BIOLOGICAL REPORT
FOR THE
PALMETTO PROJECT SITE

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TABLE OF CONTENTS

LIST OF FIGURES

LIST OF TABLES

1.0 INTRODUCTION

The Palmetto project site is located in the City of Redlands, San Bernardino County, California (Figure 1). The site is located southeast of the San Bernardino International Airport. The site is northwest of and adjacent to the intersection of Palmetto Avenue and Alabama Street. Redlands Wastewater Treatment Facility bounds the site to the north and west (Figures 2 and 3).

The site is within Section 17 of Township 1 South and Range 3 West of the Redlands, California, United States Geological Survey (USGS) 7.5-minute topographic quadrangle (Figure 1).

A site assessment and biological surveys were conducted at the site at the request of Duke Realty. The surveys conducted in spring 2018 included all of the project site; and consisted of;

- a general biological assessment,
- general plant and wildlife surveys,
- vegetation mapping,
- habitat assessment for assessing potential for special status plant species[1],
- habitat assessment for assessing potential for special status wildlife species[2], and,
- general assessment for Corps Waters/wetlands and CDFW streambeds.

Focused surveys for threatened, endangered and sensitive plant or wildlife species were not conducted as part of this assessment.

The entire Palmetto project site consists of approximately 55 acres of mostly agricultural land, located within the built-up city limits. The project site has historically been used as an orchard and is currently partially in row crops and mostly un-used. Currently the site contains active farming, various sheds and outbuildings, and disked grassland that appears to be un-used. The site is flat with little topographical variation. Site topography varies from an elevation of approximately 1,196 to 1,125 feet above msl (Figure 3).

The site has a Mediterranean type climate, with hot dry summers, relatively cool winters and sparse rains. Annual precipitation for the region averages 13.3 inches, and average annual temperature ranges from 50^0 to 79^0 F. Rainfall during the 2017/2018 season was below normal throughout southern California (Appendix A).

[1] Special status plant species = federal or state listed threatened or endangered species, or proposed endangered, threatened or candidate species, California Native Plant Society Species List (CNPS list 1-4), or otherwise sensitive species.

[2] Special status wildlife species = federal or state listed threatened or endangered species, or proposed endangered, threatened or candidate species, or otherwise sensitive species.

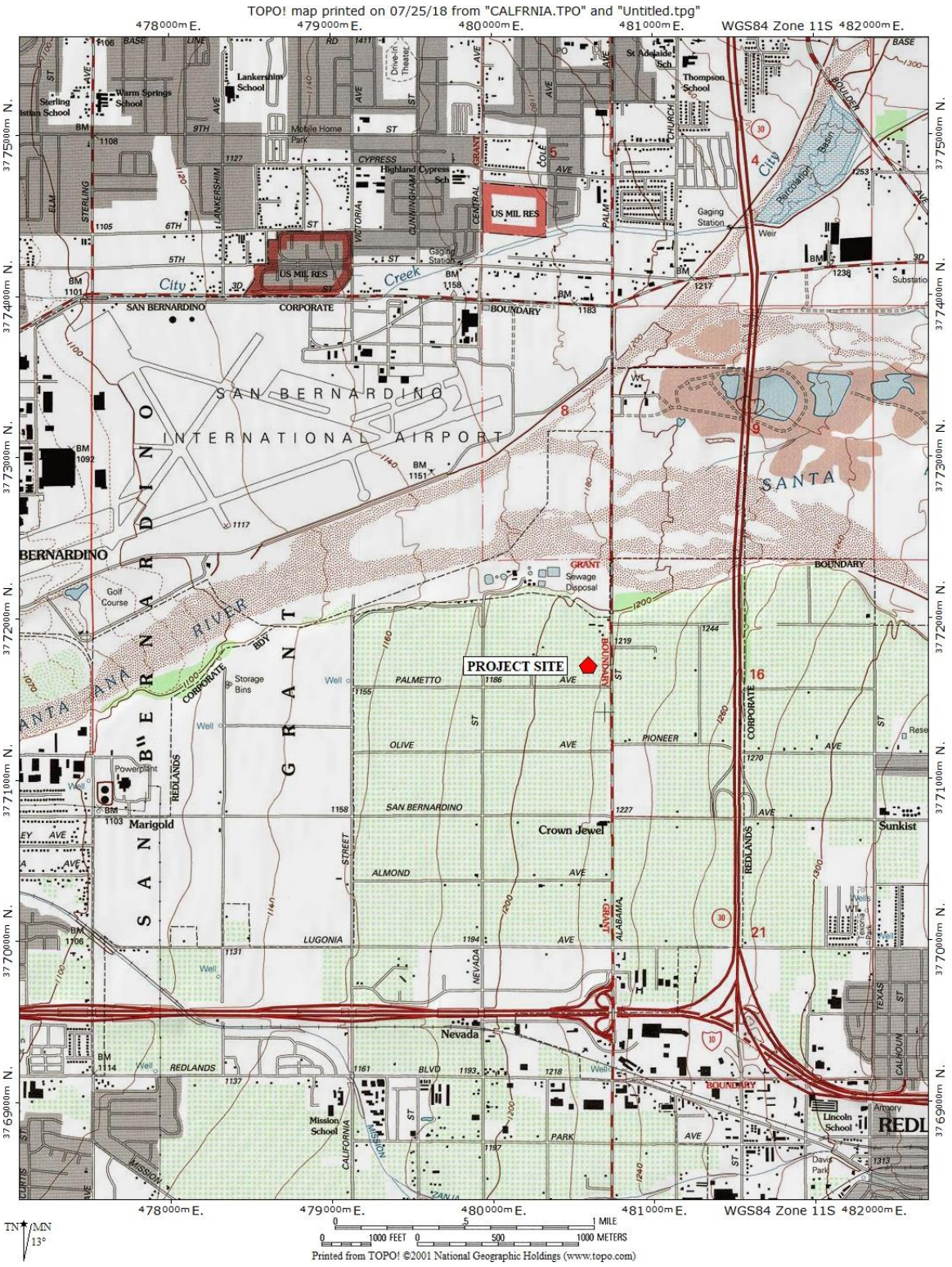

Figure 1: Location of the Palmetto project site in San Bernardino County, southern California. Source: USGS Topographical quadrant: Redlands.

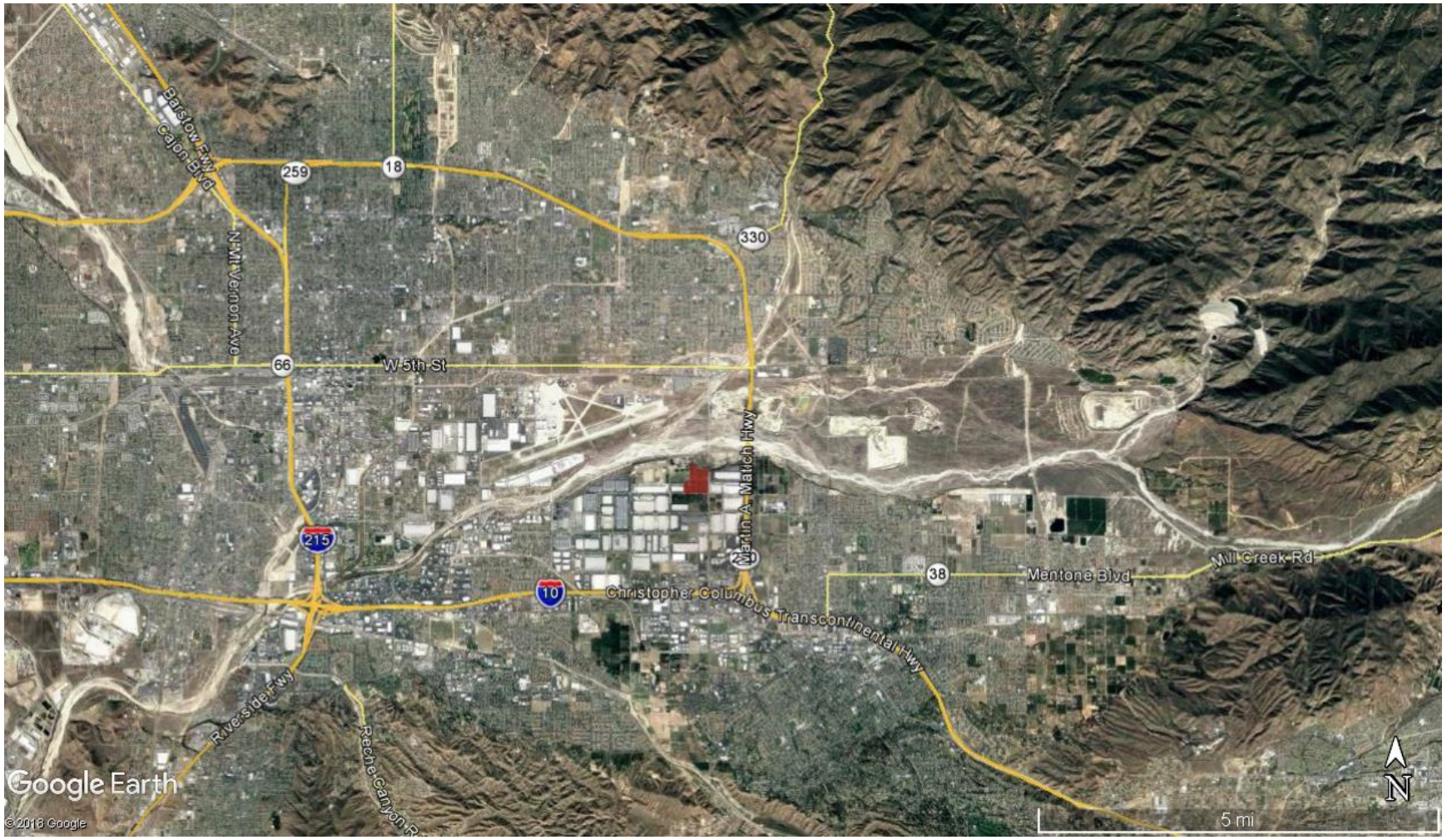

Figure 2: Location of the Palmetto project site (in red).

Figure 3: Palmetto project site (in red). Source: Google Earth, Inc.

2.0 METHODS

2.1 Biological Resources Information sources

In addition to the site visit, field surveys, vegetation mapping, wildlife inventories, and habitat assessments information on the biological resources of the project site was obtained by reviewing existing available data. Databases such as the California Natural Diversity Database (CNDDB 2018) and California Native Plant Society's Inventory of Rare and Endangered Vascular Plants of California (Tibor 2001) were reviewed regarding the potential occurrence of any special status species or sensitive habitat within or in close proximity of the project site.

The resources used in this thorough archival review included the following;

- California Natural Diversity Data Base (CNDDB) for the USGS 7.5' quadrangle which comprised the study area: Redlands and neighboring quads for pertinent data,
- California Native Plant Society Inventory of rare and endangered vascular plants of California (Tibor 2001; CNPS On-line Inventory),
- Special Animals (including California Species of Special Concern), CDFW, Natural Heritage Division, April 2018,
- Special Vascular Plants, Bryophytes, and Lichens List, CDFW, Natural Heritage Division, April 2018,
- State and Federally Listed Endangered, Threatened and Rare Plants of California, CDFW, Natural Heritage Division, April 2018,
- State and Federally Listed Endangered and Threatened Animals of California, CDFW, Natural Heritage Division, May 2018,
- Published literature (Chesser *et. al.* 2013, Sibley 2000, Small 1994, Moyle *et al.* 1995, Jennings and Hayes 1994, Stebbins 1985, Webster *et al.* 1980, Burt and Grossenheider 1976).

2.2 Vegetation mapping, habitat assessment for special status plant species and general botanical surveys

Vegetation mapping, habitat assessments and general botanical surveys were conducted on 5 and 6 July 2018 by Glen Morrison. Vegetation types within the project site were mapped according the state-wide A Manual of California Vegetation, Second Edition (Sawyer *et al.* 2009). This is the mapping system recognized and recommend by regulatory agencies. Vegetation was mapped to the association level by hand on an aerial photographic base map conducted while walking throughout the study area. A general plant species list was compiled concurrently with the vegetation mapping surveys (Appendix B). Scientific and common nomenclature in Hickman (1993) was used as the taxonomic resource. The equivalent vegetation community under the old Holland classification system (Holland 1986) was also noted.

The habitat assessment for special status plant species was conducted concurrently with the vegetation mapping, and concentrated on habitats with the highest potential for yielding special status species, although all areas of the project site were checked. Each habitat within the study area was traversed on foot, examining the areas for particular features such as seeps, unique geologic types, exposures, etc., that would indicate the presence of a preferred habitat for special status plant species.

2.3 Wildlife surveys and habitat assessment for special status wildlife

Field surveys for wildlife and habitat assessment for special status wildlife species were conducted on 13 and 18 July 2018 by Paul Galvin. All portions of the site were traversed on foot to survey each vegetation community, look for evidence of wildlife presence and conduct an assessment of potential habitat for special status species. Wildlife species were detected during the field surveys by sight, vocalizations, burrows, tracks, scat, scrapings and other sign. No specialized techniques, such as trapping, mist nets or taped calls, were used during the surveys.

Latin and common names of wildlife referred to in this report follow Powell and Hogue (1979), Hogue 1993 and NatureServe http://www.natureserve.org/explorer/) for invertebrates; NatureServe for fish; North American Herpetology (http://www.naherpetology.org/nameslist) for amphibians and reptiles; American Ornithologists' Union Checklist of North American Birds - 7th Edition (2017) for birds; Baker at al. 2003 for mammals; and Grenfell et al. 2003, California Department of Fish and Game & California Interagency Wildlife Task Group (http://www.dfg.ca.gov/whdab/pdfs/species_list.pdf) and Perrins et al. 1983 for common names.

2.4 Wetland Delineation

Although a formal wetland delineation was not conducted, the project area was checked in the field for the presence of streambeds, definable channels, wetland and riparian vegetation and hydric soils. All areas of topographic relief suspected of representing historic or current drainage patterns were inspected on-foot.

Field visits were conducted on 13 and 18 July 2018 by Paul Galvin.

3.0 RESULTS

3.1 Soils

The soils on the study area are sandy loams from the Hanford-Tujunga-Greenfield association, which are excessively to poorly drained, loam soils on alluvial fans (NRCS Soil Survey 2018). Hanford sandy loam is the dominant soil onsite, covering more than 96% of the site. A small area along the northern boundary supports Tujunga loamy soil and a very small area (less than 0.5% of the site) on the property boundary supports Psamments, Fluvents and frequently flooded soils (Figure 4). Dominant soils are as follows;

Hanford sandy loam, 0 to 2 percent slopes (HbA)
This soil consists of well-drained and somewhat excessively drained soils on alluvial fans, and are derived from granitic materials. The upper 18 inches consist of grayish-brown (10YR 5/2) and very dark grayish brown (10YR 3/2) coarse sandy loam. This soil is used for irrigated citrus, truck crops, grapes, dryland grain, pasture and non-farm purposes.

Tujunga loamy sand, channeled, 0 to 5 percent slopes (TvC)
This soil consists of excessively drained soils on alluvial fans and floodplains, derived from alluvium primarily from granitic materials. These soils contain many small braided to large meandering channels. Surface soils are light gray (10YR 6/1) loamy sand, underlain by light gray (10YR 7/1) fine sand. Tujunga soils are used for dryland grain, and if irrigated, truck crops, grapes and grain.

3.2 Vegetation communities

The Palmetto project site has been significantly impacted due to years of agricultural activity, disking and disturbance (Photographs 1 through 8, Appendix E). The entire area consisted of an active orchard in 1990s (Figure 5). Currently the site contains four vegetation communities/land types; California annual grassland, Eucalyptus semi-natural woodland stands, Mixed species windrows and agriculture. Vegetation types within the project site were mapped according the state-wide A Manual of California Vegetation (Sawyer *et al.* 2009) to the extent possible. Since this system focuses on native vegetation communities many disturbed and man-made land covers do not fit cleanly into the system. The best fit possible was made to map and classify the onsite vegetation. The equivalent vegetation community under the old Holland classification system (Holland 1986) is also noted. Dirt roads were mapped as the vegetation community which they go through.

California annual grassland
This vegetation type describes areas dominated by non-native European annual grasses, with a large component of ruderal forbs. The best fit under the Sawyer *et al*. 2009 system would be Avena semi-natural herbaceous stands or Bromus-Brachypodium distachyon semi-natural herbaceous stands. However neither of these stands contains significant amounts of barley, which is one of the dominants at the project site. So the best fit for this vegetation type is California annual grassland (used in the older version of Sawyer *et al*). The majority of the project site consisted of non-native grassland that is regularly disked. Non-native grasslands are associated with areas of historic grazing, disking and off-road recreational vehicle use. Soils are generally deep, well-drained sand to fine sandy loam. Holland (1986) classified this habitat type as non-native grasslands and wildflower fields.

The dominant species in the California annual grassland included barley (*Hordeum murinum*), oats (*Avena fatua*), brome grasses (*Bromus* spp.) and summer mustard (*Hirschfeldia incana*). Other species present included Russian thistle (*Salsola tragus*), common sunflower (*Helianthus annuus*), common phacelia (*Phacelia distans*) and common fiddlenck (*Amsinckia intermedia*). Approximately 10-15 blue elderberry (*Sambucus nigra*) trees occured in the northwestern end of the site within the California annual grassland.

A total of 47.0 acres of California annual grassland occurred onsite (Table 1; Figure 6).

Agriculture
The agricultural area included irrigated row crops, exotic trees, fields not in current use, recently disked fields and glass-houses, in addition to sheds, temporary dwellings and other structures. This area also supported weedy vegetation, non-native grasses, landscaping and exotic trees.

A total of 7.2 acres of Agriculture occurred onsite (Table 1; Figure 6).

Eucalyptus semi-natural woodland stands
Two Eucalyptus windrows occurred along the northern site boundary, where red gum (*Eucalyptus camaldulentis*) and silver-dollar gum (*Eucalyptus polyanthemos*) were planted in the past. The understory was minimal and consisted of non-native annual grasses.

A total of 0.6 acres of Eucalyptus semi-natural woodland stands occurred onsite (Table 1; Figure 6).

Windrows
A windrow along the southwestern site boundary, adjacent Palmetto Avenue, consisted of a variety of exotic landscaping trees including pines, cypress and palms.

A total of 0.2 acres of windrow occurred onsite (Table 1; Figure 6).

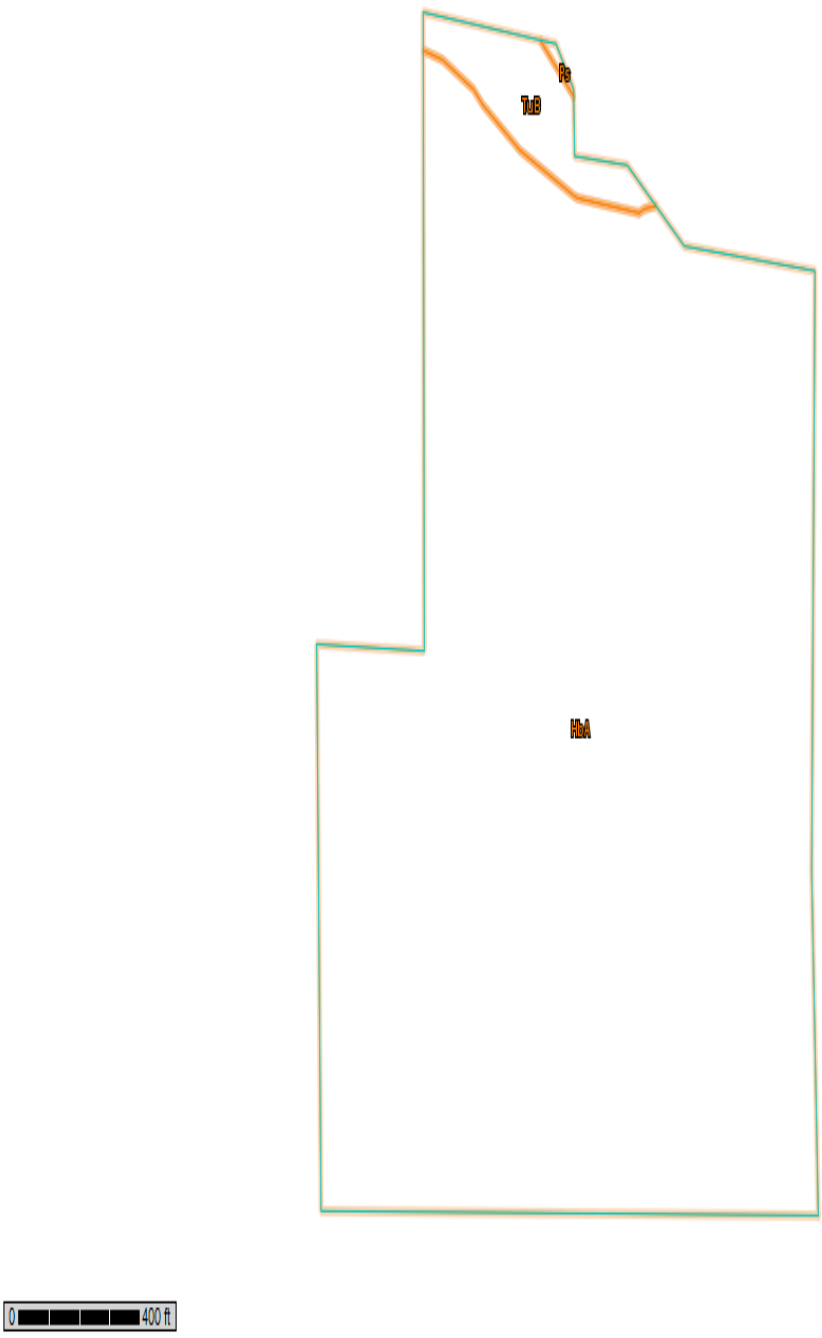

Figure 4: Soils at the Palmetto site. Source: NRCS Soil Survey 2018.

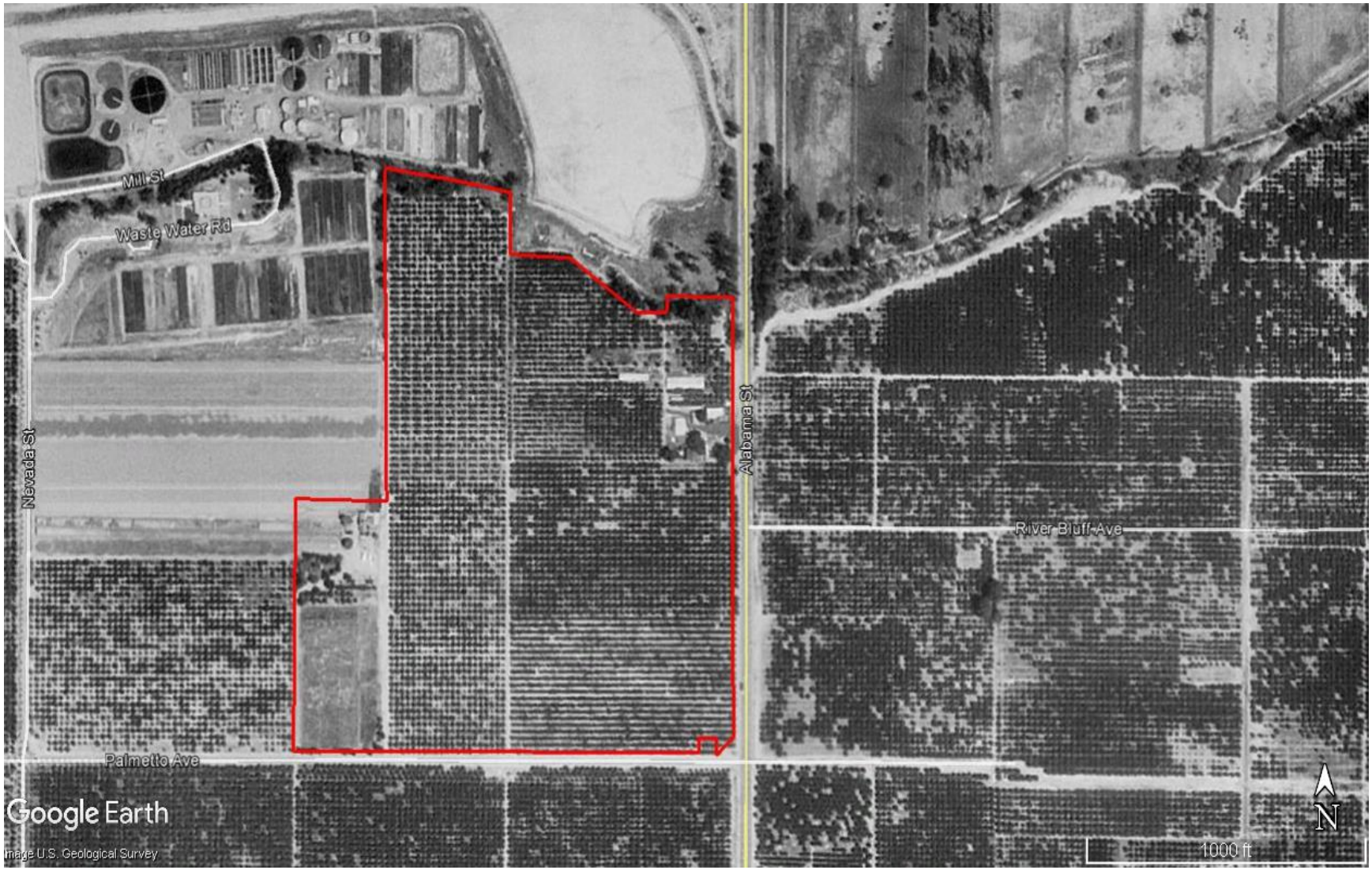

Figure 5: Project site in 1995, showing onsite orchards and buildings. Source: Google Earth, Inc.

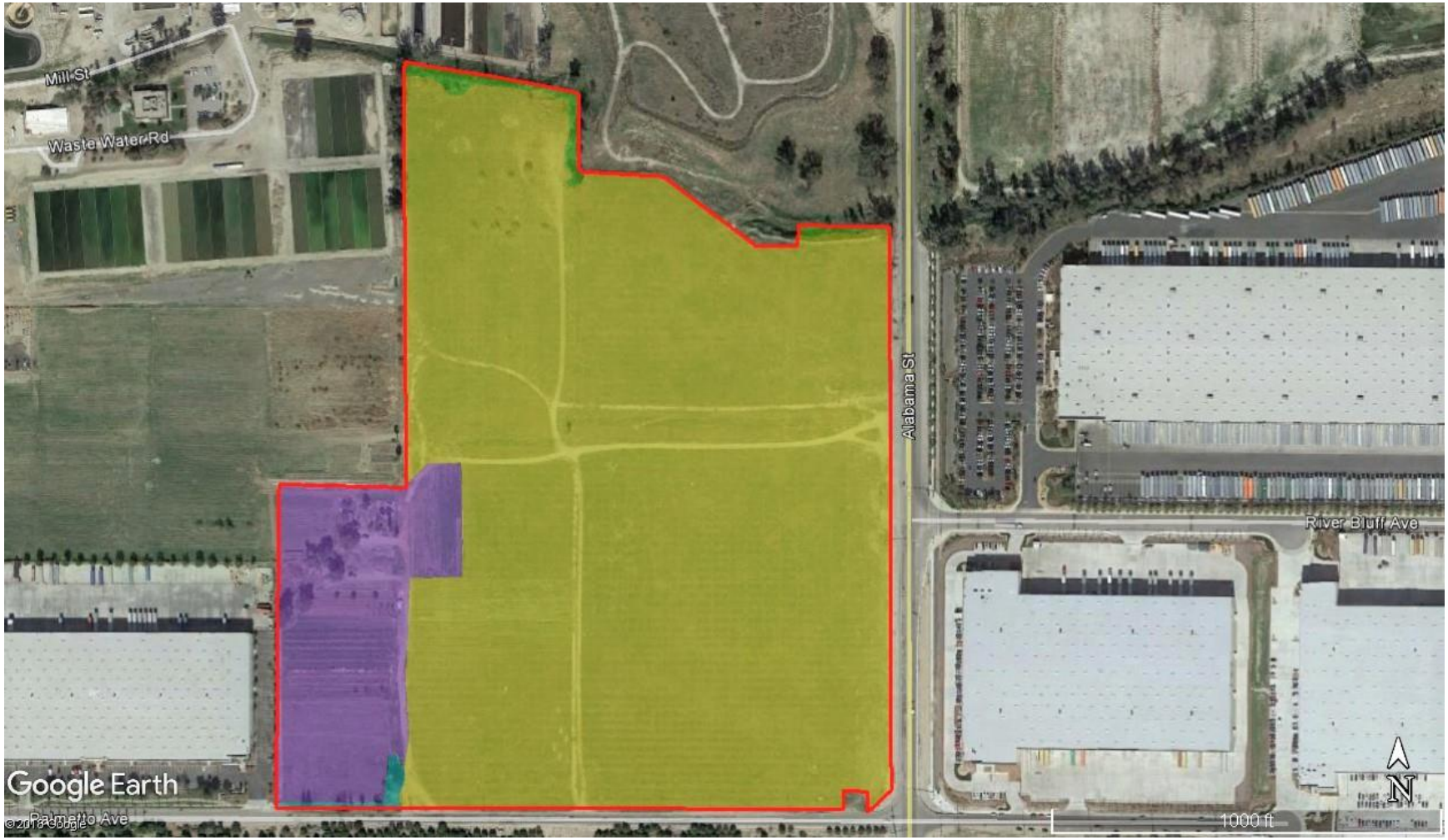

Figure 6: Vegetation map of Palmetto site (in red). Yellow = California annual grassland, Purple =agriculture; Green = Eucalyptus semi-natural woodland stands, Blue = Mixed species windrow. Source: Google Earth, Inc.

Table 1: Vegetation communities at the Palmetto project site.

Vegetation communities/Land Cover Type	PROJECT SITE
California annual grassland	47.0
Agricultural	7.2
Eucalyptus semi-natural woodland stands	0.6
Mixed species windrow	0.2
Site total	**55.0**

3.3 Plant Inventory

Plant species at the Palmetto project site consisted of species associated with open and disturbed habitats. A total of 41 vascular plant species, representing 23 families were detected at the project site during the current surveys (Appendix B). About 32% (13) were native and the remaining 28 species were exotic. The best represented families were Poaceae (7 species) and Asteraceae (4 species).

3.4 Special Status Plant Species

No special-status plants were observed on the Palmetto project site during the July 2018 site surveys, and there are no historic site records for any special status plant species onsite (CNDDB 2018).

Based on a review of CNDDB, the CNPS Inventory of Rare and Endangered Vascular Plants of California (Tibor 2001, CNPS 2018), and field surveys, a few special status species were identified as having low potential to occur onsite (Table 2).

The entire site was an active orchard during the 1990s and any special status plant species present would likely have been eliminated during that time. Due to the past and current activities onsite, the disturbed nature of the site, the absence of native vegetation communities, the absence of any current or historic site records, no special-status plant species are expected to occur onsite.

3.5 Wildlife overview

Wildlife at the study area consisted of common species and species associated with open, disturbed habitats. The most abundant species detected during the site visit were birds such as American crow (*Corvus brachyrhynchos*), mourning dove (*Zenaida macroura*) and house finch (*Carpodacus mexicanus*). A total of 25 wildlife species were detected during the site visits, including two reptile, 18 bird and three mammalian species (Appendix D).

3.6 Special status wildlife species

No special-status wildlife species were observed on the Palmetto project site during the July 2018 site surveys, and there are no historic site records for any special status plant species onsite (CNDDB 2018).

Based on a review of CNDDB, published literature and field surveys and assessments, a number of special status wildlife species were identified as potentially occurring onsite, including some species with historic records from the project vicinity (Table 3). These are species which typically occur in native habitats that historically occurred in the project vicinity, prior to agricultural and development.

The entire site was an active orchard during the 1990s and any special status wildlife species present would likely have been eliminated during that time. Due to the past and current activities onsite, the disturbed nature of the site, the absence of native vegetation communities, the absence of any current or historic site records special status wildlife species are unlikely to occur onsite.

All special status wildlife species with some potential to occur onsite are addressed in Table 3, two species are additionally discussed below.

Burrowing owls (*Athene cunicularia*) occur in shortgrass prairies, grasslands, lowland scrub, agricultural lands (particularly rangelands), prairies, coastal dunes, desert floors, and some artificial, open areas as a yearlong resident. They require large open expanses of sparsely vegetated areas on gently rolling or level terrain with an abundance of active small mammal burrows. As a critical habitat feature, they require the use of rodent or other burrows for roosting and nesting cover. They can also use pipes, culverts, and nest boxes (USFWS 2003, Haug *et al.* 1993, Zeiner *et al.* 1990).

No burrowing owls we detected during the site visit and there was no evidence that burrowing owls were present. Burrowing owls do occur nearby, at the San Bernardino International Airport (CNDDB 2018). Burrowing owl is assumed absent from the project site.

San Bernardino kangaroo rat (*Dipodomys merriami parvus*) is confined to primary and secondary alluvial fan scrub habitats, with sandy soils deposited by fluvial (water) rather than aeolian (wind) processes. Burrows are dug in loose soil, usually near or beneath shrubs.

The project site is located outside and just south of the San Bernardino kangaroo rat critical habitat area, Unit 1: Santa Ana River and Wash (USFWS 2002).

San Bernardino kangaroo rat is likely absent from the project site due to past and current site disturbances.

Table 2: Special status plant species that occurred or have the potential to occur in the Palmetto project site: Definitions - status: Fed = federal, FE = federal endangered, FT = federal threatened, FPE = federally proposed for listing as endangered, FPT = federally proposed for listing as threatened, FC = federal candidate species, FSC = federal special concern species, state = state of California, SE = state endangered, ST = state threatened, SCE = state candidate for listing as endangered, SCT = state candidate for listing as threatened, SC = state species of concern, FP = fully protected species, none = no federal or state listing, see Appendix C for CNPS Status. Occurrence onsite: Occurs = known to occur onsite, potential = could occur due to presence of suitable habitat onsite but not detected during current survey, unlikely = probably does not occur due to limited suitable habitat onsite and not detected.

Scientific Name	Common Name	Status	Occurrence Onsite	Habitat
Calochortus plummerae LILACEAE	Plummer's mariposa lily	Fed: None State: None CNPS 4.2	Unlikely	Chaparral, cismontane woodland, coastal sage scrub, lower montane conifer forest, valley and foothill grassland, granitic and rocky soils/perennial bulbiferous herb/ 100 – 1700m/ May-June
Centromadia pungens ssp. laevis ASTERACEAE	Smooth tarplant	Fed: None State: None CNPS 1B.1	Unlikely	Chenopod scrub, meadows and seeps, playas, riparian woodland, valley and foothill grassland/ annual herb/ 0 – 640m/ April – September
Chorizanthe parryi var. parryi POLYGONACEAE	Parry's spineflower	Fed: None State: None CNPS 1B.1	Unlikely	Chaparral, cismontane woodland, coastal scrub, valley and foothill grassland; sandy or rocky, openings/ annual herb/ 275 – 1220m/ April-June
Dodecahema leptoceras POLYGONACEAE	slender horned spineflower	Fed: FE State: SE CNPS: 1B.1	Unlikely	Chaparral, coastal sage scrub (alluvial fan), cismontane woodland; sandy soils/ annual herb/ 200 – 760m/ April - June
Eriastrum densifolium ssp. Sanctorum POLEMONIACEAE	Santa Ana river woollystar	Fed: FS State: SE CNPS: 1B.1	Unlikely	Chaparral, coastal scrub (alluvial fan)/ perennial herb/ 91 – 610m/ April – September
Imperata brevifolia POACEAE	satintail	Fed: None State: None CNPS: 2B.1	Unlikely	Chaparral, coastal sage scrub, creosote bush scrub, wetland-riparian, meadows and seeps/moist areas/perennial herb/0-500m / September-May
Mucronea californica POLYGONACEAE	California spineflower	Fed: None State: None CNPS: 4.2	Unlikely	Coastal strand, chaparral, foothill woodland, northern coastal scrub, coastal sage scrub, valley grassland/dunes and coastal/annual herb/0-1,000m /March-July

Table 3: Special status wildlife species that occurred or have the potential to occur in the Palmetto project site. Definitions - status: Fed = federal, FE = federal endangered, FT = federal threatened, FPE = federally proposed for listing as endangered, FPT = federally proposed for listing as threatened, FC = federal candidate species, FSC = federal special concern species, state = state of California, SE = state endangered, ST = state threatened, SCE = state candidate for listing as endangered, SCT = state candidate for listing as threatened, CSC = California species of special concern, FP = fully protected species, CNDDB = species listed under the states CNDDB program, none = no federal or state listing. Occurrence onsite: Occurs = known to occur onsite, potential = could occur due to presence of suitable habitat onsite but not detected during current survey, unlikely = probably does not occur due to limited suitable habitat onsite and not detected.

Scientific Name	Common Name	ESA/CESA Status	Other Status	Occurrence onsite	Habitat/comments
Amphibians					
Spea hammondii	Western spadefoot	ESA: None CESA: None	DFG: SSC	Unlikely, no pools present	grassland, open habitats with sandy or gravelly soil; temporary rainpools for breeding
Reptiles					
Phrynosoma blainvillii	coast horned lizard	ESA: None CESA: None	CDFW: SSC	Potential	sandy washes and open sandy areas within coastal sage scrub, grassland, chaparral, oak and riparian woodland
Aspidoscelis hyperytha	orange-throated whiptail	ESA: None CESA: None	CDFW: WL	Potential	open, sparsely covered land, often with well-drained sandy or loose soils in coastal sage scrub, grassland, chaparral, oak woodland and riparian habitats
Aspidoscelis tigris stejnegeri	coastal whiptail	ESA: None CESA: None	CDFW: SSC	Potential	Semiarid habitats with open sparsely vegetated areas, scrub, chaparral, grassland and woodland habitats
Anniella stebbinis	Southern California legless lizard	ESA: None CESA: None	CDFW: SSC	Potential	Sandy, loose loamy soils in chaparral, oak woodland, coastal sage scrub
Salvadora hexalepis virgultea	Coast patch-nosed snake	ESA: None CESA: None	CDFW: SSC	Potential	habitat generalist, associated with brushy or shrubby vegetation
Arizona elegans occidentalis	California glossy snake	ESA: None CESA: None	CDFW: SSC	Potential	arid scrub, rocky washes, grasslands, chaparral. Appears to prefer microhabitats of open areas and areas with soil loose enough for easy burrowing.
Birds					
Accipiter cooperi	Cooper's hawk	ESA: None CESA: None	CDFW: WL	Potential, foraging only	mature forests, open woodlands, wood edges, river groves, riparian woodland
Accipiter striatus	sharp-shinned hawk	ESA: None CESA: None	CDFW: WL	Potential, foraging only	wide variety of habitats used by wintering and migrating birds, but mostly associated with woodland

					and scrubland; breeds in mountains, does not breed in southern California
Aquila chrysaetos	golden eagle	ESA: None CESA: None	CDFW: SSC, FP FW: BCC	Potential, foraging only	Open mountains, foothills, plains, open country
Buteo regalis	ferruginous hawk	ESA: None CESA: None	CDFW: WL FW: BCC	Potential, foraging only	plains, prairies, grasslands, does not breed in southern California
Buteo swainsoni	Swainson's hawk	ESA: None CESA: None	FW: BCC	Potential, foraging only	prairies, grasslands, more widespread in migration
Circus cyaneus	northern harrier	ESA: None CESA: None	CDFW: SSC	Potential, foraging only	grassland, marshes, agricultural land, open areas in scrub and chaparral; ground or shrub nesting
Elanus leucurus	white-tailed kite	ESA: None CESA: None	CDFW: FP	Potential, foraging only	forages in grasslands; nests and roosts in oak and riparian woodland
Falco columbarius	merlin	ESA: None CESA: None	CDFW: WL	Potential, foraging only	nests in open woodlands, savanna, does not breed in southern California, woodlands, open areas in winter, migration
Falco mexicanus	prairie falcon	ESA: None CESA: None	CDFW: WL FW: BCC	Potential, foraging only	open arid country, grasslands, more widespread in winter
Falco peregrinus anatum	American peregrine falcon	ESA: SE CESA: None	CDFW: FP FW: BCC	Potential, foraging only	nest on cliffs or rock outcroppings, usually near water; forages over open country (grassland, scrub, marshes)
Asio flammeus	short-eared owl	ESA: None CESA: None	CDFW: SSC	Potential, foraging only	grasslands, open habitats
Athene cunicularia	burrowing owl	ESA: None CESA: None	CDFW: SSC FW: BCC	Potential	grasslands, farmland and other open habitats
Lanius ludovicianus	loggerhead shrike	ESA: None CESA: None	CDFW: SSC	Potential	grassland, scrub and other open habitats with perching structures; nests in trees and shrubs
Eremophila alpestris actia	California horned lark	ESA: None CESA: None	CDFW: WL	Potential	Open areas with little or no ground cover, such as grassland or ruderal vegetation
Mammals					
Antrozous pallidus	pallid bat	ESA: None CESA: None	CDFW: SSC WBWG: H	Potential, foraging only	Coastal sage scrub, oak woodland and chaparral; roosts in caves, mines, rock crevices, trees and buildings
Macrotus californicus	California leaf-nosed bat	ESA: None CESA: None	CDFW: SSC WBWG: H	Potential, foraging only	roosts in caves or old mines
Corynorhinus townsendii	Western big-eared bat	ESA: None CESA: None	CDFW: SSC WBWG: H	Potential, foraging only	roosts in caves, old mines or buildings

Myotis thysanodes	fringed myotis	ESA: None CESA: None	CDFW: SSC WBWG: H	Potential, foraging only	caves, old buildings
Myotis volans	long-legged myotis	ESA: None CESA: None	CDFW: SSC WBWG: H	Potential, foraging only	buildings, pockets and crevices in rocks
Myotis yumanensis	Yuma myotis	ESA: None CESA: None	CDFW: SSC WBWG: LM	Potential, foraging only	caves, tunnels and buildings in arid areas
Eumops perotis californicus	California mastiff bat	ESA: None CESA: None	CDFW: SSC WBWG: H	Potential, foraging only	widespread forager; roosts in cliffs and buildings
Perognathus longimembris brevinasus	Los Angeles pocket mouse	ESA: None CESA: None	CDFW: SSC	Potential	occurs in lower elevation scrub and grassland with open ground and fine, sandy soil
Chaetodipus fallax fallax	Northwestern San Diego pocket Mouse	ESA: None CESA: None	CDFW: SSC	Potential	occurs in open scrub and grassland areas, in the valleys and foothills
Onychomys torridus ramona	southern grasshopper mouse	ESA: None CESA: None	CDFW: SSC	Potential	annual grassland and coastal sage scrub
Dipodomys merriami parvus	San Bernardino kangaroo rat	ESA: FE CESA: None	CDFW: SSC	Potential	confined to primary and secondary alluvial fan scrub habitats, with sandy soils deposited by fluvial (water) rather than aeolian (wind) processes. Burrows are dug in loose soil, usually near or beneath shrubs
Neotoma lepida intermedia	San Diego desert woodrat	Fed: none State: none	CDFW: SSC	Potential	cactus patches and rock outcroppings in coastal sage scrub
Lepus californicus bennettii	San Diego black-tailed jackrabbit	ESA: None CESA: None	CDFW: SSC	Potential	coastal sage scrub, grassland and chaparral
Taxidea taxus	American badger	ESA: None CESA: None	CDFW: SSC	Potential	widespread in natural habitats

3.7 Wildlife movement corridors and linkages

The terms "wildlife corridors" and "linkages" are based upon fundamental ecological concepts, but can be easily misinterpreted because: 1) universally accepted definitions of these terms have not been established; 2) each term can be interpreted using different time scales (i.e. daily, seasonal, annual and evolutionary) and spatial scales (i.e. microclimate, local, community, and landscape) which changes their meaning; 3) the areas and values change from species to species; and, 4) the understanding of how these processes work is on-going and conclusions are subject to revision. The following definitions are intended to provide a working understanding of corridors and linkages and are summarized from several sources (SCWP 2003, USCA9D 1990, Barrett and Livermore 1983, Beier 1993).

Wildlife corridor - Wildlife corridors are areas which animals can use to move from one patch of suitable habitat to another. These areas would be expected to have the least habitat fragmentation relative to surroundings areas. A wildlife corridor establishes connectivity for animals to move, live, reproduce and respond to functional ecological processes during the course of a year to several years. The quality and functionality of a particular wildlife corridor varies from species to species.

Wildlife crossings are generally small, narrow wildlife corridors that allow wildlife to pass through an obstacle or barrier such as a roadway to reach another patch of habitat. Wildlife crossings are manmade and include culverts, drainage pipes, underpasses, tunnels, and, more recently, crossings created specifically for wildlife movement over or under highways.

Both wildlife crossings and wildlife corridors function to prevent habitat fragmentation that would result in the loss of species that require large contiguous expanses of unbroken habitat and/or that occur in low densities.

Linkages – Linkages are areas that provide for long term movement or interaction of wildlife to maintain natural evolutionary and ecological patterns. Linkages are fundamental for gene flow and large scale ecological processes. These areas are usually defined by the zones of "least resistance" for the genes of a given species to move or "flow" between core reserve populations.

No wildlife corridors or linkages are known at the Palmetto project site. It is unlikely that the site is of any significance to wildlife movement.

3.8 Wetlands and streambeds

A formal jurisdictional delineation was not conducted onsite; however a general assessment of onsite drainage features was conducted as part of the biological assessment.

No rivers, creeks, ephemeral drainages, channels, washes, wetlands, riparian areas, vernal pools or temporary rain pools occur within the project site.

No Corps or CDFW jurisdictional areas occur onsite.

4.0 BIOLOGICAL CONSTRAINTS

There are a number of potential biological constraints at Palmetto project site. Any significant impacts to these biological constraints that would result from the proposed project would require appropriate mitigation.

Significance of impacts to biological resources are assessed using impact significance threshold criteria, which reflect the policy statement contained in California Environmental Quality Act (CEQA), Section 21001(c) of the California Public Resources Code. Accordingly, the State Legislature has established the following policy of the State of California:

> *Prevent the elimination of fish or wildlife species due to man's activities, ensure that fish and wildlife populations do not drop below self-perpetuating levels, and preserve for future generations representations of all plant and animal communities..*

Determining whether a project may have a significant effect, or impact, plays a critical role in the CEQA process. According to the CEQA Guidelines, (Section 15064.7, Thresholds of Significance), each public agency is encouraged to develop and adopt (by ordinance, resolution, rule, or regulation) thresholds of significance that the agency uses in the determination of the significance of environmental effects. A threshold of significance is an identifiable quantitative, qualitative or performance level of a particular environmental effect, non-compliance with which means the effect will normally be determined to be significant by the agency and compliance with which means the effect normally will be determined to be less than significant. In the development of thresholds of significance for impacts to biological resources CEQA Guidelines provides guidance primarily in Section 15065, Mandatory Findings of Significance, and the CEQA Guidelines, Appendix G, Environmental Checklist Form. Section 15065(a) states that a project may have a significant effect where:

> *The project has the potential to substantially degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or wildlife community, reduce the number or restrict the range of an endangered, rare, or threatened species, ..*

Therefore, impacts to biological resources are considered potentially significant (before considering offsetting mitigation measures) if one or more of the following criteria discussed below would result from implementation of the proposed project;

> Appendix G of the State CEQA Guidelines indicate that a project may be deemed to have a significant effect on the biological resources if the project is likely to:

a) Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service.
b) Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by the California Department of Fish and Game or U.S. Fish and Wildlife Service.
c) Have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means.
d) Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites.
e) Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance.
f) Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan.

4.1 List of the potential biological constraints at the Palmetto project site

1. Nesting birds.
2. Low potential for special status plant species
3. Low potential for special status wildlife species

4.2 Permits and consultations likely required

As a result of these potential biological constraints, any proposed project at the Palmetto project would require the following permits/consultations/co-ordination;

California Environmental Quality Act (CEQA);
CEQA Document

Federal Migratory Bird Treaty Act of 1918 (MBTA);

The MBTA governs the taking and killing of migratory birds, their eggs, parts, and nests and prohibits the take of any migratory bird, their eggs, parts, and nests. No take of migratory birds is allowed under this act. Construction work must comply with the MBTA.

4.3 Recommended mitigation measures

1. Avoidance of Nesting Migratory Birds**:** If possible, all vegetation removal activities shall be scheduled from August 1 to February 1, which is outside the general avian nesting season. This would ensure that no active nests would be disturbed and that removal could proceed rapidly. If vegetation is to be cleared during the nesting season, all suitable habitat will be thoroughly surveyed within 72 hours prior to clearing for the presence of nesting birds by a qualified biologist (Project Biologist). The Project Biologist shall be approved by the City and retained by the Applicant. The survey results shall be submitted by the Project Applicant to the City Planning Department. If any active nests are detected, the area shall be flagged and mapped on the construction plans along with a minimum 300-foot buffer, with the final buffer distance to be determined by the Project Biologist. The buffer area shall be avoided until, as determined by the Project Biologist, the nesting cycle is complete or it is concluded that the nest has failed. In addition, the Project Biologist shall be present on the site to monitor the vegetation removal to ensure that any nests, which were not detected during the initial survey, are not disturbed.

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6.0 APPENDICES

6.1 Appendix A: Weather data

Public information national weather service San Diego CA; 2017-2018 rainfall season in review, http://www.nws.noaa.gov/climate

A drier than normal rainfall season ended on 30 June 2018. Winter was dry across southern California. Most of coastal southern California had less than 50% typical rainfall in 2017/2018.

Areas	2017-2018 Total	Normal Total	% of Normal
Santa Barbara	8.52	17.73	48
Lancaster	2.74	5.1	54
downtown Los Angeles	4.68	14.77	32
Long Beach Airport	3.6	12.72	28
John Wayne Airport	2.66	12.76	21
Fullerton	3.21	14.72	22
Riverside	4.3	10.12	42
Oceanside Airport	4.68	10.54	44
San Diego	3.26	10.13	32
Palm Springs	2.89	5.49	53

6.2 Appendix B: Plant species detected at the Palmetto project site, 2018.

SCIENTIFIC NAME (SYNONYM)	COMMON NAME
GYMNOSPERMS	**CONE BEARING PLANTS**
CUPRESSACEAE	**CYPRESS FAMILY**
*Cupressus sempervirens**	Italian cypress
PINACEAE	**PINE FAMILY**
*Pinus sp.**	Pine
ANGIOSPERMAE	**FLOWERING PLANTS**
ANGIOSPERMS - DICOTYLEDONES	**DICOTS**
ADOXACEAE	**MUSKROOT FAMILY**
Sambucus nigra spp. caerulea (= S. mexicana)	Blue Elderberry
AMARANTHACEAE	**AMARANTH FAMILY**
Amaranthus palmeri	Palmer's Pigweed
*Salsola tragus**	Russian Thistle
ASTERACEAE	**SUNFLOWER FAMILY**
Erigeron canadensis	Canada horseweed
Helianthus annuus	Western Sunflower
Heterotheca grandiflora	Telegraph Weed
*Lactuca serriola**	Prickly or Wild Lettuce
BORAGINACEAE	**BORAGE FAMILY**
Amsinckia intermedia (= A. menziesii var. e.)	Common Fiddleneck
Phacelia distans	Common Phacelia
BRASSICACEAE	**MUSTARD FAMILY**
*Brassica tournefortii**	Sahara Mustard
*Hirschfeldia incana**	Shortpod or Summer Mustard
CHENOPODIACEAE	**GOOSEFOOT FAMILY**
Chenopodium album (= C. missouriense)*	Lamb's Quarter
*Chenopodium berlandieri**	Pitseed Goosefoot
EUPHORBIACEAE	**SPURGE FAMILY**
Croton californicus	California Croton
FABACEAE	**LEGUME FAMILY**
*Gleditsia triacanthos**	honey locust
*Melilotus albus**	White Sweet-Clover
MALVACEAE	**MALLOW FAMILY**
*Malva parviflora**	Cheeseweed
MYRTACEAE	**MYRTLE FAMILY**
*Eucalyptus camaldulensis**	River Red Gum
*Eucalyptus polyanthemos**	silver-dollar gum
ONAGRACEAE	**EVENING PRIMROSE FAMILY**
*Oenothera lacianata**	cutleaf evening primrose
POLYGONACEAE	**BUCKWHEAT FAMILY**
Eriogonum fasciculatum	California Buckwheat
*Rumex crispus**	Curly Dock
ROSACEAE	**ROSE FAMILY**
*Malus pumila**	paradise apple

RUTACEAE	**RUE FAMILY**
*Citrus x sinensis**	orange tree
SOLANACEAE	**NIGHTSHADE FAMILY**
Datura wrightii (= D. meteloides)	Western Jimsonweed
*Nicotiana glauca**	Tree Tobacco
Solanum americanum	White Nightshade
TAMARICACEAE	**TAMARISK FAMILY**
*Tamarix ramosissima**	Mediterranean Tamarix
ZYGOPHYLLACEAE	**CALTROP FAMILY**
*Tribulus terrestris**	Puncture Vine
ANGIOSPERMS - MONOCOTYLENDONES	**MONOCOTS**
ASPARAGACEAE	**ASPARAGUS FAMILY**
*Agave Americana**	American century plant
ARECACEAE	**PALM FAMILY**
Washingtonia filifera	California fan palm
CYPERACEAE	**SEDGE FAMILY**
Cyperus eragrostis	Tall Umbrella-Sedge
POACEAE	**GRASS FAMILY**
*Avena fatua**	Wild Oat
*Bromus diandrus**	Common Ripgut Grass
*Bromus madritensis ssp. rubens**	Foxtail Chess or Red Brome
*Hordeum murinum ssp. leporinum**	Hare Barley or Foxtail Barley
*Saccharum officinarum**	sugarcane
*Setaria spp.**	foxtail grass
*Sorghum halepense**	Johnson Grass

KEY: Asterisk (*) = non-native species or cultivated; $^{+}$ = sensitive species; Sources: Taxonomy - Hickman (1993), http://ucjeps.berkeley.edu/interchange.html, November 2018; Common names and non-native species designations according to Roberts (1998), then Hickman (1993)

6.3 Appendix C: California Native Plant Society Categories

CNPS Status based on California Native Plant Society's Inventory of Rare and Endangered Vascular Plants of California (Tibor 2001):

List 1A: Plants Presumed Extinct in California
The plants of List 1A are presumed extinct because they have not been seen or collected in the wild for many years. Although most of them are restricted to California, a few are found in other states as well. There is a difference between "extinct" and "extirpated." A plant is extirpated if it has been locally eliminated. It may be doing quite nicely elsewhere in its range. All of the plants constituting List 1A meet the definitions of Sec. 1901, Chapter 10 (Native Plant Protection) of the California Department of Fish and Game Code and are eligible for state listing.

List 1B: Plants Rare, Threatened or Endangered in California and Elsewhere
The plants of List 1B are rare throughout their range. All but a few are endemic to California. All of them are judged to be vulnerable under present circumstances or to have a high potential for becoming so because of their limited or vulnerable habitat, their low numbers of individuals per population (even though they may be wide ranging), or their limited number of populations. All of the plants constituting List 1B meet the definitions of Sec. 1901, Chapter 10 (Native Plant Protection) of the California Department of Fish and Game Code and are eligible for state listing.

List 2: Plants Rare, Threatened or Endangered in California, But More Common Elsewhere
Except for being common beyond the boundaries of California, the plants of List 2 would have appeared on List 1B. Based on the "Native Plant Protection Act," plants are considered without regard to their distribution outside the state. All of the plants constituting List 2 meet the definitions of Sec. 1901, Chapter 10 (Native Plant Protection) of the California Department of Fish and Game Code and are eligible for state listing.

List 3: Plants About Which We Need More Information—A Review List
The plants that comprise List 3 are an assemblage of taxa that have been transferred from other lists or that have been suggested for consideration. The necessary information that would assign most to a sensitivity category is missing.

List 4: Plants of Limited Distribution—A Watch List
The plants in this category are of limited distribution in California and their vulnerability or susceptibility to threat appears low at this time. While these plants cannot be called "rare" from a statewide perspective, they are uncommon enough that their status should be monitored regularly. Many of them may be significant locally. Should the degree of endangerment or rarity of a plant change, they will be transferred to a more appropriate list.

Threat Code Extensions and their meanings:

.1- Seriously endangered in California

.2- Fairly endangered in California

.3- Not very endangered in California

6.4 Appendix D: Wildlife species detected at the Palmetto project site, 2018.

FAMILY/SPECIES NAME	COMMON NAME
REPTILIA	**REPTILES**
PHRYNOSOMATIDAE	**ZEBRA-TAILED, EARLESS, FRING-TOED, SPINY, TREE, SIDE-BLOTCHED AND HORNED LIZARDS**
Sceloporus occidentalis	Western Fence Lizard
Uta stansburiana	Common Side-blotched Lizard
AVES	**BIRDS**
ACCIPITRIDAE	**HAWKS, KITES, EAGLES AND ALLIES**
Accipiter cooperii+	Cooper's Hawk
Buteo jamaicensis	Red-tailed Hawk
COLUMBIDAE	**PIGEONS AND DOVES**
Streptopelia decaocto	Eurasian Collared-Dove
Zenaida macroura	Mourning Dove
TROCHILIDAE	**HUMMINGBIRDS**
Calypte anna	Anna's Hummingbird
PICIDAE	**WOODPECKERS AND ALLIES**
Picoides nuttallii+	Nuttall's Woodpecker
FALCONIDAE	**CARCARAS AND FALCONS**
Falco sparverius	American Kestrel
TYRANNIDAE	**TYRANT FLYCATCHERS**
Sayornis nigricans	Black Phoebe
Sayornis saya	Say's Phoebe
Tyrannus vociferans	Cassin's Kingbird
Tyrannus verticalis	Western Kingbird
CORVIDAE	**JAYS AND CROWS**
Corvus brachyrhynchos	American Crow
Corvus corax	Common Raven
MIMIDAE	**MOCKINGBIRDS AND THRASHERS**
Mimus polyglottos	Northern Mockingbird
STURNIDAE	**STARLINGS**
Sturnus vulgaris	European Starling
ICTERIDAE	**BLACKBIRDS**
Icterus cucullatus	Hooded Oriole
FRINGILLIDAE	**FRINGILLINE AND CARDUELINE FINCHES**
Haemorhous mexicanus	House Finch
PASSERIDAE	**OLD WORLD SPARROWS**
Passer domesticus	House Sparrow
MAMMALIA	**MAMMALS**
LEPORIDAE	**RABBITS & HARES**

Sylvilagus audubonii	Desert Cottontail
SCIURIDAE	**SQUIRRELS, CHIPMUNKS & MARMOTS**
Otospermophilus beecheyi	California Ground Squirrel
CANIDAE	**FOXES, WOLVES & RELATIVES**
Canis latrans	Coyote

Sources:

Invertebrates: Powell and Hogue (1979) and Hogue 1993.

Butterflies: NatureServe, http://www.natureserve.org/explorer/

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Special Status Designations + : California Department of Fish and Game, California Natural Diversity Database (July 2018): http://www.dfg.ca.gov/whdab/html/cnddb.html

6.5 Appendix E: Palmetto site photographs 2018.

Photograph 1: Northwest corner of site looking east, July 2018.

Photograph 2: Northwest corner of site looking south, July 2018.

Photograph 3: Northeastern area of site looking south, July 2018.

Photograph 4: Southeastern area of site looking north, July 2018.

Photograph 5: Southwest corner of site looking north, July 2018.

Photograph 6: Southwest corner of site looking east, July 2018.

Photograph 7: Western area of site looking south, July 2018.

Photograph 8: Western area of site looking southwest, July 2018.