and foraging habitat in proximity (Gervais et al 2008). Unique amongst North

American raptors, the burrowing owl requires underground burrows or other cavities for nesting during the breeding season and for roosting and cover, year round. Burrows used by the owls are usually dug by other species termed host burrowers. In California, California ground squirrel (*Spermophilus beecheyi*) and round-tailed ground squirrel (*Citellus tereticaudus*) burrows are frequently used by burrowing owls but they may use dens or holes dug by other fossorial species including badger (*Taxidea taxus*), coyote (*Canis latrans*), and fox (e.g., San Joaquin kit fox, *Vulpes macrotis mutica*; Ronan 2002). In some instances, owls have been known to excavate their own burrows (Thompson 1971, Barclay 2007). Natural rock cavities, debris piles, culverts, and pipes also are used for nesting and roosting (Rosenberg et al. 1998). Burrowing owls have been documented using artificial burrows for nesting and cover (Smith and Belthoff, 2003).

Foraging habitat. Foraging habitat is essential to burrowing owls. The following discussion is an excerpt from Gervais et al. (2008):

> "Useful as a rough guide to evaluating project impacts and appropriate mitigation for burrowing owls, adult male burrowing owls home ranges have been documented (calculated by minimum convex polygon) to comprise anywhere from 280 acres in intensively irrigated agroecosystems in Imperial Valley (Rosenberg and Haley 2004) to 450 acres in mixed agricultural lands at Lemoore Naval Air Station, CA (Gervais et al. 2003), to 600 acres in pasture in Saskatchewan, Canada (Haug and Oliphant 1990). But owl home ranges may be much larger, perhaps by an order of magnitude, in non-irrigated grasslands such as at Carrizo Plain, California (Gervais et al. 2008), based on telemetry studies and distribution of nests. Foraging occurs primarily within 600 m of their nests (within approximately 300 acres, based on a circle with a 600 m radius) during the breeding season."

Importance of burrows and adjacent habitat. Burrows and the associated surrounding habitat are essential ecological requisites for burrowing owls throughout the year and especially during the breeding season. During the non-breeding season, burrowing owls remain closely associated with burrows, as they continue to use them as refuge from predators, shelter from weather and roost sites. Resident populations will remain near the previous season's nest burrow at least some of the time (Coulombe 1971, Thomsen 1971, Botelho 1996, LaFever et al. 2008).

In a study by Lutz and Plumpton (1999) adult males and females nested in formerly used sites at similar rates (75% and 63%, respectively) (Lutz and Plumpton 1999). Burrow fidelity has been reported in some areas; however, more frequently, burrowing owls reuse traditional nesting areas without necessarily using the same burrow (Haug et al. 1993, Dechant et al. 1999). Burrow and nest sites are re-used at a higher rate if the burrowing owl has reproduced successfully during the previous year (Haug et al. 1993) and if the number of burrows isn't limiting nesting opportunity.

Burrowing owls may use "satellite" or non-nesting burrows, moving young at 10-14 days, presumably to reduce risk of predation (Desmond and Savidge 1998) and possibly to avoid nest parasites (Dechant et al. 1999). Successful nests in Nebraska had more active satellite burrows within 75 m of the nest burrow than unsuccessful nests (Desmond and Savidge

1999). Several studies have documented the number of satellite burrows used by young and adult burrowing owls during the breeding season as between one and 11 burrows with an average use of approximately five burrows (Thompsen 1984, Haug 1985, Haug and Oliphant 1990). Supporting the notion of selecting for nest sites near potential satellite burrows, Ronan (2002) found burrowing owl families would move away from a nest site if their satellite burrows were experimentally removed through blocking their entrance.

Habitat adjacent to burrows has been documented to be important to burrowing owls. Gervais et al. (2003) found that home range sizes of male burrowing owls during the nesting season were highly variable within but not between years. Their results also suggested that owls concentrate foraging efforts within 600 meters of the nest burrow, as was observed in Canada (Haug and Oliphant 1990) and southern California (Rosenberg and Haley 2004). James et al. (1997), reported habitat modification factors causing local burrowing owl declines included habitat fragmentation and loss of connectivity.

In conclusion, the best available science indicates that essential habitat for the burrowing owl in California must include suitable year-round habitat, primarily for breeding, foraging, wintering and dispersal habitat consisting of short or sparse vegetation (at least at some time of year), presence of burrows, burrow surrogates or presence of fossorial mammal dens, well-drained soils, and abundant and available prey within close proximity to the burrow.

Threats to Burrowing Owls in California

Habitat loss. Habitat loss, degradation, and fragmentation are the greatest threats to burrowing owls in California. According to DeSante et al. (2007), "the vast majority of burrowing owls [now] occur in the wide, flat lowland valleys and basins of the Imperial Valley and Great Central Valley [where] for the most part,...the highest rates of residential and commercial development in California are occurring." Habitat loss from the State's long history of urbanization in coastal counties has already resulted in either extirpation or drastic reduction of burrowing owl populations there (Gervais et al. 2008). Further, loss of agricultural and other open lands (such as grazed landscapes) also negatively affect owl populations. Because of their need for open habitat with low vegetation, burrowing owls are unlikely to persist in agricultural lands dominated by vineyards and orchards (Gervais et al. 2008).

Control of burrowing rodents. According to Klute et al. (2003), the elimination of burrowing rodents through control programs is a primary factor in the recent and historical decline of burrowing owl populations nationwide. In California, ground squirrel burrows are most often used by burrowing owls for nesting and cover; thus, ground squirrel control programs may affect owl numbers in local areas by eliminating a necessary resource.

Direct mortality. Burrowing owls suffer direct losses from a number of sources. Vehicle collisions are a significant source of mortality especially in the urban interface and where owls nest alongside roads (Haug et al. 1993, Gervais et al. 2008). Road and ditch maintenance, modification of water conveyance structures (Imperial Valley) and discing to control weeds in fallow fields may destroy burrows (Rosenberg and Haley 2004, Catlin and Rosenberg 2006) which may trap or crush owls. Wind turbines at Altamont Pass Wind Resource Area are known to cause direct burrowing owl mortality (Thelander et al. 2003). Exposure to

pesticides may pose a threat to the species but is poorly understood (Klute et al. 2003, Gervais et al. 2008).

Appendix B. Definitions

Some key terms that appear in this document are defined below.

Adjacent habitat means burrowing owl habitat that abuts the area where habitat and burrows will be impacted and rendered non-suitable for occupancy.

Breeding (nesting) season begins as early as 1 February and continues through 31 August (Thomsen 1971, Zarn 1974). The timing of breeding activities may vary with latitude and climatic conditions. The breeding season includes pairing, egg-laying and incubation, and nestling and fledging stages.

Burrow exclusion is a technique of installing one-way doors in burrow openings during the non-breeding season to temporarily exclude burrowing owls or permanently exclude burrowing owls and excavate and close burrows after confirming burrows are empty.

Burrowing owl habitat generally includes, but is not limited to, short or sparse vegetation (at least at some time of year), presence of burrows, burrow surrogates or presence of fossorial mammal dens, well-drained soils, and abundant and available prey.

Burrow surrogates include culverts, piles of concrete rubble, piles of soil, burrows created along soft banks of ditches and canals, pipes, and similar structures.

Civil twilight - Morning civil twilight begins when the geometric center of the sun is 6 degrees below the horizon (civil dawn) and ends at sunrise. Evening civil twilight begins at sunset and ends when the geometric center of the sun reaches 6 degrees below the horizon (civil dusk). During this period there is enough light from the sun that artificial sources of light may not be needed to carry on outdoor activities. This concept is sometimes enshrined in laws, for example, when drivers of automobiles must turn on their headlights (called lighting-up time in the UK); when pilots may exercise the rights to fly aircraft. Civil twilight can also be described as the limit at which twilight illumination is sufficient, under clear weather conditions, for terrestrial objects to be clearly distinguished; at the beginning of morning civil twilight, or end of evening civil twilight, the horizon is clearly defined and the brightest stars are visible under clear atmospheric conditions.

Conservation for burrowing owls may include but may not be limited to protecting remaining breeding pairs or providing for population expansion, protecting and enhancing breeding and essential habitat, and amending or augmenting land use plans to stabilize populations and other specific actions to avoid the need to list the species pursuant to California or federal Endangered Species Acts.

Contiguous means connected together so as to form an uninterrupted expanse in space.

Essential habitat includes nesting, foraging, wintering, and dispersal habitat.

Foraging habitat is habitat within the estimated home range of an occupied burrow, supports suitable prey base, and allows for effective hunting.

Host burrowers include ground squirrels, badgers, foxes, coyotes, gophers etc.

Locally significant species is a species that is not rare from a statewide perspective but is rare or uncommon in a local context such as within a county or region (CEQA §15125 (c)) or is so designated in local or regional plans, policies, or ordinances (CEQA Guidelines, Appendix G). Examples include a species at the outer limits of its known range or occurring in a unique habitat type.

Non-breeding season is the period of time when nesting activity is not occurring, generally September 1 through January 31, but may vary with latitude and climatic conditions.

Occupied site or occupancy means a site that is assumed occupied if at least one burrowing owl has been observed occupying a burrow within the last three years (Rich 1984). Occupancy of suitable burrowing owl habitat may also be indicated by owl sign including its molted feathers, cast pellets, prey remains, eggshell fragments, or excrement at or near a burrow entrance or perch site.

Other impacting activities may include but may not be limited to agricultural practices, vegetation management and fire control, pest management, conversion of habitat from rangeland or natural lands to more intensive agricultural uses that could result in “take”. These impacting activities may not meet the definition of a project under CEQA.

Passive relocation is a technique of installing one-way doors in burrow openings to temporarily or permanently evict burrowing owls and prevent burrow re-occupation.

Peak of the breeding season is between 15 April and 15 July.

Sign includes its tracks, molted feathers, cast pellets (defined as 1-2” long brown to black regurgitated pellets consisting of non-digestible portions of the owls’ diet, such as fur, bones, claws, beetle elytra, or feathers), prey remains, egg shell fragments, owl white wash, nest burrow decoration materials (e.g., paper, foil, plastic items, livestock or other animal manure, etc.), possible owl perches, or other items.

Appendix C. Habitat Assessment and Reporting Details

Habitat Assessment Data Collection and Reporting

Current scientific literature indicates that it would be most effective to gather the data in the manner described below when conducting project scoping, conducting a habitat assessment site visit and preparing a habitat assessment report:

1. Conduct at least one visit covering the entire potential project/activity area including areas that will be directly or indirectly impacted by the project. Survey adjoining areas within 150 m (Thomsen 1971, Martin 1973), or more where direct or indirect effects could potentially extend offsite. If lawful access cannot be achieved to adjacent areas, surveys can be performed with a spotting scope or other methods.
2. Prior to the site visit, compile relevant biological information for the site and surrounding area to provide a local and regional context.
3. Check all available sources for burrowing owl occurrence information regionally prior to a field inspection. The CNDDB and BIOS (see References cited) may be consulted for known occurrences of burrowing owls. Other sources of information include, but are not limited to, the Proceedings of the California Burrowing Owl Symposium (Barclay et al. 2007), county bird atlas projects, Breeding Bird Survey records, eBIRD (http://ebird.org), Gervais et al. (2008), local reports or experts, museum records, and other site-specific relevant information.
4. Identify vegetation and habitat types potentially supporting burrowing owls in the project area and vicinity.
5. Record and report on the following information:
    a. A full description of the proposed project, including but not limited to, expected work periods, daily work schedules, equipment used, activities performed (such as drilling, construction, excavation, etc.) and whether the expected activities will vary in location or intensity over the project's timeline;
    b. A regional setting map, showing the general project location relative to major roads and other recognizable features;
    c. A detailed map (preferably a USGS topo 7.5' quad base map) of the site and proposed project, including the footprint of proposed land and/or vegetation-altering activities, base map source, identifying topography, landscape features, a north arrow, bar scale, and legend;
    d. A written description of the biological setting, including location (Section, Township, Range, baseline and meridian), acreage, topography, soils, geographic and hydrologic characteristics, land use and management history on and adjoining the site (i.e., whether it is urban, semi-urban or rural; whether there is any evidence of past or current livestock grazing, mowing, disking, or other vegetation management activities);
    e. An analysis of any relevant, historical information concerning burrowing owl use or occupancy (breeding, foraging, over-wintering) on site or in the assessment area;
    f. Vegetation type and structure (using Sawyer et al. 2009), vegetation height, habitat types and features in the surrounding area plus a reasonably sized (as supported with logical justification) assessment area; (Note: use caution in discounting habitat based on grass height as it can be a temporary condition variable by season and conditions (such as current grazing regime) or may be distributed as a mosaic).

g. The presence of burrowing owl individuals or pairs or sign (see Appendix B);
h. The presence of suitable burrows and/or burrow surrogates (>11 cm in diameter (height and width) and >150 cm in depth) (Johnson et al. 2010), regardless of a lack of any burrowing owl sign and/or burrow surrogates; and burrowing owls and/or their sign that have recently or historically (within the last 3 years) been identified on or adjacent to the site.

Appendix D. Breeding and Non-breeding Season Surveys and Reports

Current scientific literature indicates that it is most effective to conduct breeding and non-breeding season surveys and report in the manner that follows:

Breeding Season Surveys

Number of visits and timing. Conduct 4 survey visits: 1) at least one site visit between 15 February and 15 April, and 2) a minimum of three survey visits, at least three weeks apart, between 15 April and 15 July, with at least one visit after 15 June. Note: many burrowing owl migrants are still present in southwestern California during mid-March, therefore, exercise caution in assuming breeding occupancy early in the breeding season.

Survey method. Rosenberg et al. (2007) confirmed walking line transects were most effective in smaller habitat patches. Conduct surveys in all portions of the project site that were identified in the Habitat Assessment and fit the description of habitat in Appendix A. Conduct surveys by walking straight-line transects spaced 7 m to 20 m apart, adjusting for vegetation height and density (Rosenberg et al. 2007). At the start of each transect and, at least, every 100 m, scan the entire visible project area for burrowing owls using binoculars. During walking surveys, record all potential burrows used by burrowing owls as determined by the presence of one or more burrowing owls, pellets, prey remains, whitewash, or decoration. Some burrowing owls may be detected by their calls, so observers should also listen for burrowing owls while conducting the survey.

Care should be taken to minimize disturbance near occupied burrows during all seasons and not to "flush" burrowing owls especially if predators are present to reduce any potential for needless energy expenditure or burrowing owl mortality. Burrowing owls may flush if approached by pedestrians within 50 m (Conway et al. 2003). If raptors or other predators are present that may suppress burrowing owl activity, return at another time or later date for a follow-up survey.

Check all burrowing owls detected for bands and/or color bands and report band combinations to the Bird Banding Laboratory (BBL). Some site-specific variations to survey methods discussed below may be developed in coordination with species experts and Department staff.

Weather conditions. Poor weather may affect the surveyor's ability to detect burrowing owls, therefore, avoid conducting surveys when wind speed is >20 km/hr, and there is precipitation or dense fog. Surveys have greater detection probability if conducted when ambient temperatures are >20º C, <12 km/hr winds, and cloud cover is <75% (Conway et al. 2008).

Time of day. Daily timing of surveys varies according to the literature, latitude, and survey method. However, surveys between morning civil twilight and 10:00 AM and two hours before sunset until evening civil twilight provide the highest detection probabilities (Barclay pers. comm. 2012, Conway et al. 2008).

Alternate methods. If the project site is large enough to warrant an alternate method, consult current literature for generally accepted survey methods and consult with the Department on the proposed survey approach.

Additional breeding season site visits. Additional breeding season site visits may be necessary, especially if non-breeding season exclusion methods are contemplated. Detailed information, such as approximate home ranges of each individual or of family units, as well as foraging areas as related to the proposed project, will be important to document for evaluating impacts, planning avoidance measure implementation and for mitigation measure performance monitoring.

Adverse conditions may prevent investigators from determining presence or occupancy. Disease, predation, drought, high rainfall or site disturbance may preclude presence of burrowing owls in any given year. Any such conditions should be identified and discussed in the survey report. Visits to the site in more than one year may increase the likelihood of detection. Also, visits to adjacent known occupied habitat may help determine appropriate survey timing.

Given the high site fidelity shown by burrowing owls (see Appendix A, Importance of burrows), conducting surveys over several years may be necessary when project activities are ongoing, occur annually, or start and stop seasonally. (See Negative surveys).

Non-breeding Season Surveys

If conducting non-breeding season surveys, follow the methods described above for breeding season surveys, but conduct at least four (4) visits, spread evenly, throughout the non-breeding season. Burrowing owl experts and local Department staff are available to assist with interpreting results.

Negative Surveys

Adverse conditions may prevent investigators from documenting presence or occupancy. Disease, predation, drought, high rainfall or site disturbance may preclude presence of burrowing owl in any given year. Discuss such conditions in the Survey Report. Visits to the site in more than one year increase the likelihood of detection and failure to locate burrowing owls during one field season does not constitute evidence that the site is no longer occupied, particularly if adverse conditions influenced the survey results. Visits to other nearby known occupied sites can affirm whether the survey timing is appropriate.

Take Avoidance Surveys

Field experience from 1995 to present supports the conclusion that it would be effective to complete an initial take avoidance survey no less than 14 days prior to initiating ground disturbance activities using the recommended methods described in the Detection Surveys section above. Implementation of avoidance and minimization measures would be triggered by positive owl presence on the site where project activities will occur. The development of avoidance and minimization approaches would be informed by monitoring the burrowing owls.

Burrowing owls may re-colonize a site after only a few days. Time lapses between project activities trigger subsequent take avoidance surveys including but not limited to a final survey conducted within 24 hours prior to ground disturbance.

Survey Reports

Report on the survey methods used and results including the information described in the Summary Report and include the reports within the CEQA documentation:

1. Date, start and end time of surveys including weather conditions (ambient temperature, wind speed, percent cloud cover, precipitation and visibility);
2. Name(s) of surveyor(s) and qualifications;
3. A discussion of how the timing of the survey affected the comprehensiveness and detection probability;
4. A description of survey methods used including transect spacing, point count dispersal and duration, and any calls used;
5. A description and justification of the area surveyed relative to the project area;
6. A description that includes: number of owls or nesting pairs at each location (by nestlings, juveniles, adults, and those of an unknown age), number of burrows being used by owls, and burrowing owl sign at burrows. Include a description of individual markers, such as bands (numbers and colors), transmitters, or unique natural identifying features. If any owls are banded, request documentation from the BBL and bander to report on the details regarding the known history of the banded burrowing owl(s) (age, sex, origins, whether it was previously relocated) and provide with the report if available;
7. A description of the behavior of burrowing owls during the surveys, including feeding, resting, courtship, alarm, territorial defense, and those indicative of parents or juveniles;
8. A list of possible burrowing owl predators present and documentation of any evidence of predation of owls;
9. A detailed map (1:24,000 or closer to show details) showing locations of all burrowing owls, potential burrows, occupied burrows, areas of concentrated burrows, and burrowing owl sign. Locations documented by use of global positioning system (GPS) coordinates must include the datum in which they were collected. The map should include a title, north arrow, bar scale and legend;
10. Signed field forms, photos, etc., as appendices to the field survey report;
11. Recent color photographs of the proposed project or activity site; and
12. Original CNDDB Field Survey Forms should be sent directly to the Department's CNDDB office, and copies should be included in the environmental document as an appendix. (http://www.dfg.ca.gov/bdb/html/cnddb.html).

Appendix E. Example Components for Burrowing Owl Artificial Burrow and Exclusion Plans

Whereas the Department does not recommend exclusion and burrow closure, current scientific literature and experience from 1995 to present, indicate that the following example components for burrowing owl artificial burrow and exclusion plans, combined with consultation with the Department to further develop these plans, would be effective.

Artificial Burrow Location

If a burrow is confirmed occupied on-site, artificial burrow locations should be appropriately located and their use should be documented taking into consideration:

1. A brief description of the project and project site pre-construction;
2. The mitigation measures that will be implemented;
3. Potential conflicting site uses or encumbrances;
4. A comparison of the occupied burrow site(s) and the artificial burrow site(s) (e.g., vegetation, habitat types, fossorial species use in the area, and other features);
5. Artificial burrow(s) proximity to the project activities, roads and drainages;
6. Artificial burrow(s) proximity to other burrows and entrance exposure;
7. Photographs of the site of the occupied burrow(s) and the artificial burrows;
8. Map of the project area that identifies the burrow(s) to be excluded as well as the proposed sites for the artificial burrows;
9. A brief description of the artificial burrow design;
10. Description of the monitoring that will take place during and after project implementation including information that will be provided in a monitoring report.
11. A description of the frequency and type of burrow maintenance.

Exclusion Plan

An Exclusion Plan addresses the following including but not limited to:

1. Confirm by site surveillance that the burrow(s) is empty of burrowing owls and other species preceding burrow scoping;
2. Type of scope and appropriate timing of scoping to avoid impacts;
3. Occupancy factors to look for and what will guide determination of vacancy and excavation timing (one-way doors should be left in place 48 hours to ensure burrowing owls have left the burrow before excavation, visited twice daily and monitored for evidence that owls are inside and can't escape i.e., look for sign immediately inside the door).
4. How the burrow(s) will be excavated. Excavation using hand tools with refilling to prevent reoccupation is preferable whenever possible (may include using piping to stabilize the burrow to prevent collapsing until the entire burrow has been excavated and it can be determined that no owls reside inside the burrow);
5. Removal of other potential owl burrow surrogates or refugia on site;
6. Photographing the excavation and closure of the burrow to demonstrate success and sufficiency;

7. Monitoring of the site to evaluate success and, if needed, to implement remedial measures to prevent subsequent owl use to avoid take;
8. How the impacted site will continually be made inhospitable to burrowing owls and fossorial mammals (e.g., by allowing vegetation to grow tall, heavy disking, or immediate and continuous grading) until development is complete.

Appendix F. Mitigation Management Plan and Vegetation Management Goals

Mitigation Management Plan

A mitigation site management plan will help ensure the appropriate implementation and maintenance for the mitigation site and persistence of the burrowing owls on the site. For an example to review, refer to Rosenberg et al. (2009). The current scientific literature and field experience from 1995 to present indicate that an effective management plan includes the following:

1. Mitigation objectives;
2. Site selection factors (including a comparison of the attributes of the impacted and conserved lands) and baseline assessment;
3. Enhancement of the conserved lands (enhancement of reproductive capacity, enhancement of breeding areas and dispersal opportunities, and removal or control of population stressors);
4. Site protection method and prohibited uses;
5. Site manager roles and responsibilities;
6. Habitat management goals and objectives:
    a. Vegetation management goals,
        i. Vegetation management tools:
            1. Grazing
            2. Mowing
            3. Burning
            4. Other
    b. Management of ground squirrels and other fossorial mammals,
    c. Semi-annual and annual artificial burrow cleaning and maintenance,
    d. Non-natives control – weeds and wildlife,
    e. Trash removal;
7. Financial assurances:
    a. Property analysis record or other financial analysis to determine long-term management funding,
    b. Funding schedule;
8. Performance standards and success criteria;
9. Monitoring, surveys and adaptive management;
10. Maps;
11. Annual reports.

Vegetation Management Goals

- Manage vegetation height and density (especially in immediate proximity to burrows). Suitable vegetation structure varies across sites and vegetation types, but should generally be at the average effective vegetation height of 4.7 cm (Green and Anthony 1989) and <13 cm average effective vegetation height (MacCracken et al. 1985*a)*.
- Employ experimental prescribed fires (controlled, at a small scale) to manage vegetation structure;

- Vegetation reduction or ground disturbance timing, extent, and configuration should avoid take. While local ordinances may require fire prevention through vegetation management, activities like disking, mowing, and grading during the breeding season can result in take of burrowing owls and collapse of burrows, causing nest destruction. Consult the take avoidance surveys section above for pre-management avoidance survey recommendations;
- Promote natural prey distribution and abundance, especially in proximity to occupied burrows; and
- Promote self-sustaining populations of host burrowers by limiting or prohibiting lethal rodent control measures and by ensuring food availability for host burrowers through vegetation management.

Refer to Rosenberg et al. (2009) for a good discussion of managing grasslands for burrowing owls.

Mitigation Site Success Criteria

In order to evaluate the success of mitigation and management strategies for burrowing owls, monitoring is required that is specific to the burrowing owl management plan. Given limited resources, Barclay et al. (2011) suggests managers focus on accurately estimating annual adult owl populations rather than devoting time to estimating reproduction, which shows high annual variation and is difficult to accurately estimate. Therefore, the key objective will be to determine accurately the number of adult burrowing owls and pairs, and if the numbers are maintained. A frequency of 5-10 years for surveys to estimate population size may suffice if there are no changes in the management of the nesting and foraging habitat of the owls.

Effective monitoring and evaluation of off-site and on-site mitigation management success for burrowing owls includes (Barclay, pers. comm.):

- Site tenacity;
- Number of adult owls present and reproducing;
- Colonization by burrowing owls from elsewhere (by band re-sight);
- Evidence and causes of mortality;
- Changes in distribution; and
- Trends in stressors.

ATTACHMENT D: 2019 WINTERING BURROWING OWL SURVEY REPORT

Wintering Burrowing Owl Survey Report for the Tie Line 649 Wood-to-Steel Replacement Project

MEMO

To: Eden Nguyen, San Diego Gas & Electric (SDG&E), Alicia Cooper Hill (SDG&E)

From: Nick Wagner, Insignia Environmental (Insignia)

Date: March **18**, 2019

Re: Wintering Burrowing Owl Survey Report for the Tie Line 649 Wood-to-Steel Replacement Project (Project)

Introduction

SDG&E is in the pre-construction phase of Tie Line 649 (TL649), which involves the replacement of an existing 69 kilovolt (kV) wood poles with steel poles along approximately seven miles of rights-of-way in in the cities of San Diego and Chula Vista, California, as well as unincorporated San Diego County. According to Mitigation Measure (MM-) 18, as described in the Project's Final Initial Study/Mitigated Negative Declaration (MND) and Mitigation Monitoring, and Reporting Program (MMRP), "in addition to preconstruction surveys, SDG&E will conduct periodic BUOW [burrowing owl (*Athene cunicularia*)] surveys in January and February in areas with suitable burrowing owl habitat." This memo report presents the results of four periodic burrowing owl surveys conducted in January and February 2019, in accordance with MM-18.

Background

Suitable burrowing owl habitat was identified by Chambers Group, Inc. (Chambers) during burrowing owl breeding surveys conducted between April 2 and July 9, 2018. Chambers identified all suitable burrowing owl habitat within a 500-foot buffer around work spaces associated with the Project survey area. The survey area was comprised of six distinct and geographically separate tracts. Each tract was individually labeled as an "Area" numbering 1 through 6 (i.e., Area 1, Area 2, etc.). The results of the breeding season surveys are documented in the Results of the 2018 Burrowing Owl (*Athene cunicularia*) Focused Surveys for the Proposed Tie Line 649 Wood-to-Steel Pole Replacement Project, San Diego County, California. Areas 1 through 6 are presented in Attachment A: Suitable Burrowing Owl Habitat Within 500 Feet of the Project.

Survey Methodology

A team of two Insignia biologists, including either Nick Wagner, Audrey Johnson, Adam Lievers, Elise Ruiz, and/or Leni Griffiths conducted four burrowing owl surveys within Areas 1 through 6 between January and February, 2019. Survey details are provided in Table 1: Survey Details. During Survey 1, Area 1 was found to be comprised of an active staging yard for an unrelated project and no longer contained suitable habitat and was, therefore, not surveyed in this effort. Additionally, one previously unidentified tract of suitable habitat was identified during Survey 1 and was subsequently added as part of the 2019 wintering survey effort. The additional area (Area 7) included suitable burrowing owl habitat which consisted of a large, inactive stockpile overgrown with ruderal vegetation. Area 7 was located southwest of Area 5, at the southwest corner of the intersection of Otay Mesa Road and Harvest Road. Area 7 is depicted in Attachment A: Suitable Burrowing Owl Habitat Within 500 Feet of the Project. The surveys were conducted in accordance with CDFW's "Staff Report on Burrowing Owl Mitigation" (2012)

and included surveying straight-line transects spaced seven to 20 meters apart within the survey area. Biologists mapped live owls, burrows, and burrow surrogates[1] using Global Positioning System units. All mapped burrows were classified into the following categories:

- Occupied burrows – burrows that were occupied by a live owl at the time of at least one survey,
- Potential burrows – burrows that were not occupied by a live owl at the time of at least one survey but did have burrowing owl sign (including tracks, molted feathers, cast pellets, prey remains, egg shell fragments, owl white wash, nest burrow decoration materials, and possible owl perches) within or near the burrow, and
- Suitable burrows – burrows that were not occupied by a live owl at the time of at least one survey and did not have burrowing owl sign, but did fit the size requirements for burrowing owl burrows.

Table 1: Survey Details

Survey	Dates	Biologists
Survey One	January 23-24, 2019	Nick Wagner and Adam Lievers
Survey Two	January 29-30, 2019	Nick Wagner, Elise Ruiz, and Leni Griffiths
Survey Three	February 11-12, 2019	Nick Wagner and Audrey Johnson
Survey Four	February 26-27, 2019	Nick Wagner, Audrey Johnson, Leni Griffiths

Results

The following subsections discuss the results of the wintering burrowing owl surveys, organized by Area. Burrowing owls observed, occupied burrows, and several suitable unoccupied burrows are depicted in Attachment B: Representative Photographs.

Area 1

As described in Survey Methodology, Area 1 no longer contained suitable habitat and was not surveyed during this effort. Area 1 is presented on Mapbook Page 1 in Attachment A: Suitable Burrowing Owl Habitat Within 500 Feet of the Project.

Area 2

Six suitable burrows were identified in Area 2; however, no live owls or owl sign were observed during surveys. Area 2 and the locations of the observed burrows are presented on Mapbook Pages 2 and 3 in Attachment A: Suitable Burrowing Owl Habitat Within 500 Feet of the Project.

Area 3

One suitable burrow was identified in Area 3; however, no live owls or owl sign was observed during surveys. Area 3 and the location of the observed burrow are presented on Mapbook Page 4 in Attachment A: Suitable Burrowing Owl Habitat Within 500 Feet of the Project.

[1] Burrow surrogates include culverts, piles of concrete rubble, piles of soil, burrows created along soft banks of ditches and canals, pipes, and similar structures. Suitable burrows include those that were at least 11 centimeters in diameter and 150 centimeters deep, per the guidelines in Appendix C of the Staff Report.

Area 4

Three suitable burrows were identified in Area 4 during Survey 1; however, these burrows had collapsed during Survey 2 following heavy rains that occurred after Survey 1. No live owls or owl sign were observed during surveys. Area 4 and the locations of the observed burrows are presented on Mapbook Page 5 in Attachment A: Suitable Burrowing Owl Habitat Within 500 Feet of the Project.

Area 5

Three potential burrows were identified within Area 5. All three burrows had light whitewash along the burrow apron and prey remains were found in close proximity to the burrows. Twenty-two other suitable burrows with no burrowing owl sign were also identified. Over the course of the surveys, heavy rainfall occurred within the Survey Area. As a result, the non-native grasses and weedy vegetation within Area 5 had grown to the point of obscuring the entrances to several burrows. In addition, several burrows discovered in earlier surveys had collapsed on subsequent visits. Area 5 and the locations of the observed burrows are presented on Mapbook Pages 6 to 10 in Attachment A: Suitable Burrowing Owl Habitat Within 500 Feet of the Project.

Area 6

On February 26, Insignia biologists observed a pair of adult breeding owls in Area 6, on the northern edge of the Otay Mesa Yard. The burrow was approximately 33 feet north of the edge of the yard and was previously identified as suitable but unoccupied during the survey on February 12, 2019. The burrow consisted of a portion of exposed, purple PVC irrigation pipe and surrounding ground squirrel excavation. The mouth of the burrow was concealed by large tree tobacco (*Nicotiana glauca*) shrubs. Both the male and female owls flushed the burrow when it was inadvertently approached. Both adults eventually returned to the burrow. The male perched on a tree tobacco branch overhanging the mouth of the burrow, while the female retreated to within the burrow. On February 27, Insignia biologists observed the male perched on the same branch. The female was not observed. Several cast pellets were also observed near the mouth of the burrow.

In addition, 16 other suitable burrows were observed in Area 6. No other burrowing owl sign was observed during the surveys. Area 6 and the locations of the live owls and observed burrows are presented on Mapbook Pages 6 to 10 in Attachment A: Suitable Burrowing Owl Habitat Within 500 Feet of the Project.

Area 7

On January 30, one adult was observed within an active burrow approximately 50 feet southwest of Area 7. The individual was unseen within its burrow and then flushed to the west when the burrow was inadvertently approached. The individual returned to a satellite/surrogate burrow located approximately 40 feet southeast of the original burrow. The individual flushed a final time to a culvert approximately 324 feet southwest of the burrows as the biologists were returning to their vehicle. Both active burrows were located approximately 470 feet southwest of the intersection of Otay Mesa Road and Harvest Road. On February 11, the adult was observed displaying defensive behaviors at the entrance to the main burrow. On February 26, the adult was again seen displaying defensive behaviors at the entrance to the southern burrow. The adult had also begun collecting burrow decorations at the mouth of the southern burrow.

On January 30, Insignia biologists identified another adult burrowing owl within a burrow approximately 561 feet south of the intersection of Otay Mesa Road and Harvest Road in Area 7. The individual was within the mouth of the burrow and did not display defensive or territorial behavior. The burrow did not have white-wash, cast owl pellets, burrow decorations, or other sign. A suitable, satellite/surrogate burrow was also observed approximately 280 feet north of the occupied burrow and approximately 350 feet south of the nearest Project component. The satellite/surrogate burrow did not have sign on or near it. The individual was not observed on subsequent survey dates, nor was sign observed on or near either burrow.

Although both live owls were observed outside of the survey area, these results are included in this memo due to the close proximity to the survey area, the presence of a suitable burrows within the survey area, and the connectivity of suitable habitat between the observed locations of the owls and the survey area. No other live owls, burrowing owl sign, or suitable burrows were observed during the surveys. Area 7 and the locations of the live owls and observed burrows are presented on Mapbook Page 10 in Attachment A: Suitable Burrowing Owl Habitat Within 500 Feet of the Project.

References

CDFG. 2012. *Staff Report on Burrowing Owl Mitigation*. March 7, 2012.

Chambers Group, Inc. 2018a. *Final Impact Statement/Mitigated Negative Declaration for the Tie Line 649 Wood-to-Steel Pole Replacement Project, San Diego County, California.*

Chambers Group, Inc. 2018b. *Draft Mitigation and Monitoring Plan for the Tie Line 649 Wood-to-Steel Pole Replacement Project, San Diego County, California*

Chambers Group, Inc. 2018c. *Results of the 2018 Burrowing Owl (*Athene cunicularia*) Focused Surveys for the Proposed Tie Line 649 Wood-to-Steel Pole Replacement Project, San Diego County, California.*

ATTACHMENT A: SUITABLE BURROWING OWL HABITAT WITHIN 500 FEET OF THE PROJECT

Attachment A: Suitable Burrowing Owl Habitat Within 500 Feet of the Project Map 1 of 11

SDG&E Tie Line 649
Wood-to-Steel Replacement Project

DESIGN CT
MAXWELL RD
MAIN ST
MAIN ST
MAIN ST
MAXWELL RD
MAIN ST
NIRVANA AV
MAIN ST
Area 1
Main Street Staging Yard

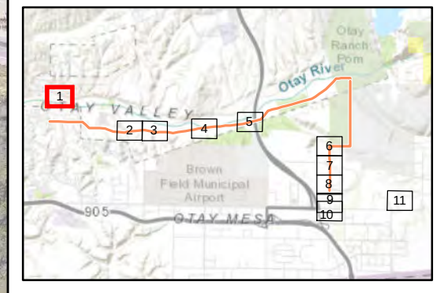
Staging Yard

Burrowing Owl Survey Results

Burrowing Owl Suitable Habitat

Survey Area 1

Note: *Survey Area 1 was identified as suitable habitat in the 2018 Burrowing Owl Report by Chambers Group, Inc., but was not surveyed during the 2019 Wintering Surveys because it was in active construction during the entirety of the survey*



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Creator: Brett Rocheleau
Date:3/20/2019
Requestor: Eden Nguyen
Source: Insignia, 2019, SDG&E 2019

SDGE A Sempra Energy utility

INSIGNIA ENVIRONMENTAL

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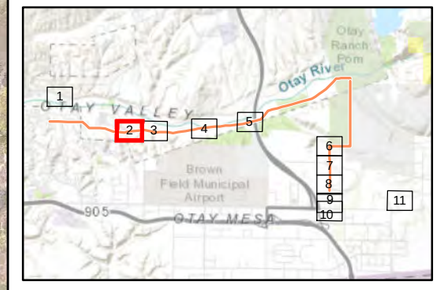
Attachment A: Suitable Burrowing Owl Habitat Within 500 Feet of the Project
Map 2 of 11

SDG&E Tie Line 649
Wood-to-Steel Replacement Project

- New Stub Pole
- Wood-to-Steel Replacement Pole
- Pole Removal
- Guard Structure
- Underground Distribution Intercept
- Wood-to-Steel Replacement
- Wood-to-Steel Replacement with Distribution Underbuild
- Existing Access Road
- Access Road Turnaround/Staging Area

Burrowing Owl Survey Results

- Suitable Burrow
- Burrowing Owl Suitable Habitat
- Survey Area



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Creator: Brett Rocheleau
Date:3/20/2019
Requestor: Eden Nguyen
Source: Insignia, 2019, SDG&E 2019

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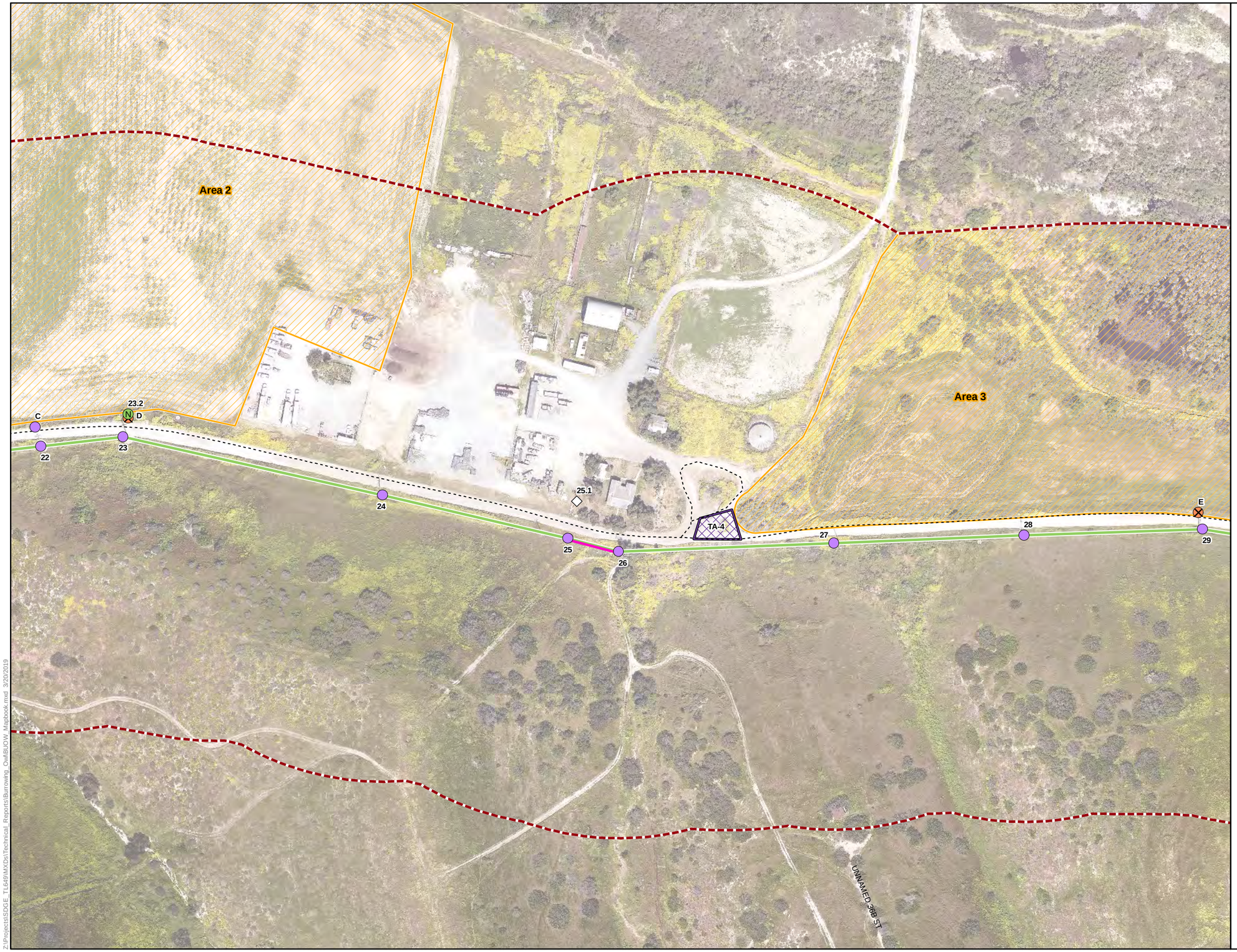
Attachment A: Suitable Burrowing Owl Habitat Within 500 Feet of the Project
Map 3 of 11

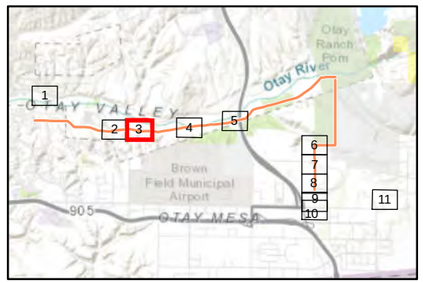
SDG&E Tie Line 649
Wood-to-Steel Replacement Project



- New Steel Pole
- Wood-to-Steel Replacement Pole
- Overhead Work Only
- Pole Removal
- Underground Distribution Intercept
- Wood-to-Steel Replacement with Distribution Underbuild
- Existing Access Road
- Access Road Turnaround/Staging Area

Burrowing Owl Survey Results

- Burrowing Owl Suitable Habitat
- Survey Area



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0 75 150 300 Feet

Creator: Brett Rocheleau
Date:3/20/2019
Requestor: Eden Nguyen
Source: Insignia, 2019, SDG&E 2019

SDGE A Sempra Energy utility

INSIGNIA ENVIRONMENTAL

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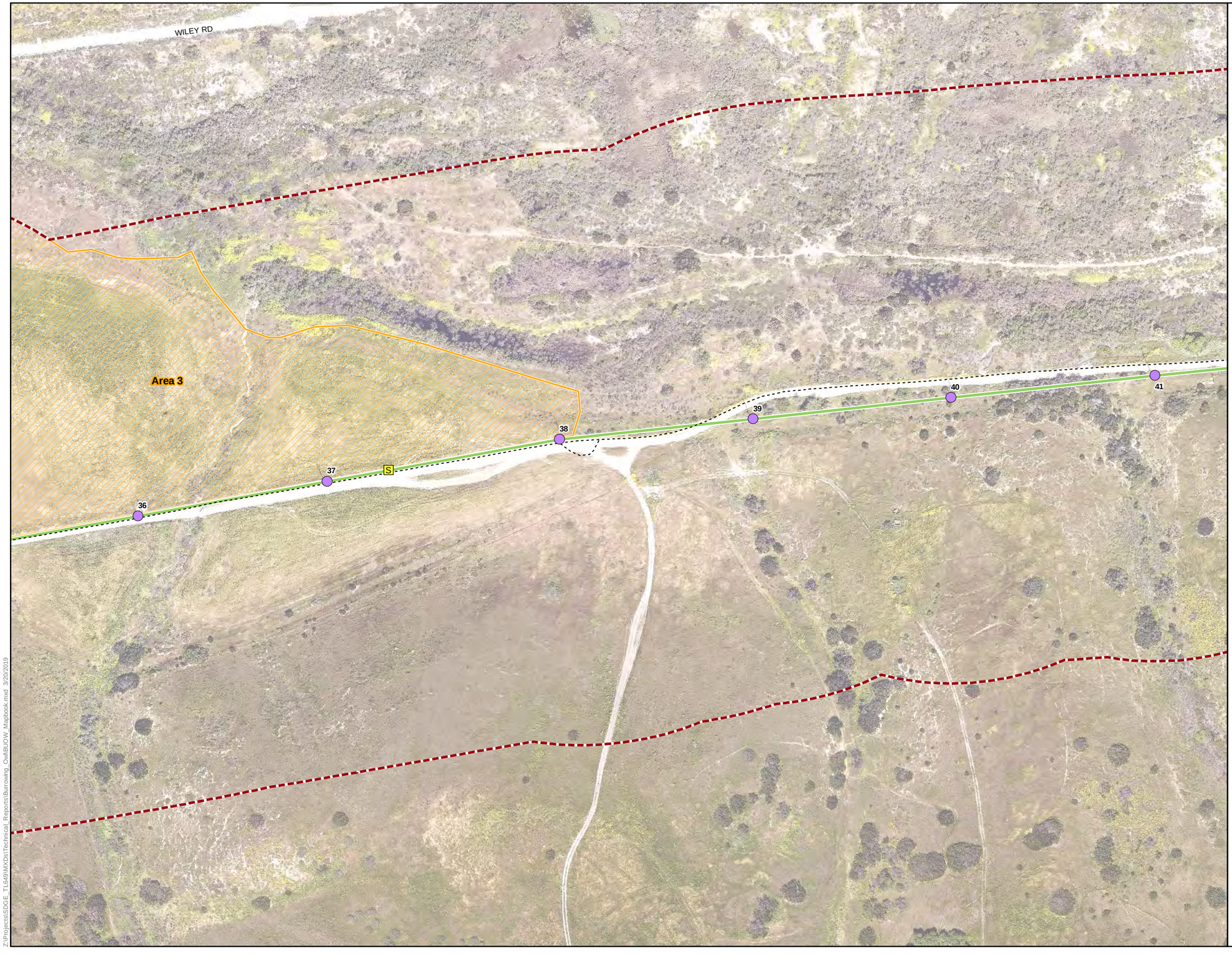
Attachment A: Suitable Burrowing Owl Habitat Within 500 Feet of the Project
Map 4 of 11

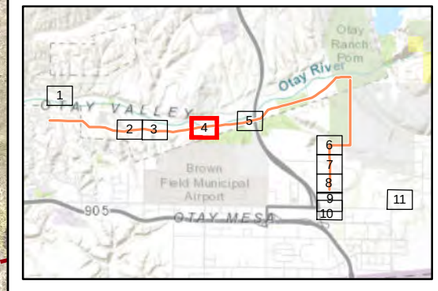
SDG&E Tie Line 649
Wood-to-Steel Replacement Project



- Wood-to-Steel Replacement Pole
- Wood-to-Steel Replacement with Distribution Underbuild
- Existing Access

Burrowing Owl Survey Results

- S — Suitable Burrow
- Burrowing Owl Suitable Habitat
- Survey



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Creator: Brett Rocheleau
Date:3/20/2019
Requestor: Eden Nguyen
Source: Insignia, 2019, SDG&E 2019

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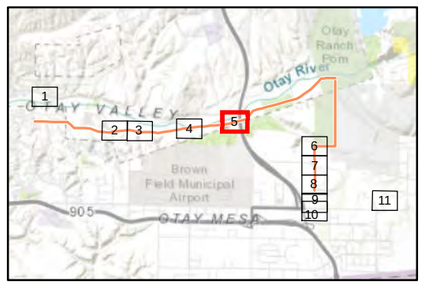
Attachment A: Suitable Burrowing Owl Habitat Within 500 Feet of the Project
Map 5 of 11

SDG&E Tie Line 649
Wood-to-Steel Replacement Project

- Wood-to-Steel Replacement Pole
- Pole Removal
- Wood-to-Steel Replacement with Distribution Underbuild
- Existing Access Road
- Overland Travel Route
- Access Road Turnaround/Staging Area
- Pulling Site

Burrowing Owl Survey Results

- Suitable Burrow
- Burrowing Owl Suitable Habitat
- Survey Area



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Creator: Brett Rocheleau
Date:3/20/2019
Requestor: Eden Nguyen
Source: Insignia, 2019, SDG&E 2019

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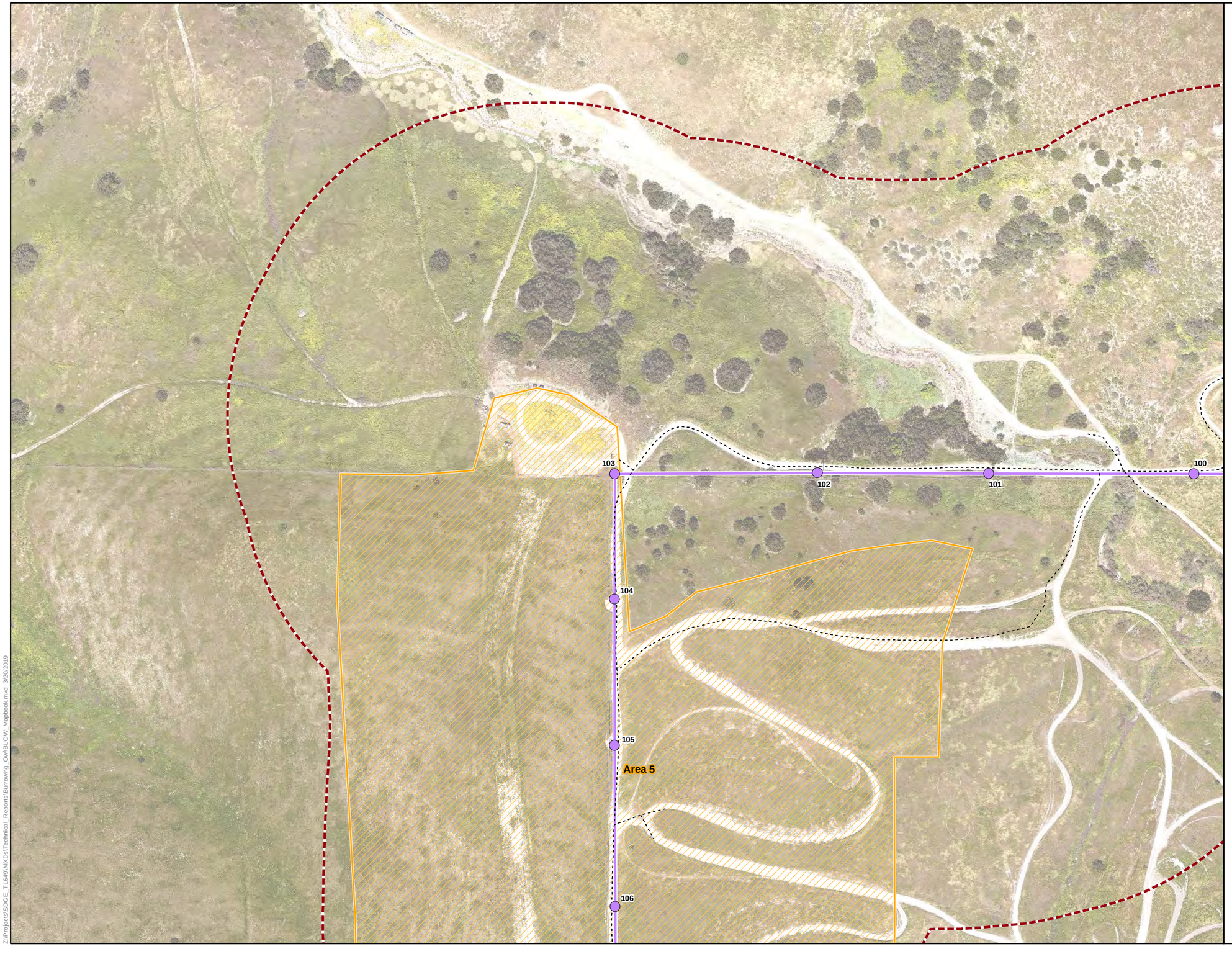


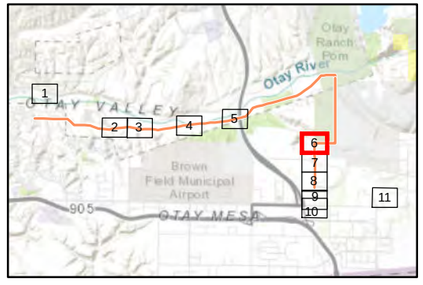
Attachment A: Suitable Burrowing Owl Habitat Within 500 Feet of the Project
Map 6 of 11

SDG&E Tie Line 649
Wood-to-Steel Replacement Project

- Wood-to-Steel Replacement Pole
- Wood-to-Steel Replacement
- Existing Access

Burrowing Owl Survey Results

- Burrowing Owl Suitable Habitat
- Survey Area



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Creator: Brett Rocheleau
Date:3/20/2019
Requestor: Eden Nguyen
Source: Insignia, 2019, SDG&E 2019

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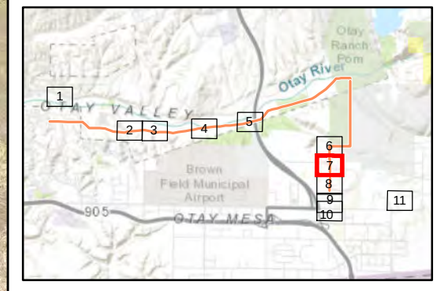
Attachment A: Suitable Burrowing Owl Habitat Within 500 Feet of the Project
Map 7 of 11

SDG&E Tie Line 649
Wood-to-Steel Replacement Project

- Wood-to-Steel Replacement Pole
- Wood-to-Steel Replacement
- Wood-to-Steel Replacement with Distribution Underbuild
- Existing Access Road
- Overland Travel Route

Burrowing Owl Survey Results

- P — Potential Burrow
- S — Suitable Burrow
- Burrowing Owl Suitable Habitat
- Survey Area



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Creator: Brett Rocheleau
Date:3/20/2019
Requestor: Eden Nguyen
Source: Insignia, 2019, SDG&E 2019

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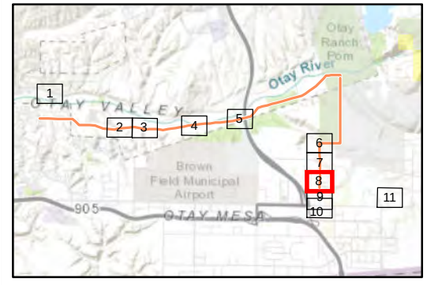
Attachment A: Suitable Burrowing Owl Habitat Within 500 Feet of the Project
Map 8 of 11

SDG&E Tie Line 649
Wood-to-Steel Replacement Project

- Wood-to-Steel Replacement Pole
- Overhead Work Only
- Wood-to-Steel Replacement with Distribution Underbuild
- Existing Access Road

Burrowing Owl Survey Results

- P — Potential Burrow
- S — Suitable Burrow
- Burrowing Owl Suitable Habitat
- Survey Area



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Creator: Brett Rocheleau
Date:3/20/2019
Requestor: Eden Nguyen
Source: Insignia, 2019, SDG&E 2019

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Attachment A: Suitable Burrowing Owl Habitat Within 500 Feet of the Project
Map 9 of 11

SDG&E Tie Line 649
Wood-to-Steel Replacement Project

Area 5

Area 7

HARVEST RD

OTAY MESA RD

OTAY MESA RD

OTAY MESA RD

HARVEST RD

HARVEST RD

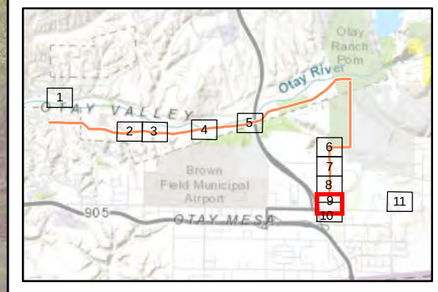
S

S

- Existing Access

Burrowing Owl Survey

- S Suitable Burrow
- Burrowing Owl Suitable
- Survey



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Date:3/20/2019
Requestor: Eden Nguyen
Source: Insignia, 2019, SDG&E 2019

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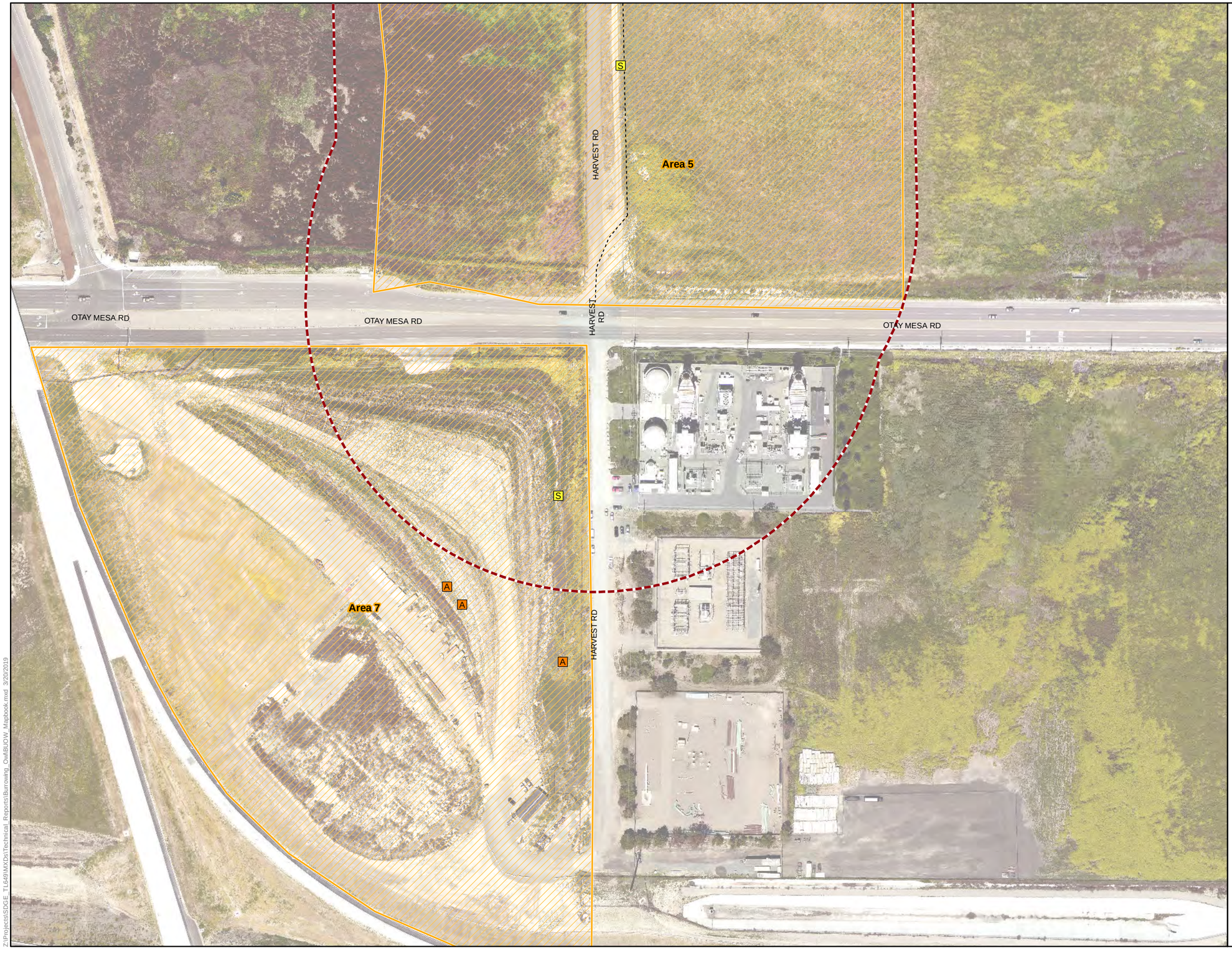
Attachment A: Suitable Burrowing Owl Habitat Within 500 Feet of the Project
Map 10 of 11

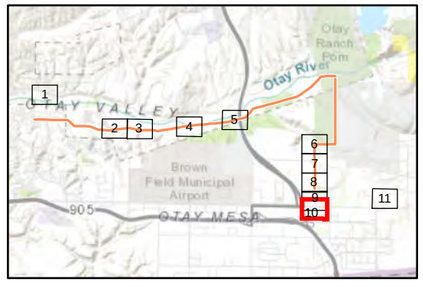
SDG&E Tie Line 649
Wood-to-Steel Replacement Project



Existing Access Road

Burrowing Owl Survey Results

- A — Active Burrow
- S — Suitable Burrow
- Burrowing Owl Suitable Habitat
- Survey Area



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Creator: Brett Rocheleau
Date:3/20/2019
Requestor: Eden Nguyen
Source: Insignia, 2019, SDG&E 2019

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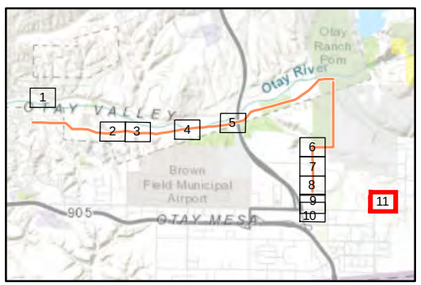
Attachment A: Suitable Burrowing Owl Habitat Within 500 Feet of the Project
Map 11 of 11

SDG&E Tie Line 649
Wood-to-Steel Replacement Project

Staging Yard

Burrowing Owl Survey Results

- A — Active Burrow
- S — Suitable Burrow
- Burrowing Owl Suitable Habitat
- Survey Area



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Creator: Brett Rocheleau
Date:3/20/2019
Requestor: Eden Nguyen
Source: Insignia, 2019, SDG&E 2019

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ATTACHMENT B: REPRESENTATIVE PHOTOGRAPHS

ATTACHMENT B: REPRESENTATIVE PHOTOGRAPHS

Photograph 1: Northeast-facing view of adult burrowing owl displaying territorial behavior within Area 7.

Photograph 2: West-facing view of adult burrowing owl within Area 7.

Photograph 3: Southwest-facing view of the male burrowing owl perched on a tree tobacco (*Nicotiana glauca*) branch (indicated by the yellow arrow) within Area 6. The female is not visible within the burrow (indicated by the blue arrow).

Photograph 4: West-facing view of suitable burrow in Area 7.