Step I Habitat Assessment, Step II, Part A Focused Burrow Survey and Step II, Part B Focused Burrowing Owl Survey For An Approximate 20.0 Acre Lot Located at the Northeast Corner of Rancho California Road and Calle Contento, in the County of Riverside, California

Assessor Parcel Number: 943-250-019

Plot Plan (PPT) 220010 "Chimney's Winery"
Environmental Assessment (CEQ / EA) Number CEQ220018

Located within a non-sectioned area of Township 7 South
Range 2 West of the Bachelor Mtn., CA Quadrangle

Prepared for:

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on 10 January, 23 March, 24 April, 01 May, and 17 June 2021

TERACOR
RESOURCE MANAGEMENT

15 October 2022

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1.0 Introduction

Purpose

Step I Habitat Assessment and Step II, Part A Focused Burrow Survey

TERACOR Resource Management, Inc. ("TERACOR") initially conducted a focused habitat suitability assessment on 10 January 2021 to evaluate the biological resources on-site to determine if: 1) suitable burrowing owl (*Athene cunicularia*) ("BUOW") habitat is present on the approximate 20-acre site, and 2) determine if any burrows on-site could potentially be utilized by BUOW.

Due to the presence of some suitable habitat on the project site, TERACOR conducted a Step II, Part A Focused Burrow Survey on the subject property on 10 January 2021 to locate and map California ground squirrel (*Otospermophilus beecheyi*) burrows on-site which were within areas considered suitable for BUOW, as this owl is known to opportunistically utilize ground squirrel burrows. Additionally, TERACOR examined the outer structure of each burrow encountered and mapped for evidence of BUOW occupation. We concluded that a few potentially-occupiable burrows were present on-site and in the adjacent channel, but all potentially suitable burrows lacked any BUOW diagnostic sign. Due to the presence of potentially suitable BUOW burrows and the relatively high mobility of the organism, TERACOR recommended focused surveys be conducted throughout the survey season.

For purposes explained in the Background section of this report, only open and sparely-vegetated areas of the project site were considered suitable for BUOW occupation. We excluded actively-managed vineyard areas from walking surveys, however, we did walk along all roadways through the vineyard and along the margin of vine rows. We based this exclusion on the unsuitability of actively-managed, farmed area because soils are worked to manage weed cover. The vineyard is subject to herbicide applications which affects insect prey presence. Furthermore, the vines are quite tall during Spring and Summer months and BUOW require open sparsely-vegetated areas to hunt and detect predators. A number of ground squirrels and their burrows were noted adjacent to the site in the off-site channel. Therefore, intensively managed areas were excluded from surveys, and all roadways and roadway margins as well as open areas of the property (e.g., the northwest corner of the site) were surveyed.

Step II, Part B Focused Burrowing Owl Survey

After conducting the habitat assessment and burrow survey on 10 January 2021, TERACOR proceeded with focused surveys on the subject property on 23 March 2021, 24 April 2021, 01 May 2021, and 17 June 2021. These surveys were performed to determine the following:

1. Confirm the geographic extent of any suitable BUOW habitat present on the site;
2. Assess whether burrows detected on-site showed any evidence of utilization by BUOW;
3. Detect and record all parameters of occupation of BUOW if detected; and
4. Establish the number of BUOW individuals if encountered on-site.

Information contained herein is based on known BUOW life history parameters as described in MSHCP documentation and information published by the California Department of Fish and Wildlife, our field reconnaissance over several months in Spring and Summer in 2021, and other pertinent information. As required by the Survey Guidelines for the Plan Area, we visually scanned areas within 150 meters of the subject property. We were particularly aware of the off-site channel's suitability to support BUOW, particularly un-paired individuals. On-site, we conducted transect surveys across suitable areas. We scanned these areas from a distance with 10x42 Ziess binoculars and continued to scan off-site areas as we proceeded with on-site investigations. *Exhibit 2 – Transect Locations* illustrates survey routes.

Property Location and Description

The property is located within the **County of Riverside** ("County"), California, east of the City of Temecula. The property is bounded by open scrub habitat to the north, Calle Contento to the west (existing road), a rural-residential property to the east, and Rancho California Road and a stormwater channel to the south. The property is geographically located within a non-sectioned area of Township 7 South, Range 2 West of the *Bachelor Mtn., CA Quadrangle,* as depicted in the attached *Exhibit 1 - USGS Topo.*

The subject site is comprised of one (1) parcel approximately 20.0 acres; Assessor Parcel No. 943-250-019. Elevations on-site range from approximately 1310 feet above mean sea level (msl) at the intersection of Rancho California Road and Calle Contento, to 1365 feet msl at the northeast corner of the property, which is the highest portion of the site. There is vertical fall of approximately 35 feet across the gently undulating topography of the property.

The property is mostly a vineyard, crisscrossed by dirt roads. Some remnant native scrub vegetation persists in the northeast corner where there is also substantial historic disturbance.

Project Description

The proposed Project includes Plot Plan No. 220010 (PPT 220010) for construction of a Class V Winery on 20.04 gross acres in the "Temecula Valley Wine Country". The site is bounded by Calle Contento to the west, Rancho California Road to the south, agricultural lands to the north, and residential uses to the east; County of Riverside, State of California, and known as Assessor's Parcel Number 943-250-019.

Plot Plan No. 220010

Plot Plan No. 220010 (PPT 220010) proposes a Class V Winery with 18,506 gross square feet of new building area to include tasting room, patio tasting room, offices, restaurant, 10 hotel guest rooms, and special occasions. According to Ordinance No. 348 (Providing for Land Use Planning and Zoning Regulations and Related Functions of the County of Riverside), a Class V Winery is a winery with an established on-site vineyard located on a minimum gross parcel size of twenty (20) acres that is allowed with appurtenant and incidental commercial uses (with an approved permit).

Parking requirements are provided in accordance with ORD. No. 348 Section 18.12 (A). A total of 103 spaces are required during normal demand hours (139 spaces provided), 138 required during peak demand hours (145 spaces provided). These spaces include 5 electrical vehicle spaces, 5 ADA spaces, 26 compact spaces, and 2 loading spaces. The Project will also provide 4 bicycle parking spaces.

In addition to the 139 spaces provided, a roughly 450' length of dirt road leading from the public street to the building can accommodate an extra ~50 parking spaces for a super peak demand potential of 187 spaces.

Use	Area (Square Feet)
WINERY	
Production/Bottling/Labeling	2,760
Storage	1,620
Business (Office, Conference room, ADA Bathroom)	543
WINE TASTING / RESTAURANT / SPECIAL OCCASION	
Main Entrance / Lobby / Special Event Space	821
Restaurant	982
Wine Tasting	1,081
Business	1,195
Auxiliary Circulation, Hallways, Storage, Bathrooms	3,635
GUEST INN	
Guest Rooms	3,994
Business	622
Auxiliary Circulation, Hallways, Storage, Bathrooms	1,253
TOTAL	**18,506**

Landscaping

Project landscaping includes drought tolerant plant species. Trees are of the evergreen and deciduous varieties. Landscape is provided along the perimeter of the winery building as well as parking areas. Approximately 38,448 sq. ft. of the Project is landscaped. Additionally, the Project will include vineyard planting on approximately 15 acres or 75% of the site.

Circulation

The proposed Project will take access off Calle Contento along the western boundary of the site. Rancho California Road is classified as a mountain arterial (110' right of way) in the County of Riverside Wine County Community Plan. Presently the roadway is improved as a two-lane roadway with a striped turning median lane. The Project has approximately 1,253 feet of frontage along Rancho California Road. However, the Project does not propose any direct access to Rancho California Road. Circulation improvements will completely avoid the 0.51-acre flood control channel in the southwest corner of the site, as well as the off-site portion of the channel along Rancho California Road.

Pedestrian access will be provided per Americans with Disabilities Act (ADA) requirements.

Grading

The site will be mass graded with approximately 7,350 cubic yards (cy) of cut and 6,121 cy of fill, resulting in a net export of 1,229 cy. However, it is anticipated that the remaining soil will be spread onsite to avoid being exported offsite.

Water/Sewer

The Project will connect to existing sewer lines through Eastern Municipal Water District and existing water lines through Rancho California Water District.

Background

BUOW is a **California Department of Fish and Wildlife** ("CDFW") "Species of Special Concern – Second Priority." Both the federal and state resource agencies have declined to list the species as endangered or threatened based on abundance of the species in other western states, and a few concentrated populations in California. The Western Riverside County Multiple Species Habitat Conservation Plan ("MSHCP", or "Plan") affords special consideration to BUOW due largely to localized declines, which have been severe. The Plan requires evaluations as to their potential presence within specified survey areas across the Plan Area. BUOW can inhabit grasslands, deserts, and open scrublands characterized by low-growing vegetation.

Independent of the MSHCP, the CDFW has undertaken a statewide effort to identify and protect occupied burrowing owl habitat in its "*Staff Report on Burrowing Owl Mitigation*" (07 March 2012) the CDFW described preferred habitat for the species as follow:

> *"The burrowing owl is ... 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..... 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"*

Burrows are an essential component of BUOW habitat, which provide protection, shelter, and nests for BUOW (Henny and Blus 1981). BUOW typically utilize burrows made by fossorial mammals, such as California ground squirrels and/or even more secretive mammals such as American badger (*Taxidea taxus*). BUOW are also known to utilize man-made structures, such as cement culverts, pipes, asphalt or wood debris piles, and in openings beneath cement or asphalt pavement (*Burrowing Owl Survey Instructions*, Riverside County Environmental Planning Department ["EPD"], 29 March 2006).

BUOW may utilize a site for breeding, or wintering, or foraging, and/or migration stopovers. BUOW often exhibit high site fidelity, reusing burrows year after year (Rich 1984, Feeney 1992, Consortium Guidelines). The Guidelines also state a site may be assumed "occupied" if at least one (1) BUOW has been observed occupying a burrow within the last three (3) years, although recent observations of widespread absence locally within the MSHCP Plan Area suggest it may not be prudent to assert "active occupation" by this species as it was determined it is not currently present and unlikely to be present in the future.

Occupation status of suitable BUOW habitat can also be verified at a site by observation of at least one BUOW, or, alternatively, its molted feathers, cast pellets with characteristic prey remains, prey remains, eggshell fragments, or excrement at or near a burrow entrance (Burrowing Owl Consortium, *Occupied Burrowing Owl Habitat*). Other occupation indicators can include Orthoptera (grasshoppers, katydids, and crickets) and Coleoptera (beetles) exoskeletal material when in proximity of the burrow. No BUOW or any of these secondary indicators was observed during the site evaluation or during focused surveys.

2.0 Methods

Burrowing Owl Survey Methods

There are no federal or state-adopted survey requirements for BUOW, however, the County of Riverside adopted the *Burrowing Owl Survey Instructions for the Western Riverside Multiple Species Habitat Conservation Plan Area* (Environmental Programs Department ["EPD"], 2006) ("Survey Instructions"). The California Department of Fish and Game recommends utilizing their 2012 *Staff Report on Burrowing Owl Mitigation*, however, the EPD recommended instructions supersede CDFW recommendations at this time. The Survey Instructions were published to replace the *Burrowing Owl Consortium Guidelines* to address consistency with regard to the following protections for the organism:

1) Specific conservation requirements of the MSHCP for BUOW, and

2) Ensure direct mortality of BUOW is avoided through implementation of preconstruction surveys.

Step I: Habitat Assessment: is the first step in the survey process to assess the presence/absence of BUOW, specifically BUOW habitat, on the project site. TERACOR conducts physical walkovers of individual sites to determine if BUOW habitat, as described above, is present on-site. If suitable habitat is found on-site, then walkovers of an approximate 150-meter (500 feet) buffer zone surrounding the project is required. If permission to access surrounding private properties has not been granted, then TERACOR field personnel visually inspect surrounding properties utilizing 10x40 or 10x42 binoculars.

Further, if BUOW habitat is present on-site, TERACOR subsequently conducts a Step II: Locating Burrows and Burrowing Owls Survey. Step II surveys must be conducted during the breeding season (March 1 to August 31), and must be comprised of a minimum of one (1) site visit. Moreover, all Step II surveys are to be performed during weather that is conducive to observing owls outside of burrow complexes, and are not accepted if they are conducted during rain, high winds (>20 mph), dense fog, or temperatures over 90°F. BUOW sign may not be detectable if surveys are conducted within five days following rain.

Step II surveys are comprised of two (2) components; *Part A: Focused Burrow Surveys* and *Part B: Focused Burrowing Owl Surveys*.

Part A: Focused Burrow Surveys consist of a systematic survey for burrows by walking through suitable habitat areas. Suitable habitat areas are walked at maximum transect intervals spaced between 20 meters (60 feet) and 30 meters (100 feet), with transect interval variations to accommodate terrain, vegetation density, and ground surface visibility. Project sites of 100 acres or more are generally transected by two (2) or more TERACOR field personnel. Burrow Surveys are physical inspections of burrows located within suitable habitat or potential foraging habitat on-site. If BUOW burrows or BUOW are recorded during surveys, BUOW and BUOW burrow locations are mapped using a hand-held G.P.S. unit and on aerial or topographic mapping. In contrast, if no potential burrows are observed during burrow surveys, then no further surveys are required.

Part B: Focused Burrowing Owl Surveys are conducted if burrows which could potentially support BUOW are determined to be present during Part A: Focused Burrow Surveys. Part B surveys are conducted on four (4) separate survey dates, though the first may be conducted concurrently with the Focused Burrow Survey. Initially, these surveys are performed by scanning all suitable habitat areas, mapped burrows, owl sign, and owls both on-site and within the 150-meter buffer zone utilizing high quality field binoculars. Subsequently, TERACOR field personnel conduct walkovers at maximum transect intervals spaced at approximately 30 meters (100 feet), with transect interval variations to accommodate terrain, vegetation density, and ground surface visibility. During field surveys, TERACOR field personnel minimize disturbance near all burrows encountered. No BUOW burrows were observed.

Step III: Reporting Requirements: These requirements state that once the appropriate surveys have been completed, a report shall be submitted to EPD and the Western Riverside County Regional Conservation Authority Monitor Program Administrator which outlines the survey methodologies, transect width, duration, conditions, and results of the survey. Further, appropriate maps showing BUOW burrow locations and/or individual BUOW sightings must be included in the report.

Preconstruction Surveys: must be conducted on all subject properties containing burrows or suitable habitat (based on Step I: Habitat Assessment) whether owls were detected or not within 30 days prior to ground disturbance to avoid direct take of BUOW (MSHCP Species – Specific Objective 6).

CNDDB Query

The State of California maintains the *Natural Diversity Data Base* ("CNDDB"), which is a computerized inventory of information on the location of California rare, threatened, endangered, and otherwise sensitive plants, animals, and natural communities. Updates to the CNDDB are issued monthly. Useful information regarding the species occurrence, population numbers, observers, occurrence dates and potential threats to the organism(s) are included for each occurrence record. TERACOR queried the *Riverside East and Steele Peak Quadrangles* specifically for BUOW location records. The results of that query are presented below in Section 3.0.

Soil Analysis

In accordance with the MSHCP, all biological surveys must include a description of soils present on-site. TERACOR, therefore, based our soil survey analysis on the Natural Resources Conservation Service ("NRCS") Web Soil Survey of the Western Riverside Area, California mapped soils on the property and the United States Department of Agriculture, Soil Survey - Western Riverside Area, California. Soil types present on the property are presented below in Section 3.0.

Vegetation Classifications

Literature reviewed from which plant names and identifications, vegetation communities and associations, and relevant descriptions were derived include: *The Jepson Manual, Vascular Plants of California - Second Edition* (Baldwin et. al. 2012), the CDFW's *California Natural Community List* (2021), and *A Manual of California Vegetation - Second Edition* (Sawyer, Keeler-Wolf and Evens 2009). A complete list of references has been included as Appendix D.

Field Surveys

TERACOR Principal Biologist S. Reed, conducted a Step II, Part A Focused Burrow Survey on 10 January 2021, and January 20, 2021 to obtain G.P.S. locations of all potentially suitable burrows and map any areas which would be excluded from surveys. We also were on-site 09 February 2022 to map vegetation communities on the property.

TERACOR detected 27 California ground squirrel burrows and 14 burrow complexes on the property and in the stormwater channel (which is off-site but adjacent to the site). We inventoried all ground squirrel burrow locations and conducted surveyed all suitable open grassland areas on-site, as depicted in the attached *Exhibit 7 – Suitable Burrow Locations.* No BUOW utilization sign, however, was detected within or near any of these burrows.

TERACOR also detected other small mammal burrows throughout the property. These burrows appeared to be utilized by deer mice (*Peromyscus* sp.) and pocket mice (*Chaetodipus* sp.) and were considered too small to be utilized by BUOW, and were not inventoried. The G.P.S. locations of the potential owl burrows detected are presented in *Appendix C – Burrow UTM Locations.*

TERACOR field personnel conducted a Step II, Part B Focused Burrowing Owl Survey on the following dates: 23 March 2021, 24 April, 01 May, and 17 June 2021. Weather conditions during the survey dates were favorable for detection of the species and are presented in *Table 1 - Meteorological Data*, presented below.

Table 1 - Meteorological Data

Date	Surveyors	Time of Survey		Temperature (°F)		Percent Cloud Cover		Wind Speed (mph)		Annual Precipitation to Date (inches)
		Start	End	Start	End	Start	End	Start	End	
23 March 2021	S. Reed	0640	0840	47	48	100%	100%	calm	calm	5.44
24 April 2021	S. Reed	0640	0840	52	57	90%	60%	calm – 2 mph	calm – 2 mph	5.44
01 May 2021	S. Reed, E. Siordia	1000	1100	71	74	hazy/partly cloudy	hazy/partly cloudy	2 – 4 mph	2 to 5 mph	5.51
17 June 2021	S. Reed	0645	0815	68	77	10%	clear	calm	calm	5.52

Source: TERACOR field investigators
*Annual precipitation data was obtained from http://weathercurrents.com/temecula. The annual precipitation season extends from July 1 to June 30.

Fieldwork was conducted on foot through the site at transects spaced no greater than 30 meters (approximately 100 feet). Visibility was very good. *Exhibit 2 – Transect Locations*, attached, depicts TERACOR field personnel's approximate transects. Faunal and floral species present were identified in the field and recorded by S. Reed.

3.0 Results

Fauna

TERACOR field personnel detected and recorded various bird and other animal species incidentally during the focused BUOW surveys on-site.

Avian species detected included, but were not limited to, mourning dove (*Zenaida macroura*), California towhee (*Piplio crissaalis*), western meadowlark (*Sturnella neglecta*), common raven (*Corvus corax*), northern mockingbird (*Mimus polyglottos*), western kingbird (*Tyrannus verticalis*), red-tailed hawk (*Buteo jamacensis*), Anna's hummingbird (*Calypte anna*), great egret (*Ardea alba*), greater roadrunner (*Geococcyx californianus*), hooded oriole (*Icterus cucullatus*), and lesser goldfinch (*Carduelis psaltria*).

Mammals detected included California ground squirrel, Audubon's cottontail (*Sylvilagus audubonii*), and Botta's pocket gopher (*Thomomys bottae*). Coyote (*Canis latrans*), a predator of BUOW, is very common in the area.

Three reptile species were detected: western fence lizard (*Sceloporus occidentalis*), side-blotch lizard (*Uta stansburiana*), and San Diego gopher snake (*Pituophis catenifer annectens*).

A complete list of faunal species detected on-site is provided in *Appendix A – Faunal Species Observed.*

Vegetation

Geographically, the property is located within the California Floristic Province Southwestern California region, specifically in the South Coast subregion. The South Coast subregion extends along the Pacific Coast from Point Conception to Mexico.

Despite vineyard development on-site, there are natural vegetation alliances present on the property. Designations for these habitat elements and their respective California Natural Community Codes ("CaCodes") have been described in the following text. Vegetation is depicted in the attached *Exhibit 3 - Vegetation Alliances*, which includes acreage totals for each vegetation alliance identified.

Annual Brome Grassland – Fiddleneck Field (CaCode 42.027.00/42.110.00): Brome grasslands are non-native stands of annual grasses which often occur where substantial disturbances have occurred in the past. These disturbances can include over-grazing, farming, off-road vehicular use, or frequent fires. Though they are comprised of non-native species, these grasslands are widespread across southern California and constitute today's functional equivalent (albeit at a reduced level of productivity) of native grasslands. They support native wildflowers, like fiddleneck (*Amsinkia* sp.) and if not too dense can also support small mammals and herpetofauna like lizards and snakes.

Grasslands are considered suitable for BUOW, however, no evidence of BUOW occupation was observed over the course of surveys conducted in 2021. This area comprised 1.69 acres.

Cockelbur/Mustard/Red Brome/Mediterranean Grass (CaCode 42.024.00): The human-created channel which runs along the southern and southwesterly edge of the property lies mostly off-site, except for the southwest corner of the property which includes the channel at this time. It is maintained by County Flood Control and utility companies who maintain poles and lines in the channel. We identified this alliance within the project area in the channel, as well as a few small arroyo willow shrubs. This 0.49-acre area would likely be considered Riverine under provisions of the MSHCP, and the project proponent has proposed complete avoidance of the area. The arroyo willow shrubs, discussed below, add 0.02 acre to the human-created riverine channel, which would bring the total riverine area to be avoided on-site to 0.51 acre.

Disturbed open stormwater channels can be occupied by burrowing owl, and owls are known to extensively use canal banks in the agricultural zones near El Centro in southeastern California. Therefore, TERACOR walked the edge of the entire channel during each survey due to its adjacency to the subject property. No burrowing owls were ever observed, nor was the evidence of owl occupation despite the relatively high number of fossorial mammal burrows noted in the channel. This area comprised 0.49 acre.

California Buckwheat (CaCode 32.040.00): Stands of the California buckwheat alliance are present in the northeast corner of the property. Buckwheat comprises 1.3 acres of the site. Under some circumstances sparse California buckwheat areas can be suitable for BUOW, but in this case the buckwheat was relatively dense and too tall for owl to successfully utilize this habitat type. Nonetheless, it was included in the surveys conducted for the property. This area consisted of 1.3 acres.

Coast Live Oak (CaCode 71.060.00): The coast live oak alliance usually is applied to stands of multiple trees, however, in this case only one relatively small coast live oak is present near the top of the hill on

the site. We mapped it so as to fully disclose the presence of the tree on-site. Coast live oak woodland is not suitable for burrowing owl. This area comprised 0.02 acre.

Arroyo Willow (CaCode 61.201.00): A few small arroyo willow shrubs are present on the property in the stormwater channel. They comprised only 0.02 acre of the property, and could be considered under provisions of the MSHCP to be Riparian/Riverine. No disturbances to the channel are proposed by the project as complete avoidance of the channel was deemed the most appropriate approach by the project proponent. This area consisted of 0.02 acre.

Agricultural (Vineyard) (No corresponding CaCode): Agricultural fields and vineyards, if actively managed, seldom support burrowing owl due to the tilling, disking, irrigation, and application of pesticides and herbicides in most fields. However, BUOW often can occur in disturbed open areas near agricultural areas. Therefore, TERACOR included the margins and roads around the vineyard in the survey zone. No burrowing owls were detected at any time during the surveys. This area consisted 14.72 acres.

Ornamental - Eucalyptus (CaCode 79.100.00): Ornamental trees primarily occur off-site, but overhang the subject property causing TERACOR to include up to 0.13 acre of Ornamental landscaping in the vegetation mapping. The *Eucalyptus* trees present along the east property line are unsuitable for burrowing owl. This area consisted of 0.13 acre.

Disturbed (No corresponding CaCode): It was included in the survey area, and primarily consisted of dirt roads, turn around areas, and previously-graded areas near the top of the hill in the northeast corner of the property. No owls were present in the disturbed areas. This area comprised 1.66 acres.

CNDDB Query Results

The CNDDB query of the resulted in 9 nearby historic recorded sightings of BUOW from 1994 to 2016, between the west side Interstate 215 and the area in which the Project site is located. These detections are depicted in the attached *Exhibit 4 – Burrowing Owl CNDDB Locations*. Most of these locations are older dates.

Soil Analysis Results

The property is historically comprised of two (2) soil series and two (2) soils types according to the NRCS *Web Soil Survey: Western Riverside Area, California* and United States Department of Agriculture, *Soil Survey - Western Riverside Area, California*, Soil Conservation Service. The soils historically present on the property are as follows:

Table 2 - Soil Types

Code	Soil Type/Description	Location and BUOW Suitability
GyC2	**Greenfield Series** Soils of the Greenfield series are on alluvial fans and terraces. Slopes are 0 to 25 percent. These well-drained soils developed in alluvium consisting mainly of granitic materials. Elevations range from 600 to 3,500 feet. The average annual rainfall ranges from 10 to 18 inches, the average annual temperature from 59° to 64° F., and the average frost-free season from 200 to 280 days. The vegetation is chiefly annual	Found on lower areas of the property, away from the highest elevation zone of the site. BUOW suitability is considered reasonably

	grasses, forbs, sumac, and chamise but includes some scattered oak trees. In a typical profile, the surface layer is brown sandy loam about 26 inches thick. The subsoil is brown sandy loam and pale-brown loam and extends to a depth of about 60 inches. The Greenfield soils are near the Hanford, Pachappa, Arlington, and Ramona soils. Greenfield soils are used for dryland grain and pasture, for irrigated truck crops, alfalfa, potatoes, citrus, and peaches, and for homesites. **Greenfield sandy loam, 2 to 8 percent slopes, eroded** (GyC2) -This gently to moderately sloping soil occurs on alluvial fans and terraces. Following is a typical profile on a southeast-facing slope of 6 percent (1,250 feet north and 380 feet west of the south quarter corner of section 18, T. 3 S., R. 2 W.): Ap-0 to 14 inches, brown (10YR 5/3) sandy loam, dark brown (10YR 3/3) when moist; weak, medium, angular blocky and weak, fine, granular structure; slightly hard, very friable, slightly sticky and slightly plastic; abundant fine and very fine roots; common fine and very fine pores; slightly acid (pH 6.5); gradual, smooth boundary. Horizon is 5 to 14 inches thick. A1-14 to 26 inches, brown (10YR 5/3) sandy loam, very dark grayish brown (10YR 3/2) when moist; weak, medium, angular blocky structure; slightly hard, very friable, slightly sticky and slightly plastic; abundant very fine roots; many very fine and few fine pores; neutral (pH 7.0); gradual, wavy boundary. Horizon is 4 to 16 inches thick. B1-26 to 43 inches, brown (10YR 5/3) sandy loam, very dark grayish brown (10YR 3/2) when moist; moderate, medium, angular blocky structure; slightly hard, very friable, slightly sticky and slightly plastic; abundant very fine roots; many very fine and few fine pores; colloidal stains and few bridges; neutral (pH 7.0). Horizon is 8 to 20 inches thick. B2t-43 to 60 inches, pale-brown (10YR 6/3) loam, dark brown (10YR 3/ 3) when moist; moderate, coarse, angular blocky structure; hard, friable, sticky and plastic; few very fine roots; common fine and many very fine pores; mildly alkaline (pH 7.4); few thin clay films in pores and bridges. The A horizon is light brownish gray to dark grayish brown to brown in color and sandy loam to very fine sandy loam in texture. The B horizon is slightly acid to mildly alkaline' sandy loam to loam. The C horizon, where present, is stratified reddish-brown to brown very fine sandy loam to loamy sand alluvium. Included with this soil in mapping are small areas of Hanford coarse sandy loam, Pachappa fine sandy loam, Arlington fine sandy loam, and Ramona sandy loam. Some small areas having a loamy fine sand or gravelly sandy loam surface layer are included. Also, some soils that are slightly wet are included. Permeability of this soil is moderate. Runoff is slow to medium, and the hazard of erosion is slight to moderate. The available water holding capacity is 7.5 to 10.0 inches. The root zone is more than 60 inches deep. Natural fertility is high. This soil is used for dryland grain and pasture, for irrigated alfalfa, potatoes, citrus, and peaches, and for homesites. (Capability unit IIe-1 (19) irrigated; Loamy range site)	high in terms of soil structure and potential for burrow construction.
RmE3	**Ramona Series** The Ramona series consists of well-drained soils on alluvial fans and terraces. Slopes range from 0 to 25 percent. These soils developed in alluvium consisting mainly of granitic materials. Elevations range from 500 to 3,500 feet. The average annual rainfall ranges from 9 to 18 inches, the average annual temperature from 59° to 65° F., and the average frost-free season from 220 to 300 days. The vegetation consists chiefly of annual grasses, forbs, chamise, salvia, and flat-top buckwheat. In a typical profile, the surface layer is brown sandy loam and fine sandy loam about 23 inches thick. The sub-soil extends to a depth of about 68 inches. This layer is brown loam and reddish-brown and yellowish-red sandy clay loam. The substratum is strong-brown fine sandy loam.	Found on upper areas of the property, generally along the north property line in hilly areas. BUOW suitability is considered reasonably high in terms of soil structure and potential for burrow construction.

	The Ramona soils are near the Tujunga, Hanford, Greenfield, Arlington, Buren, Placentia, and Monserate soils. The Ramona soils are used for dryland grain and pasture and for irrigated peaches, apricots, citrus, alfalfa, truck crops, and grain. They are also used as sites for homes and schools and for other nonfarm purposes. **Ramona and Buren sandy loams, 15 to 25 percent slopes, severely eroded** (RmE3) These soils occupy convex, dissected, old terraces. About 45 percent of the total acreage is Ramona sandy loam; about 40 percent is Buren sandy loam; and the rest is included areas of less eroded Ramona and Buren soils having a sandy loam surface layer 10 to 16 inches thick, as well as small areas of Hanford soils in the drainageways. The Ramona soil is similar to Ramona sandy loam, 2 to 5 percent slopes, eroded, except that the original surface layer is only 10 inches thick or less, the soil is cut by many gullies, and there are areas of exposed subsoil. The available water holding capacity is 7.5 to 9.5 inches. Runoff is rapid, and the erosion hazard is high. The root zone is more than 60 inches deep. The Buren soil is similar to Buren fine sandy loam, 2 to 8 percent slopes, but its original surface layer is 10 inches thick or less and in places is missing entirely. Many gullies have been formed, and the subsoil is exposed in some places. The available water holding capacity is 2.0 to 3.0 inches. Runoff is rapid, and the hazard of erosion is high. The effective root zone is 12 to 36 inches deep. The soils in this unit are used for dryland pasture and, where the climate is favorable, for irrigated citrus. (Ramona soil, capability unit Vle-1 (19) dryland; Loamy range site. Buren soil, capability unit Vle-8 (19) dry land; Loamy range site)	

Both soils within the property are considered structurally suitable for occupation by BUOW and other burrowing organisms based on the sandy loam composition of each soil. *Exhibit 5 – Soils*, depicts the different soils series present on-site.

Survey Results

Photographs were taken during TERACOR's field surveys, and are depicted in the attached *Exhibit 6 – Site Photos.*

On-Site: No BUOW were observed during the course of the four (4) focused surveys. All birds detected were recorded in *Appendix A - Faunal Species Observed.*

Off-Site: TERACOR did not obtain permission to transect the surrounding properties for BUOW. TERACOR field personnel did, however, scan the 150 meter off-site survey zone utilizing 10 x 42 binoculars as appropriate. Undeveloped and maintained sage scrub is present to the north. The properties to the east are rural residential, and developed with ornamental vegetation. Rancho California Road is present to the south, as is a flood control channel. The flood control channel was included in surveys with negative BUOW results. No owls or evidence for owls was observed off-site.

4.0 Conclusion and Recommendations

We detected no primary or secondary/evidence of BUOW occupation on the property. No BUOW were observed during TERACOR's field surveys.

In accordance with MSHCP requirements TERACOR recommends conducting a pre-construction survey within 30 days prior to ground disturbance since suitable habitat is present on-site.

A list of references is presented in *Appendix D – References.*

CERTIFICATION: I hereby certify that the statements and exhibits contained in this report present data and information required for this biological evaluation, and that the facts, statements, and information presented are true and correct to the best of my knowledge.

15 October 2022

Samuel Reed, Principal — Date
U.S. Fish & Wildlife Service Recovery Permit No. 839896-6
Samuel Reed, Principal, Scientific Collecting Permit No. 002267

Appendix A
Faunal Species Observed

Birds

Birds were observed with 10x40 binoculars. Birds were identified following *The Sibley Field Guide to Birds 2nd Edition* (2014), and updated to conform to changes in nomenclature consistent with the most recent American Ornithological Society checklist. Non-native species have been noted below with an asterisk (*) following the scientific name.

Scientific Name	Common Name
Accipitridae	**Hawks, Eagles, Kites, Harriers, Ospreys**
Buteo jamaicensis	red-tailed hawk
Buteo lineatus	red-shouldered hawk
Aegithalidae	**Bushtits**
Psaltriparus minimus	bushtit
Ardeidae	**Bitterns**
Ardea alba	great egret
Cathartidae	**American Vultures**
Cathartes aura	turkey vulture
Columbidae	**Pigeons and Doves**
*Columba livia**	rock pigeon
Zenaida macroura	mourning dove
Corvidae	**Crows, Jays and Magpies**
Corvus brachyrhynchos	American crow
Corvus corax	common raven
Cuculidae	**Anis, Cuckoos, Roadrunners**
Geococcyx californianus	greater roadrunner
Falconidae	**Falcons**
Falco sparverius	American kestrel
Fringillidae	**Finches**
Haemorhous mexicanus	house finch
Spinus lawrencei	Lawrence's goldfinch
Spinus psaltria	lesser goldfinch

Scientific Name	Common Name
Spinus tristis	American goldfinch
Icteridae	**Blackbirds**
Icterus cucullatus	hooded oriole
Sturnella neglecta	western meadowlark
Mimidae	**Mockingbirds, Thrashers**
Mimus polyglottos	northern mockingbird
Motacillidae	**Wagtails and Pipits**
Anthus rubescens	American pipit
Parulidae	**Wood Warblers**
Setophaga coronata	yellow-rumped warbler
Passerellidae	**New World Sparrows**
Melozone crissalis	California towhee
Passerculus sandwichensis	savannah sparrow
Melospiza melodia	song sparrow
Zonotrichia atricapilla	golden-crowned sparrow
Zonotrichia leucophrys	white-crowned sparrow
Passeridae	**Old World Sparrows**
*Passer domesticus**	house sparrow
Picidae	**Woodpeckers**
Picoides nuttallii	Nuttall's woodpecker
Sturnidae	**Starlings**
*Sturnus vulgaris**	European starling
Trochilidae	**Hummingbirds**
Calypte anna	Anna's hummingbird
Troglodytidae	**Wrens**
Thryomanes bewickii	Bewick's wren
Troglodytes aedon	house wren
Tyrannidae	**Flycatchers**
Tyrannus vociferans	Cassin's kingbird
Sayornis nigricans	black phoebe
Sayornis saya	Say's phoebe

Scientific Name	Common Name
Tyrannus verticalis	western kingbird
Tytonidae	**Barn Owls**
Tyto alba	barn owl (carcass)

Mammals

Species seen or detected via sign are listed. Nomenclature follows *Peterson Field Guides: Mammals of North America* (Reid 2006). Non-native species have been noted below with an asterisk (*) following the scientific name.

Scientific Name	Common Name
Canidae	**Coyotes, Dogs, Foxes, Jackals, and Wolves**
Canis latrans	coyote
Cricetidae	**Hamsters, Voles, New World Rats and Mice**
Neotoma fusipes	dusky-footed woodrat (likely)
Felidae	**Cats**
Lynx rufus	bobcat (tracks)
Geomyidae	**Pocket Gophers**
Thomomys bottae	Botta's pocket gopher
Leporidae	**Rabbits and Hares**
Lepus californicus deserticola	black-tailed jackrabbit
Sylvilagus audubonii	Audubon's cottontail
Mephitidae	**Skunks and Stink Badgers**
Mephitis mephitis	striped skunk (tracks)
Procyonidae	**Raccoons and Relatives**
Procyon lotor	northern raccoon (tracks)
Sciuridae	**Squirrels, Chipmunks and Marmots**
Ostospermophilus beecheyi	California ground squirrel

Amphibians and Reptiles

Identification of amphibians and reptile species were made visually, with nomenclature following R.C. Stebbins (2003) *A Field Guide to Western Reptiles and Amphibians,* third edition, updated to conform to the most recent changes in nomenclature utilizing The Center for North American Herpetology.

Scientific Name	Common Name
Reptiles	
Lizards	
Phrynosomatidae	**Zebra-tailed, Fringe-toed, Spiny, Tree, Side-Blotched, and Horned Lizards**
Sceloporus occidentalis	western fence lizard
Uta stansburiana	common side-blotched lizard
Snakes	
Colubridae	**Harmless Egg-Laying Snakes**
Pituophis catenifer annectens	San Diego gopher snake

Appendix B
Floral Species Observed

Vegetation List

The species listed below were detected within the subject property during field surveys performed in 2022. Field identifications are a composite list prepared by S. Reed and M. Long. Scientific names follow *The Jepson Manual, Vascular Plants of California - Second Edition*, 2012, and have been updated following the Jepson Online Interchange for California Floristics database (2014). Non-native species have been noted below with an asterisk (*) following the scientific name. Exotic trees were not systematically included in the list, although some well-known species are.

Scientific Name	Common Name
Amaranthaceae	**Amaranth Family**
*Amaranthus albus**	tumbleweed
*Salsola tragus**	Russian thistle
Anacardiaceae	**Sumac Family**
*Schinus molle**	pepper tree
Asteraceae	**Sunflower Family**
Ambrosia sp.	
Ambrosia psilostachya	western ragweed
Artemisia douglasiana	mugwort
Artemisia californica	California sagebrush
Baccharis salicifolia ssp. *salicifolia*	mulefat
Centaurea benedicta	blessed thistle
Corethrogyne filaginifolia	common sandaster
Deinandra sp.	tarplant
Deinandra paniculata	paniculate tarplant
Erigeron canadensis	horseweed
Helianthus annuus	common sunflower
Heterotheca grandiflora	telegraph weed
*Lactuca serriola**	prickly lettuce
Lessingia filaginifolia	California aster
Matricaria discoidea	pineapple weed
*Oncosiphon piluliferum**	stinknet
Pseudognaphalium californicum	California everlasting
*Sonchus asper**	prickly sow thistle
*Taraxacum officinale**	common dandelion
Xanthium strumarium	cocklebur

Scientific Name	Common Name
Aizoaceae	**Fig-Marigold Family**
Mesembryanthemum sp.*	ice plant
Boraginaceae	**Borage Family**
Amsinckia intermedia	common fiddleneck
Amsinckia menziesii	small-flowered fiddleneck
Cryptantha intermedia	common cryptantha
Heliotropium curassavicum var. *oculatum*	alkali heliotrope
Pectocarya linearis ssp. ferocula	slender combbur
Phacelia cicutaria var. hispida	caterpillar phacelia
Plagiobothrys collinus	California popcorn flower
Brassicaceae	**Mustard Family**
*Brassica nigra**	black mustard
*Hirschfeldia incana**	short-pod mustard
*Raphanus sativus**	radish
Lepidium sp.	pepper grass
*Sisymbrium irio**	London rocket
*Sisymbrium orientale**	Oriental hedge mustard
Cactaceae	**Cactus Family**
Opuntia sp.	cane cholla
Opuntia basilaris var. *basilaris*	beavertail cactus
Chenopodiaceae	**Goosefoot Family**
*Chenopodium album**	lamb's quarters
*Salsola tragus**	Russian thistle
Convolvulaceae	**Morning-glory Family**
Convolvulus arvensis	field bindweed
Crassulaceae	**Crassila Family**
Crassula connata	sand pygmy-stonecrop
Euphorbiaceae	**Spurge Family**
Croton setiger	turkey mullein
Euphorbia polycarpa	smallseed sandmat
Fabaceae	**Legume Family**
Acmispon glaber	deerweed
Lotus purshianus	Spanish clover

Scientific Name	Common Name
Lupinus bicolor	miniature lupine
*Melilotus officinalis**	yellow sweetclover
Prosopis sp.	mesquite
Fagaceae	**Oak Family**
Quercus agrifolia	coast live oak
Geraniaceae	**Geranium Family**
*Erodium cicutarium**	redstem filaree
Lamiaceae	**Mint Family**
*Marrubium vulgare**	horehound
Salvia columbariae	chia
Trichostemma lanceolatum	vinegar weed
Lythraceae	**Loosestrife Family**
*Punica granatum**	pomegranate
Malvaceae	**Mallow Family**
*Malva parviflora**	cheeseweed
Myrtaceae	**Myrtle Family**
*Eucalyptus sideroxylon**	red iron bark
*Eucalyptus polyanthemos**	silver dollar
Oleaceae	**Olive Family**
*Olea europaea**	European olive
Onagraceae	**Evening Primrose Family**
Camissonia californica	California sun cup
Camissonia micrantha	miniature sun cup
Camissonia strigulosa	sandysoil sun cup
Papaveraceae	**Poppy Family**
Eschscholzia californica	California poppy
Pinaceae	**Pine Family**
Pinus sp.	pine
Poaceae	**Grass Family**
*Avena barbata**	slender wild oat
*Bromus diandrus**	ripgut grass

Scientific Name	Common Name
Bromus madritensis ssp. *rubens**	red brome
*Bromus tectorum**	cheat grass
*Schismus barbatus**	common Mediterranean grass
Polygonaceae	**Buckwheat Family**
Eriogonum fasciculatum	California buckwheat
*Rumex crispus**	curly dock
Portulacaceae	**Purslane Family**
Calandrinia ciliata	redmaids
Salicaceae	**Salix Family**
Populus fremontii	Fremont cottonwood
Salix sp.	willow
Salix lasiolepis	arroyo willow
Solanaceae	**Nightshade Family**
Datura wrightii	jimson weed
*Nicotiana glauca**	tree tobacco
*Solanum elaeagnifolium**	white horse-nettle
Urticaceae	**Nettle Family**
*Urtica urens**	dwarf nettle

Appendix C
Burrow UTM Locations

UTM coordinates were obtained utilizing a *Garmin GPSmap 64s* handheld unit.

Feature	No. of Burrows	Datum/UTM Zone	Easting	Northing
Burrows				
Burrow No. 1	1	NAD83 11S	493778	3710025
Burrow No. 2	1	NAD83 11S	493762	3710087
Burrow No. 3	1	NAD83 11S	493777	3710090
Burrow No. 4	1	NAD83 11S	493812	3710063
Burrow No. 5	1	NAD83 11S	493835	3710042
Burrow No. 6	1	NAD83 11S	493849	3710049
Burrow No. 7	1	NAD83 11S	493888	3710073
Burrow No. 8	1	NAD83 11S	493740	3709847
Burrow No. 9	1	NAD83 11S	493856	3709890
Burrow No. 10	1	NAD83 11S	493965	3709931
Burrow No. 11	1	NAD83 11S	493975	3709935
Burrow No. 12	1	NAD83 11S	493987	3709934
Burrow No. 13	1	NAD83 11S	493988	3709927
Burrow No. 14	1	NAD83 11S	493920	3709899
Burrow No. 15	1	NAD83 11S	493913	3709898
Burrow No. 16	1	NAD83 11S	493831	3709863
Burrow No. 17	1	NAD83 11S	493811	3709865
Burrow No. 18	1	NAD83 11S	493798	3709852
Burrow No. 19	1	NAD83 11S	493774	3709850
Burrow No. 20	1	NAD83 11S	493722	3709844
Burrow No. 21	1	NAD83 11S	493715	3709846
Burrow No. 22	1	NAD83 11S	493695	3709852
Burrow No. 23	1	NAD83 11S	493690	3709854
Burrow No. 24	1	NAD83 11S	493683	3709872
Burrow No. 25	1	NAD83 11S	493667	3709889
Burrow No. 26	1	NAD83 11S	493657	3709863
Burrow No. 27	1	NAD83 11S	493661	3709874
Burrow Complexes				
Burrow Complex No. 1	4	NAD83 11S	493759	3710034
Burrow Complex No. 2	4	NAD83 11S	493785	3710070
Burrow Complex No. 3	2	NAD83 11S	493957	3709913
Burrow Complex No. 4	5	NAD83 11S	493933	3709902
Burrow Complex No. 5	5	NAD83 11S	493738	3709835

Feature	No. of Burrows	Datum/UTM Zone	Easting	Northing
Burrow Complex No. 6	6	NAD83 11S	493710	3709826
Burrow Complex No. 7	6	NAD83 11S	493683	3709837
Burrow Complex No. 8	4	NAD83 11S	493669	3709851
Burrow Complex No. 9	4	NAD83 11S	493661	3709860
Burrow Complex No. 10	4	NAD83 11S	493653	3709870
Burrow Complex No. 11	5	NAD83 11S	493655	3709878
Burrow Complex No. 12	6	NAD83 11S	493647	3709875
Burrow Complex No. 13	5	NAD83 11S	493652	3709886
Burrow Complex No. 14	5	NAD83 11S	493644	3709889

Appendix D
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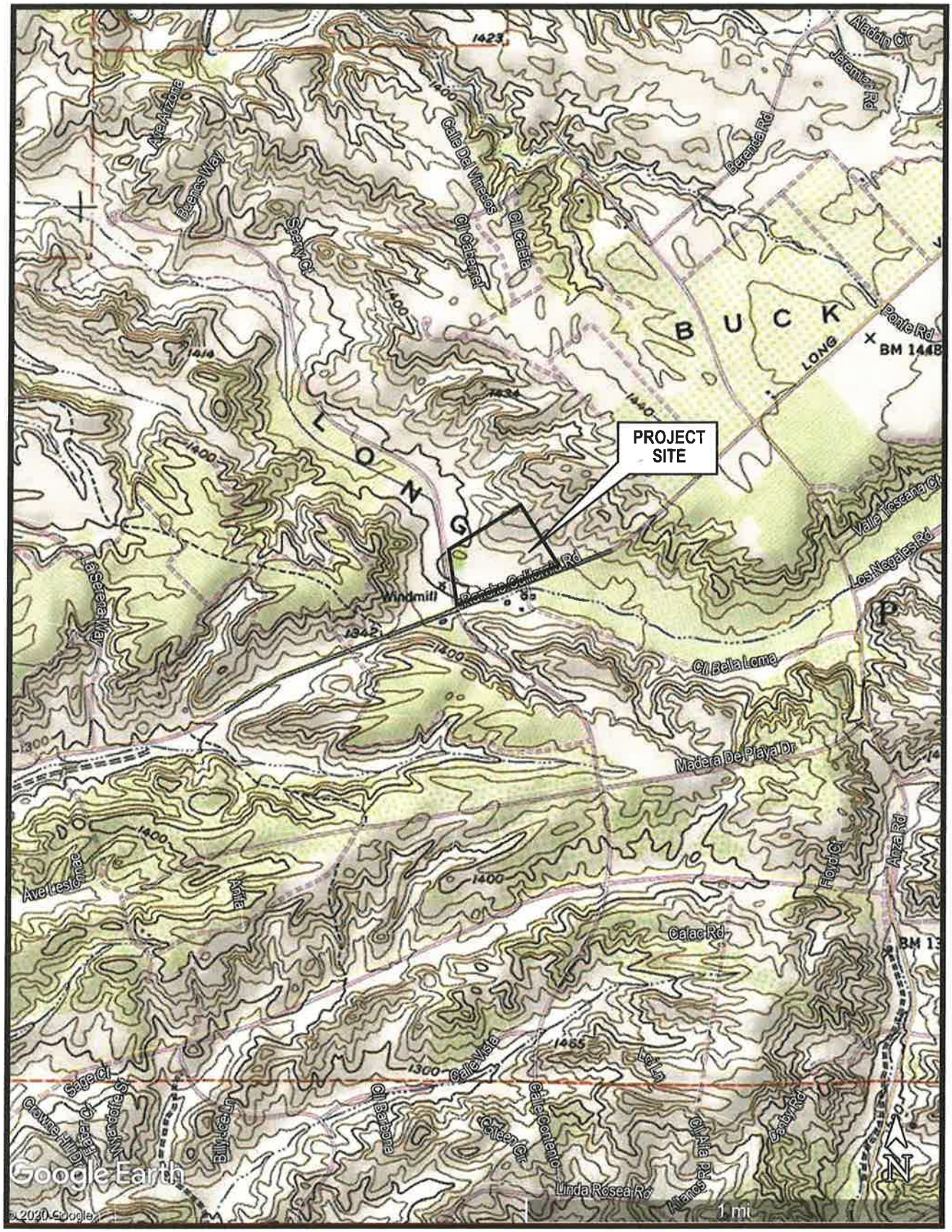

TERACOR RESOURCE MANAGEMENT

33990 Rancho California Road
Source: Bachelor Mtn USGS Quadrangle

Exhibit 1
USGS Topo

TERACOR RESOURCE MANAGEMENT

33990 Rancho California Road
Source: Google Earth Pro

Exhibit 2
Survey Transects

COLOR	VEGETATION ALLIANCES	CA-CODE	ACRES
	ANNUAL BROME GRASSLAND-FIDDLENECK FIELD	42.027.00 / 42.110.00	1.69
	CALIFORNIA BUCKWHEAT	32.040.00	1.3
	COAST LIVE OAK	71.060.00	0.02
	ORNAMENTAL / EUCALYPTUS	79.100.00	0.13
	COCKELBUR-MUSTARD-RED BROME-MED. GRASS	42.024.00	0.49
	DISTURBED	NO CA-CODE	1.66
	AGRICULTURAL (VINEYARD)	NO CA-CODE	14.72
	ARROYO WILLOW	61.201.00	0.02
		TOTAL	20.03

GRAPHIC SCALE

0 75 150 300

(IN FEET)
1 inch = 150 ft.

TERACOR RESOURCE MANAGMENT
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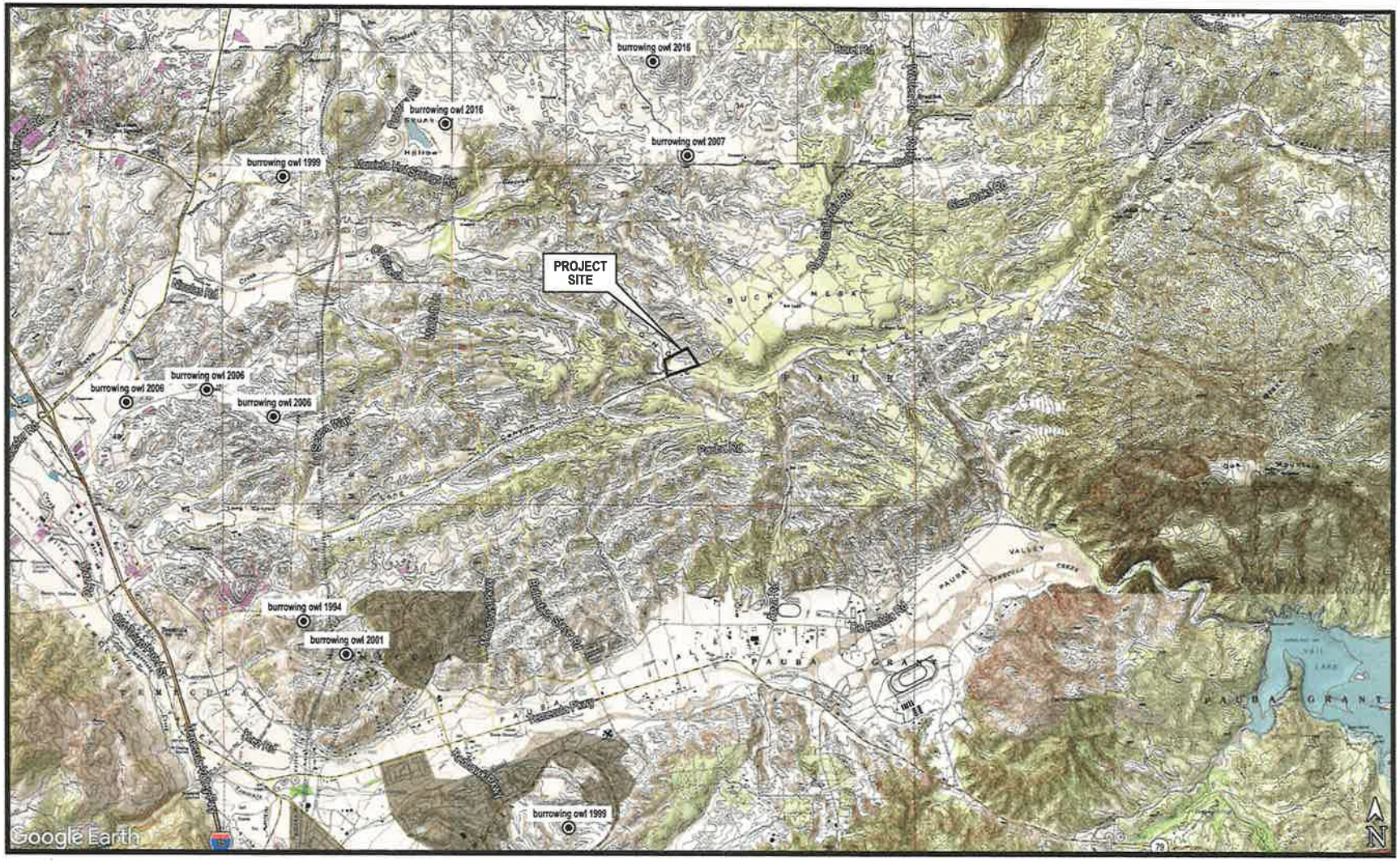
Temecula, California 92590

4M ENGINEERING AND DEVELOPMENT, INC.
41635 Enterprise Circle N. - Suite B
Temecula, California 92590
TEL: (951) 296-3466

EXHIBIT 3

VEGETATION ALLIANCES

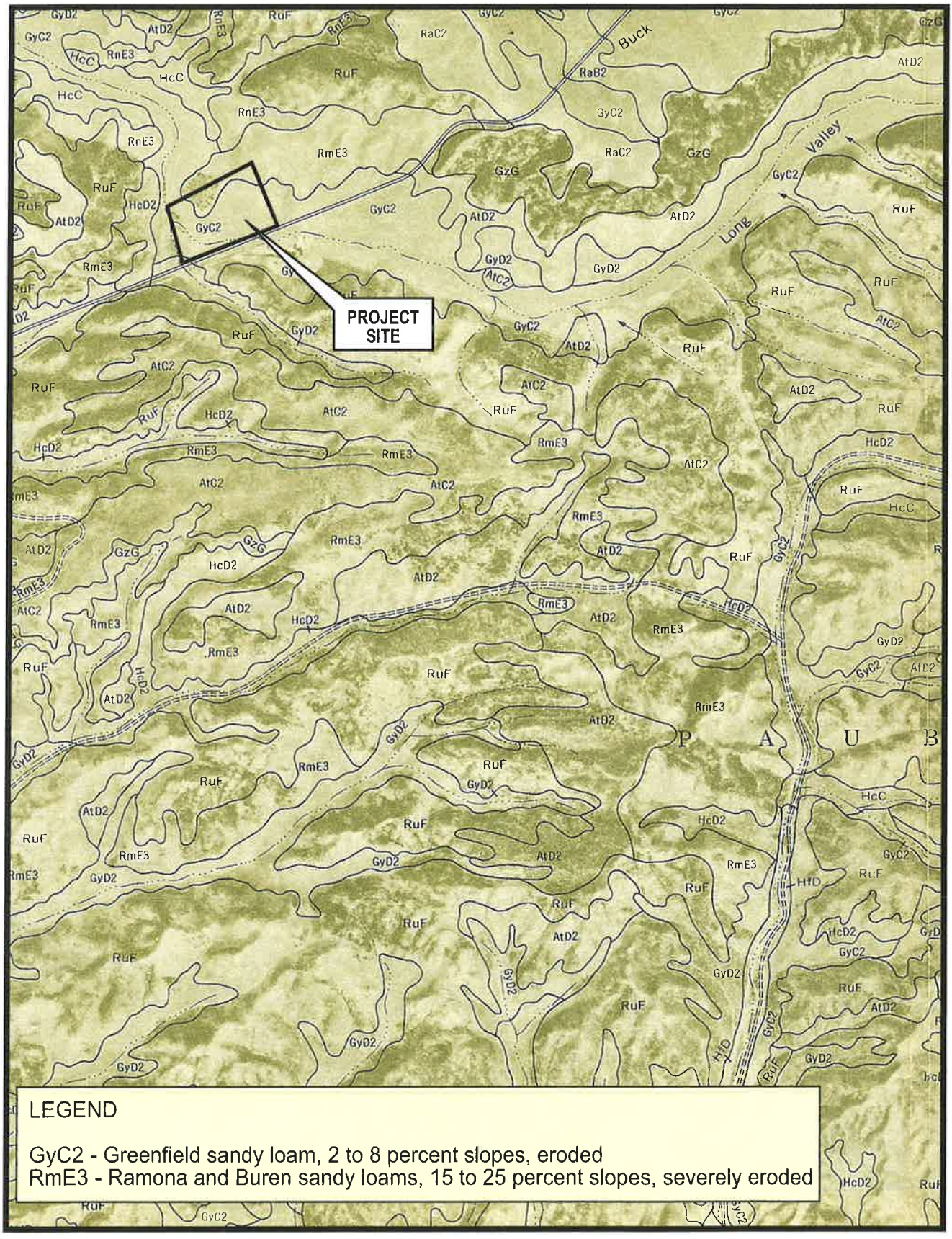
2020 AERIAL PHOTO



TERACOR RESOURCE MANAGEMENT

33990 Rancho California Road
Source: CDFW CNDDB and Google Earth Point Bachelor Mtn Topo

Exhibit 4
CNDDB Burrowing Owl Locations



TERACOR RESOURCE MANAGEMENT

North

33990 Rancho California Road
Source: USDA Western Riverside Area Soil Survey

Exhibit 5
Soils

Photo 1 - Interface of buckwheat scrub and vineyard along north-south dirt access road. There were no suitable burrows along the road and the scrub is too high and the hillside somewhat steep for BUOW.

Photo 2 - Adjoining property at the northeast corner of the subject site. Maintained as open habitat regularly and more structurally suitable than the subject site for BUOW, but none have been observed as of the 3rd survey interval.

Photo 3 - Northeast corner of the site and the graded pad. Ground is densely compacted at this location and lacks burrows of any type.

Photo 4 - This south-facing photo was taken on the primary access road on the undeveloped hill. This type of intensive agriculture is generally not favorable for BUOW nesting because of the height and density of the vines. Perimeter areas, however, can be occupied, though BUOW was not detected on this property.

Photo 5 - 2 burrows (2nd under vines) with characteristic structure and vegetation pulled into burrow, however, no owls observed and no corresponding diagnostic sign. No wash, no feathers, no insects remains.

TERACOR RESOURCE MANAGEMENT

33990 Rancho California Road
Source: Google Earth Pro

Exhibit 7
Suitable Burrow Locations