Appendix B-1

Habitat Assessment for Chacon Farms Property

Psomas

Revised March 5, 2024

Habitat Assessment for
Chacon Farms Property
Assessor Parcel Numbers: 432-260-009, 432-260-026, and 432-260-027
(75.6-Acre Project, Total Area Surveyed: 75.6 Acres)
Cawston Avenue in the City of San Jacinto,
Lakeview U.S. Geological Survey's 7.5-Minute Series Map
Township 4S, Range 1W, Section 31 and 32

Prepared For:
Ramona Dairy, LLC
2452 Ramona Expressway
San Jacinto, California 92582

Prepared By:
Psomas
5 Hutton Centre Drive, Suite 300
Santa Ana, California 92707
Amber Heredia
amber.heredia@psomas.com

Principal Investigator:
Psomas
255 South Lake Avenue, Suite 1000
Pasadena, California 91101
Trevor Bristle
Trevor.bristle@psomas.com

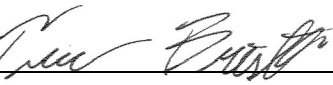
Surveys Conducted By:
Trevor Bristle
Allison Rudalevige

Surveys Conducted On:
September 19, 2022

Report Date:
November 28, 2022
Revised March 5, 2024

CERTIFICATION

I hereby certify that the statements furnished above and in the attached exhibits present the 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 and belief.

DATE: 3/5/2024 SIGNED: 

DATE: 3/5/2024 SIGNED: 

TABLE OF CONTENTS

SECTION 1.0 COUNTY OF RIVERSIDE ATTACHMENTS

Biological Report Summary Report (Attachment E-3)
Level of Significance Checklist (Attachment E-4)
Biological Resources Map (Attachment E-5)
Site Photographs (Attachment E-6)

SECTION 2.0 HABITAT ASSESSMENT

General Site Information 1
Methods 2
Existing Conditions 2
Special Status Resources 4
Other Issues 7
Recommendations 11
References 12

LIST OF EXHIBITS

Follows Page

1 Project Location 1
2 U.S. Geological Survey 7.5-Minute Quadrangle 1
3 Soils 1
4 Vegetation Types and Other Areas 2

LIST OF APPENDICES

A-1 Plant Compendium
A-2 Wildlife Compendium
B Fairy Shrimp Report
C Special Status Plant Report
D Burrowing Owl Report
E Construction Minimization Measures
F Tree Survey

SECTION 1.0

COUNTY OF RIVERSIDE ATTACHMENTS

BIOLOGICAL REPORT SUMMARY SHEET

(Submit two copies to the County)

Applicant Name: Ramona Dairy, LLC
Assessor's Parcel Number (APN): 432-260-009, 432-260-026, and 432-260-027
APN cont. : _____
Site Location: Section: 31, 32 **Township:** 4S **Range:** 1W
Site Address: Cawstton Avenue and 7th Street
Related Case Number(s): _____ **PDB Number:** _____

CHECK SPECIES SURVEYED FOR	SPECIES or ENVIRONMENTAL ISSUE OF CONCERN	(Circle Yes, No or N/A regarding species findings on the referenced site)		
	Arroyo Southwestern Toad	Yes	No	N/A
✓	Blueline Stream(s)	Yes	(No)	N/A
	Coachella Valley Fringed-Toed Lizard	Yes	No	N/A
	Coastal California Gnatcatcher	Yes	No	N/A
✓	Coastal Sage Scrub	Yes	(No)	N/A
	Delhi Sands Flower-Loving Fly	Yes	No	N/A
	Desert Pupfish	Yes	No	N/A
	Desert Slender Salamander	Yes	No	N/A
	Desert Tortoise	Yes	No	N/A
	Flat-Tailed Horned Lizard	Yes	No	N/A
	Least Bell's Vireo	Yes	No	N/A
✓	Oak Woodlands	Yes	(No)	N/A
	Quino Checkerspot Butterfly	Yes	No	N/A
✓	Riverside Fairy Shrimp	Yes	(No)	N/A
	Santa Ana River Woolystar	Yes	No	N/A
	San Bernardino Kangaroo Rat	Yes	No	N/A
	Slender Horned Spineflower	Yes	No	N/A
	Stephen's Kangaroo Rat	Yes	No	N/A
✓	Vernal Pools	Yes	(No)	N/A
✓	Wetlands	Yes	(No)	N/A

CHECK SPECIES SURVEYED FOR	SPECIES or ENVIRONMENTAL ISSUE OF CONCERN	(Circle Yes, No or N/A regarding species findings on the referenced site)		
✓	Other: Riparian/Riverine	Yes	(No)	N/A
✓	Other: Jurisdictional Waters	Yes	(No)	N/A
✓	Other: Riverside fairy shrimp/vernal pool fairy shrimp	Yes	(No)	N/A
✓	Other: Burrowing Owl (see note)	Yes	(No)	N/A
✓	Other: Narrow Endemic Plants (see note)	Yes	(No)	N/A
	Other:	Yes	No	N/A
	Other:	Yes	No	N/A
	Other:	Yes	No	N/A
	Other:	Yes	No	N/A
	Other:	Yes	No	N/A
	Other:	Yes	No	N/A
	Other:	Yes	No	N/A

Species of concern shall be any unique, rare endangered, or threatened species. It shall include species used to delineate wetlands and riparian corridors. It shall also include any hists, perching, or food plants used by any animals listed as rare, endangered, threatened or candidate species by either State, or Federal regulations, or for Riverside County as listed by the California Department of Fish and Game Natural Diversity Data Base (NDDB).

I declare under penalty of perjury that the information provided on this summary sheet is in accordance with the information provided in the biological report.

Psomas 3/5/2024

Signature and Company Name Report Date

10(a) Permit Number (if applicable) Permit Expiration Date

County Use Only

Received by: _____ **Date:** _____

PD-B#_____

The Habitat Assessment found that there was suitable habitat for fairy shrimp, burrowing owl, and Narrow Endemic plant species. Focused surveys were conducted for these species following MSHCP guidelines; none of these species were observed on the Project site. Pre-construction survey for burrowing owl will be needed.

LEVEL OF SIGNIFICANCE CHECKLIST
For Biological Resources
(Submit Two Copies)

Case Number: _____ Lot/Parcel No. 432-260-009, 432-260-026, and 432-260-027 **EA Number_____**

Wildlife & Vegetation

Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact

(Check the level of impact the applies to the following questions)

a) Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Conservation Community Plan, or other approved local, regional, or state conservation plan?
☐ ☑ ☐ ☐

b) Have a substantial adverse effect, either directly or through habitat modifications, on any endangered, or threatened species, as listed in Title 14 of the California Code of Regulations (Sections 670.2 or 670.5) or in Title 50, Code of Federal Regulations (Sections 17.11 or 17.12)?
☐ ☐ ☐ ☑

c) 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. Wildlife Service?
☐ ☑ ☐ ☐

d) Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident migratory wildlife corridors, or impede the use of native wildlife nursery sites?
☐ ☑ ☐ ☐

e) 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?
☐ ☐ ☐ ☑

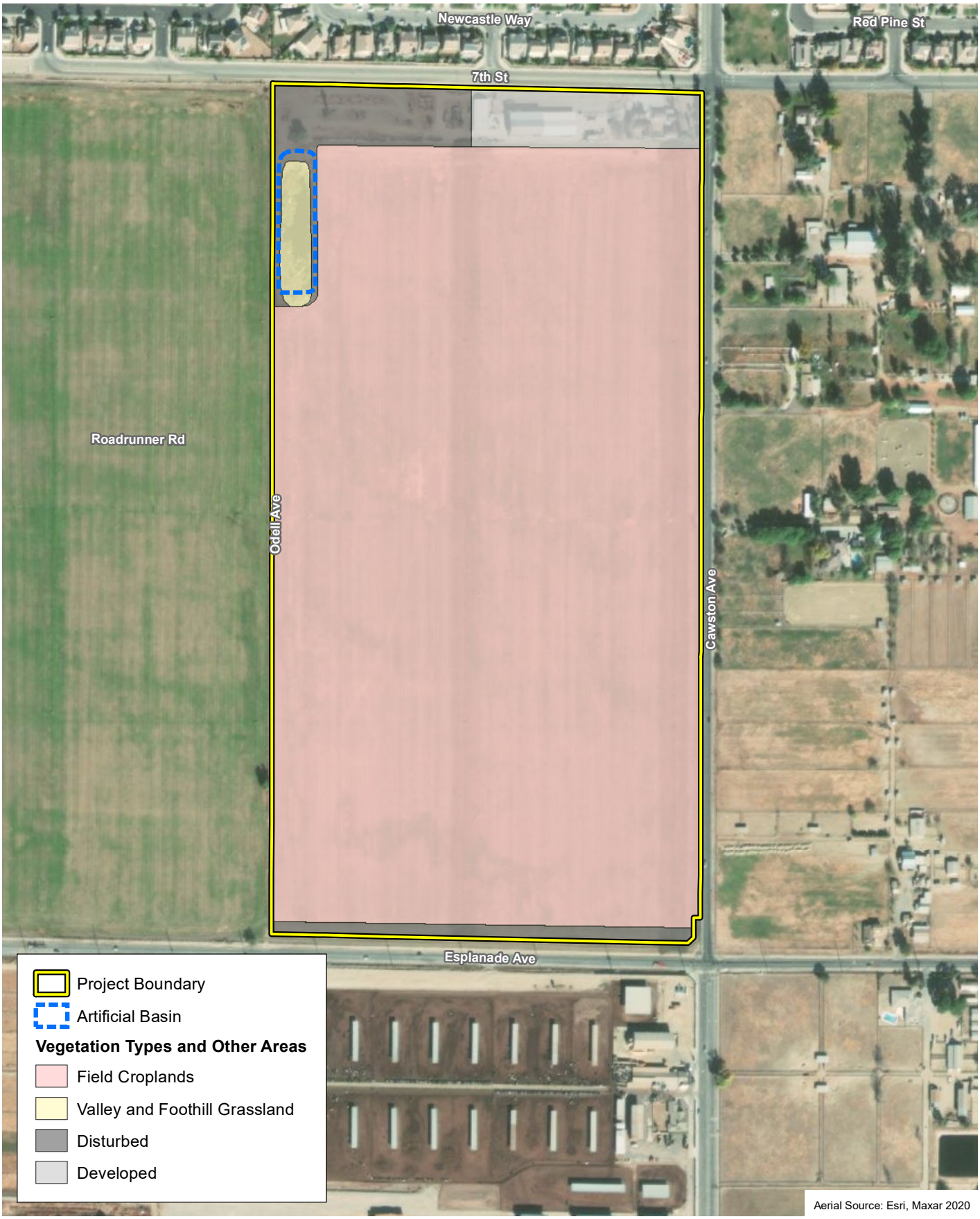
f) Have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?
☐ ☐ ☐ ☑

g) Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?
☐ ☐ ☐ ☑

Source: CGP Fig. VI.36-VI.40

Findings of Fact:
An artificial basin is present that provides potentially suitable habitat for fairy shrimp; no Riverside fairy shrimp or vernal pool fairy shrimp were observed during focused surveys. Because the basin is artificial, it would not be considered a vernal pool. No Riparian/Riverine resources are present. No jurisdictional waters under the regulatory authority of the USACE, the RWQCB, and/or the CDFW are present. Focused surveys were conducted for Narrow Endemic plant species; no special status plant species were observed. The project site has suitable habitat for burrowing owl; focused burrowing owl surveys were conducted and no burrowing owls were observed. A pre-construction burrowing owl survey would be required.
Mitigation:
The MSHCP mitigation fee for medium-density development will be required. A pre-construction survey for burrowing owl will be required. A pre-construction survey for nesting birds/raptors will be required if construction is initiated February 1 to June 30.

Monitoring Recommended:
MSHCP Construction Minimization Measures (Section 7.5.3) will be required, including a pre-construction nesting bird survey for construction activities initiated during the breeding season, worker environmental awareness program training, and use of applicable BMPs.



D:\Projects\4RAM\020100\MXD\HA\Att_Vegetation_20220922.mxd

Vegetation Types and Other Areas

Attachment E-5

Chacon Farms

N
W E
S

400 200 0 400

Feet

PSOMAS

(Rev: 09/30/2022 MMD) R:\Projects\4RAM\020100\Graphics\HA\Att_Vegetation.pdf



View of project site, facing southeast from the northwest corner.



View of project site facing northeast from the southwest corner.

D:\Projects\4RAM\020100\GRAPHICS\HA\Att_SP1_20220922.ai

Site Photographs

Attachment E-6a

Chacon Farms

PSOMAS

(09/22/2022 MMD) R:\Projects\4RAM\020100\Graphics\HA\Att_SP.pdf



View of project site facing northwest from the southeast corner.



View of basin area, facing northeast, at the northwestern corner of the site.

D:\Projects\4RAM\020100\GRAPHICS\HA\Att_SP2_20220922.ai

Site Photographs

Attachment E-6b

Chacon Farms

PSOMAS



View of developed area, facing west, at the northern end of the site.



View of disturbed area, facing east, at the southern end of the site.

D:\Projects\4RAM\020100\GRAPHICS\HA\Att_SP3_20220922.ai

Site Photographs

Attachment E-6c

Chacon Farms

PSOMAS

(09/22/2022 MMD) R:\Projects\4RAM\020100\Graphics\HA\Att_SP.pdf

SECTION 2.0

HABITAT ASSESSMENT

This report presents the findings of a habitat assessment and focused surveys for the Chacon Farms Property (hereinafter referred to as "the project site") located in the City of San Jacinto in Riverside County, California. The proposed project is to build residential housing. It is assumed that the entire project site would be impacted.

The Western Riverside County Multiple Species Habitat Conservation Plan (MSHCP) requires that project sites be evaluated for a number of factors to assess how they meet MSHCP criteria. This information is used to determine whether a project site should be acquired as part of the habitat reserve or whether it should be allowed for development. The biological resources evaluation also assists the Lead Agency in determining whether additional mitigation would be required for Criteria Area or Additional Survey Needs species. According to the Western Riverside County Regional Conservation Authority (RCA) MSHCP Information Mapping Tool (RCA 2022), the project site is not located within any designated MSHCP "Criteria Area" cells. The general habitat assessment for the project site includes assessments for riparian/riverine areas and associated species; vernal pools and associated species; urban/wildlands interface issues; and areas under the jurisdictions of the U.S. Army Corps of Engineers (USACE), the California Department of Fish and Wildlife (CDFW), and/or the Regional Water Quality Control Board (RWQCB). According to the RCA MSHCP Mapping Application (RCA 2022), a habitat assessment is required for burrowing owl (*Athene cunicularia*) and Narrow Endemic plant species; a habitat assessment is not required for Criteria Area plant species, amphibians, or mammalian species. This report has been prepared in accordance with the MSHCP guidelines.

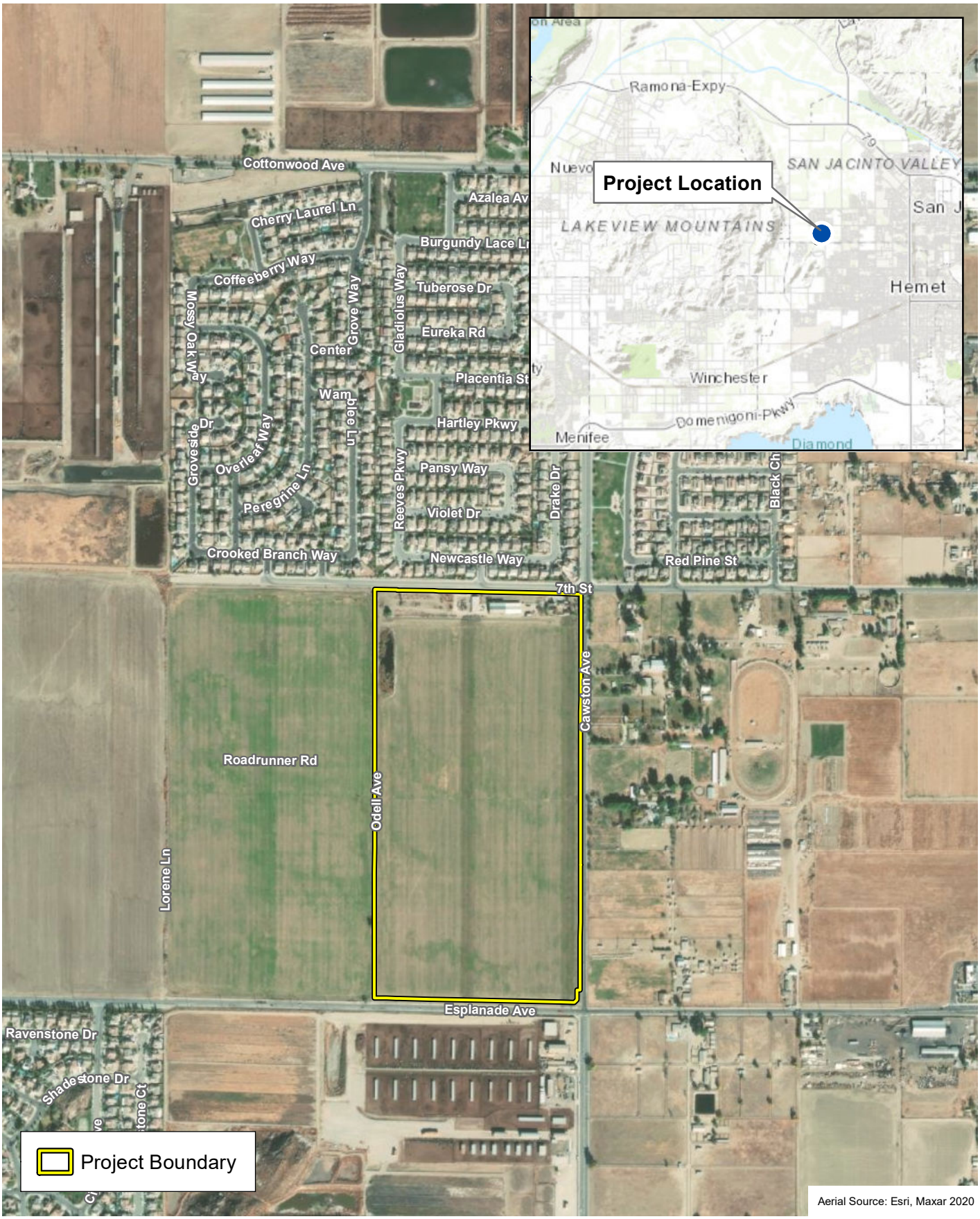
GENERAL SITE INFORMATION

The project site is located north of Esplanade Avenue, west of Cawston Avenue North, South of 7th Street, and east of an unimproved road through agricultural land (Odell Avenue) in the City of San Jacinto in Riverside County, California (Exhibit 1). The project site includes Assessor Parcel Numbers (APNs) 432-260-009, 432-260-026, and 432-260-027.

The project site is located on the U.S. Geological Survey's (USGS') Lakeview 7.5-minute quadrangle of the San Bernardino Meridian at Township 4 South, Range 1 West, Section 31 and 32 (Exhibit 2). Topography on the project site is relatively flat with an elevation of approximately 1,500 to 1,510 feet above mean sea level. Soils on the project site are mapped as Grangeville loamy fine sand, drained (0 to 5 percent slopes); Grangeville sandy loam, sandy substratum, drained, saline-alkali (0 to 5 percent slopes); Traver loamy fine sand (eroded); Traver loamy fine sand, saline-alkali (eroded); and Traver fine sandy loam, strongly saline-alkali, eroded (Exhibit 3). Surrounding land uses include dairies, agricultural, residential, and rural residential. Active construction was occurring on the property to the west at the time of the field survey.

The project site is located within the MSHCP and is within the "San Jacinto Valley Area Plan". The project site is not located within an MSHCP Criteria Cell; the nearest Criteria Cell is approximately 0.25 miles southwest of the project site.

The project site occurs approximately 1,375 feet (0.25 mile) northeast of MSHCP Criteria Cell 3291. Cell 3291 contributes to Proposed Noncontiguous Habitat Block 7. Conservation within this Cell Group focuses on grassland habitat. Proposed Noncontiguous Habitat Block 7 is comprised of a complex of vernal pools west of the City of Hemet. These parcels preserve important populations of Narrow Endemic Plant Species, including Davidson's saltscale (*Atriplex serenana* var. *davidsonii*), thread-leaved brodiaea (*Brodiaea filifolia*), little mousetail (*Myosurus minimus* ssp. *apus*), California Orcutt grass (*Orcuttia californica*), and spreading navarretia (*Navarretia fossalis*), as well as vernal pool fairy shrimp (*Branchinecta lynchi*). Maintenance of vernal pool hydrology, water quality associated with Salt Creek and Traver-Willow-Domino soil series is important for these species. Proposed Noncontiguous Habitat Block 7 is constrained by existing urban development and agricultural use. Treatment and management of edge conditions will be



D:\Projects\4RAM\020100\MXD\HAlex_Project_Location_20220922.mxd

Project Location

Exhibit 1

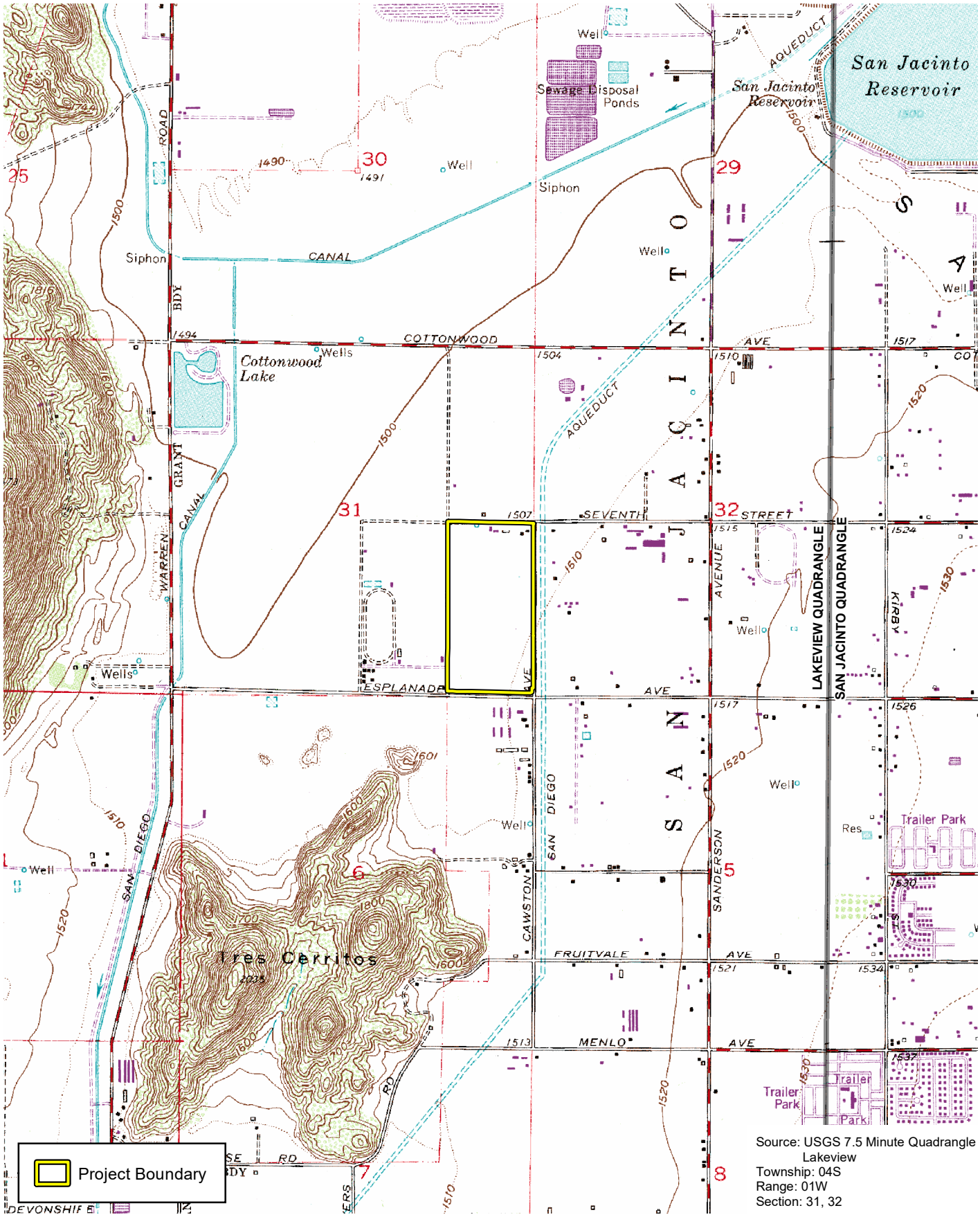
Chacon Farms

N W E S

1,000 500 0 1,000 Feet

PSOMAS

(Rev: 09/30/2022 MMD) R:\Projects\4RAM\020100\Graphics\HA\ex_Project_Location.pdf



Source: USGS 7.5 Minute Quadrangle
Lakeview
Township: 04S
Range: 01W
Section: 31, 32

D:\Projects\4RAM\020100\MXD\HAlex_USGS_20220922.mxd

Topography

Exhibit 2

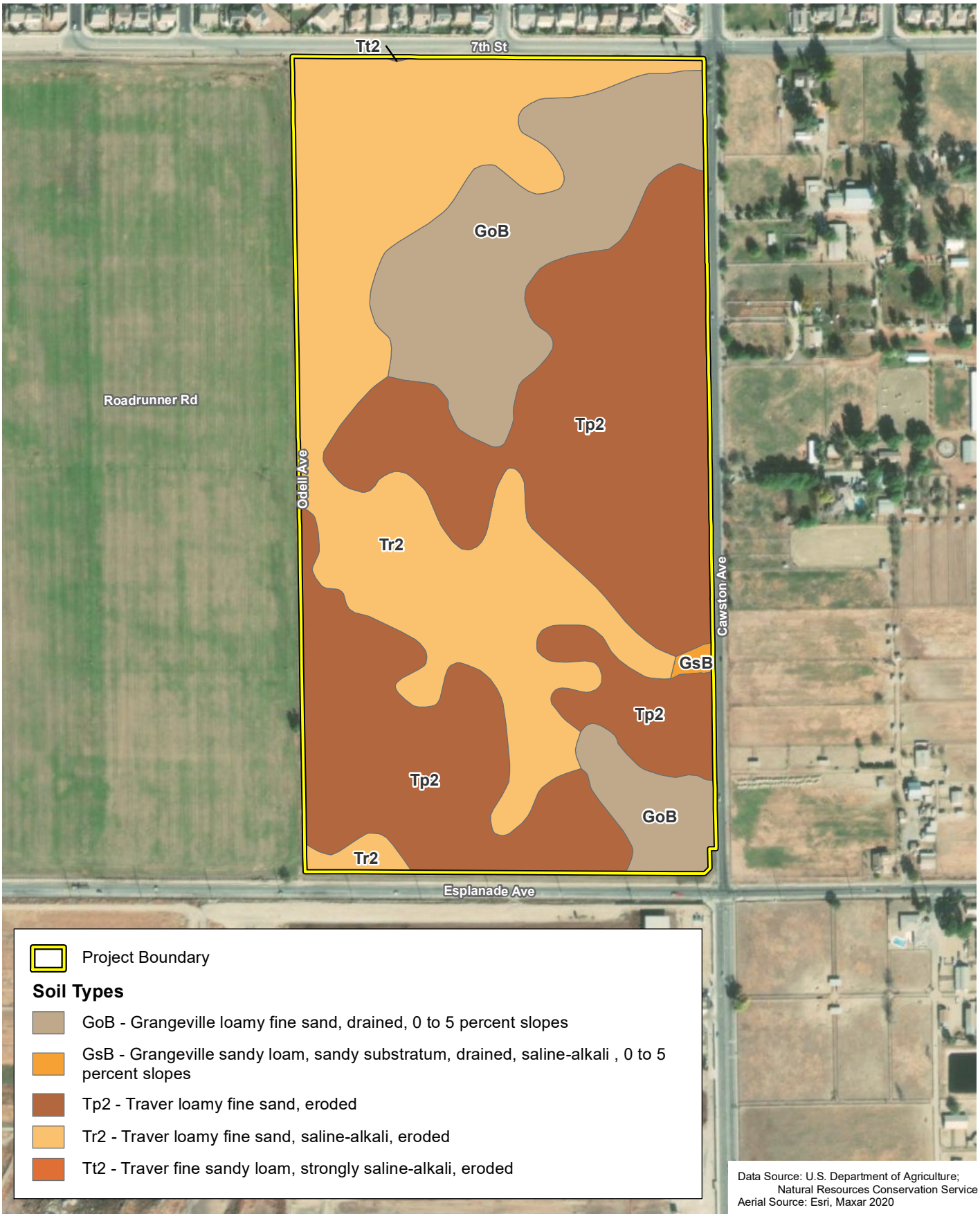
Chacon Farms

N W E S

2,000 1,000 0 2,000 Feet

PSOMAS

(Rev: 9-30-2022 MMD) R:\Projects\4RAM\020100\Graphics\HA\ex_USGS.pdf



Data Source: U.S. Department of Agriculture; Natural Resources Conservation Service
Aerial Source: Esri, Maxar 2020

D:\Projects\4RAM\020100\MXD\HA\ex_Soils_20220922.mxd

Soils

Exhibit 3

Chacon Farms

N W E S

410 205 0 410

Feet

PSOMAS

(Rev: 9-30-2022 MMD) R:\Projects\4RAM\020100\Graphics\HA\ex_Soils.pdf

necessary to ensure that habitat quality and vernal pool hydrology are maintained as planned land uses are developed along the edge of this habitat block.

METHODS

Habitat Assessment

A literature review was conducted prior to the field survey to identify special status plant and wildlife species reported to occur in the project vicinity. The California Native Plant Society's (CNPS') Electronic Inventory of Rare and Endangered Vascular Plants of California (CNPS 2022) and the CDFW's California Natural Diversity Database (CDFW 2022a) were reviewed and included the Sunnymead, El Casco, Beaumont, Perris, Lakeview, San Jacinto, Romoland, Winchester, and Hemet USGS 7.5-minute quadrangles. The RCA MSHCP Information Mapping Tool was used to determine MSHCP requirements using APNs 432-260-009, 432-260-026, and 432-260-027. In addition, the Report and General Soil Maps for the Western Riverside Area (USDA NRCS 2019) was reviewed to determine whether suitable soils are present to support special status plant and wildlife species.

The general site assessment was conducted on September 19, 2022, by Psomas Biologist Trevor Bristle and Senior Biologist Allison Rudalevige. The weather was clear with temperatures between 62–71 degrees Fahrenheit and light winds between 0–2 miles per hour. The general assessment was conducted by walking the project site and recording plant and wildlife species observed. Vegetation was mapped in the field on an aerial photograph at a scale of 1-inch equals 200 feet (1"=200'). Vegetation types were mapped and were generally described using categories outlined in the MSHCP (Dudek 2003). Photographs were also taken during the general assessment (see Attachment E-6).

All plant and wildlife species observed were recorded in field notes. Plant species were identified in the field or collected for later identification. Plants were identified using taxonomic keys in the Jepson eFlora (Jepson Flora Project 2022). Taxonomy follows the *Special Vascular Plants, Bryophytes, and Lichens List* (CDFW 2022b) for special status species and the Jepson eFlora (Jepson Flora Project 2022) for all other taxa. A list of plant species observed during the surveys is included in Table A-1 of Appendix A.

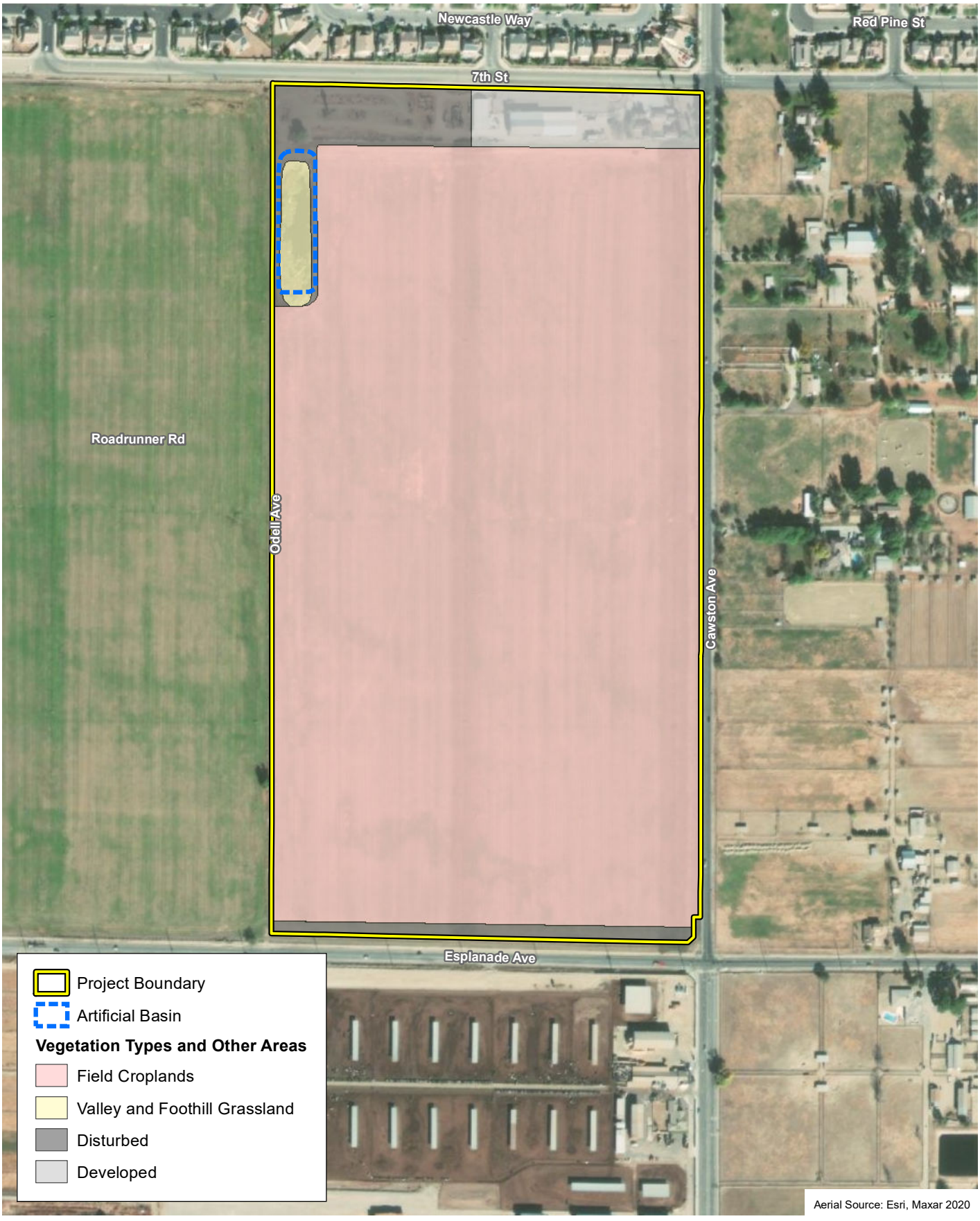
All wildlife species detected during the course of the surveys were documented in field notes. Active searches for reptiles and amphibians included lifting, overturning, and carefully replacing debris. Birds were identified by visual and auditory recognition. Surveys for mammals were conducted during the day and included searching for and identifying diagnostic sign, including scat, footprints, scratch-outs, dust bowls, burrows, and trails. Taxonomy and nomenclature for wildlife generally follows Crother (2017) for amphibians and reptiles, American Ornithologists' Society (2021) for birds, and Smithsonian National Museum of Natural History (SNMNH 2011) for mammals. A list of wildlife species observed during the surveys is included in Table A-2 of Appendix A.

EXISTING CONDITIONS

Vegetation Types and Other Areas

Vegetation types observed on the project site include field croplands and valley and foothill grassland; disturbed and developed landcovers are also present (Exhibit 4).

Field croplands occur over most of the project site and consist of active agricultural uses. Alfalfa (*Medicago sativa*), a non-native crop, is currently growing. The field also contains large amounts of sprangletop (*Leptochloa fusca*), a native grass.



D:\Projects\4RAM\020100\MXD\HA\ex_Vegetation_20220922.mxd

Vegetation Types and Other Areas

Exhibit 4

Chacon Farms

N W E S

400 200 0 400

Feet

PSOMAS

(Rev: 09/30/2022 MMD) R:\Projects\4RAM\020100\Graphics\HA\ex_Vegetation.pdf

Valley and foothill grassland occurs around an artificial basin in the northwest corner of the project site. This vegetation type is dominated by sprangletop with other scattered native and non-native grasses and forbs such as Palmer's amaranth (*Amaranthus palmeri*), lance-leaf ground-cherry (*Physalis lanceifolia*), and cock's spur barnyard grass (*Echinochloa crus-galli*).

Disturbed areas occur along the margins of the project site and around the artificial basin. These areas consist primarily of bare ground with minimal scattered vegetation. The area along the northern edge of the project site is used for storage of irrigation equipment. The area along the southern edge of the project site is undergoing active construction for installation of a pipeline. This area has some stockpiled gravel and pipes. The margins of the field are also disturbed, but these areas are too narrow to map separately from field croplands.

A developed area occurs in the northeastern corner of the project site. This area consists of structures and associated landscaping such as pepper tree (*Schinus 3mer*), Mexican fan palm (*Washingtonia robusta*), and California fan palm (*Washingtonia filifera*).

Wildlife

As described above, the project site consists of agricultural areas with developed and disturbed areas around the edges. An artificial basin is present in the northwest corner. The majority of the site is considered low quality for wildlife due to the lack of native vegetation and surrounding immediate vicinity.

No fish are expected to occur on the project site; the artificial basin consists of irrigation runoff and does not connect to a natural waterway.

No amphibian species were observed during the survey. While the artificial basin contains water, it also undergoes routine maintenance from heavy equipment. Additionally, the basin does not have any native habitat around it. Amphibians with limited potential to occur include western toad (*Anaxyrus boreas*) and Baja California treefrog (*Pseudacris hypochondriaca*).

No reptile species were observed during the survey; however, common side-blotched lizard (*Uta stansburiana*), western fence lizard (*Sceloporus occidentalis*), and gopher snake (*Pituophis catenifer*) have potential to occur on the project site.

Bird species observed during the survey include rock pigeon (*Columba livia*), mourning dove (*Zenaida macroura*), turkey vulture (*Cathartes aura*), red-tailed hawk (*Buteo jamaicensis*), black phoebe (*Sayomis nigricans*), Say's phoebe (*Sayornis saya*), common raven (*Corvus corax*), cliff swallow (*Petrochelidon pyrrhonota*), northern mockingbird (*Mimus polyglottos*), European starling (*Sturnus vulgaris*), house sparrow (*Passer domesticus*), house finch (*Carpodacus mexicanus*), lesser goldfinch (*Spinus psaltria*), and California towhee (*Melozone crissalis*).

No mammal species were observed during the survey; however, California ground squirrel (*Spermophilus beecheyi*) and desert cottontail (*Sylvilagus audubonii*) are expected to occur.

Wildlife Movement

The project site is surrounded by development, with suburban development to the north and east, a dairy farm to the south, and construction an additional residential development to the west. Additionally, the project site is not located within a "Core" or "Linkage" area designated by the MSHCP. Wildlife could move locally through the project site and adjacent residential, agricultural, and dairy land. The project site is expected to be used for local movement by urban-tolerant species such as coyote (*Canis latrans*).

SPECIAL STATUS RESOURCES

Special status resources include plant and wildlife species and vegetation types. These species have generally been afforded this recognition by federal and State resource agencies and by private conservation organizations (e.g., the CNPS). In general, the principal reason an individual taxon (e.g., species, subspecies, or variety) is given such recognition is a documented or perceived decline or limitation of its population size, geographic range, and/or distribution that results, in most cases, from habitat loss.

The Riverside County Board of Supervisors approved the MSHCP in 2003 and received permitting approval from the U.S. Fish and Wildlife Service (USFWS) in June 2004. This plan establishes Criteria Areas (i.e., reserves) to adequately conserve many federal and State-listed species. Impacts on Covered Species would be considered fully mitigated with payment of a mitigation fee for each acre impacted. With the exception of a few species (e.g., Riparian/Riverine species, Additional Survey Needs species, Criteria Area species, and Narrow Endemic species), focused surveys are not required for Covered Species, and no additional permitting would be necessary. As discussed above, the project site is not located in any designated Criteria Area Cells. However, the MSHCP has identified some species or habitats with Additional Survey Needs that may require surveys and additional consultation (discussed below).

Riparian/Riverine Resources

As defined by Section 6.1.2 of the MSHCP, Riparian/Riverine areas are lands that contain habitat dominated by trees, shrubs, persistent 4mergent, or emergent mosses and lichens, which occur close to or depend upon soil moisture from a nearby fresh water source or areas with fresh water flow during all or a portion of the year (Dudek 2003). Riparian areas are those with riparian habitat (e.g., mule fat [*Baccharis salicifolia* ssp. *salicifolia*], willows [*Salix* spp.]) whereas riverine areas are areas that convey water that supports downstream riparian habitat. Areas may be considered Riverine if they support downstream resources, even if they are unvegetated or underground for a portion of their length.

As described above, there is a basin in the northwest corner of the project site. This area was reviewed in the field and was found to be an artificial basin with no riparian vegetation present at the time of the survey. Therefore, focused surveys for riparian bird species would not be necessary.

The artificial basin undergoes routine maintenance and appears to have been plowed multiple times in the past based on historical aerials. The main source of water for this basin appears to be irrigation from the adjacent agricultural fields; no natural inlet or outlet was observed in the field. The basin does not connect to a natural drainage; therefore, it would not be considered riverine.

Vernal Pools

As defined by the MSHCP, vernal pools are seasonal wetlands that occur in sunken areas that have wetland soils, vegetation, and hydrology during the wetter portion of the growing season but lack hydrology and/or vegetation during the drier portion of the year (Dudek 2003). The artificial basin at the northwest corner of the project site was observed to support ponding; the source of the water appears to be irrigation from the adjacent agricultural fields. Historic aerials were examined on Google Earth between 1996 to 2021 to examine the extent of ponding over time. The artificial basin appears to have been intermittently ponded beginning in 2009. During dry periods, the area appears to have been plowed and blends in with the surrounding agricultural field. As stated in the MSHCP, stock ponds, ephemeral pools, and other features that are artificially created are not considered vernal pools meeting the requirements of Section 6.1.2

(Dudek 2003). However, they may still provide habitat for vernal pool invertebrate species that are protected by the MSHCP.

Riverside fairy shrimp (*Streptocephalus woottoni*) is a federally Endangered species and a MSHCP Additional Survey Needs Species (i.e., Section 6.1.2). Riverside fairy shrimp are restricted to deep seasonal vernal pools, vernal pool like ephemeral ponds, stock ponds and other human modified depressions (Eng, Belk, and Eriksen 1990; USFWS 1993, 2001). Riverside fairy shrimp prefer warm-water pools that have low to moderate dissolved solids, are less predictable, and remained filled for extended periods of time (Eriksen and Belk 1999). The artificial basin provides potentially suitable habitat for Riverside fairy shrimp. Therefore, per MSHCP requirements, focused surveys were required.

Vernal pool fairy shrimp (*Branchinecta lynchi*) is a federally Threatened species and a MSHCP Additional Survey Needs Species (i.e., Section 6.1.2). Vernal pool fairy shrimp is restricted to seasonal vernal pools (Eng, Belk, and Eriksen 1990; USFWS 1994). The vernal pool fairy shrimp prefers cool-water pools that have low to moderate dissolved solids, are unpredictable, and often short lived (Eriksen and Belk 1999). The artificial basin provides marginally suitable habitat for vernal pool fairy shrimp. Therefore, per MSHCP requirements, focused surveys were required.

Critical habitat has been designated for the Riverside fairy shrimp and the vernal pool fairy shrimp (USFWS 2006, 2012). The project site is not located within designated critical habitat for either species.

One wet season focused survey and one dry season focused survey were conducted for Riverside fairy shrimp and vernal pool fairy shrimp in 2022-2023 (Appendix B). Neither of these species was observed during the wet season fairy shrimp surveys (Appendix B). Dry season sampling was conducted in August 2023; *Branchinecta* cysts were observed but the lab results were inconclusive. Of the cysts observed, only one cyst hatched; it was identified as versatile fairy shrimp (*Branchinecta lindalii*), a common fairy shrimp species (Appendix B). The *Brancinecta* cysts collected during dry season sampling were then sent to Washington State University for a genetic analysis; results of the genetic analysis confirmed the genetic material was from versatile fairy shrimp (Appendix B). No Riverside fairy shrimp or vernal pool fairy shrimp were observed during focused surveys; therefore, there would be no impact on these species.

Jurisdictional Resources

Section 404 of the Clean Water Act (CWA) and Section 1602 of the *California Fish and Game Code* regulate activities affecting water resources under the jurisdiction of the USACE and the CDFW, respectively. “Waters of the U.S.” include navigable coastal and inland waters, lakes, rivers, and streams and their tributaries; interstate waters and their tributaries; wetlands adjacent to such waters; intermittent streams; and other waters that could affect interstate commerce. Section 401 of the CWA provides the RWQCB with the authority to regulate, through a Water Quality Certification, any proposed, federally permitted activity that may affect water quality.

The artificial basin present in the northwest corner of the project site was artificially created in uplands that were previously used for croplands. This area is irrigated, as evidenced by rills in the banks adjacent to the active agricultural field. This type of waterbody is excluded from being a Waters of the U.S. because it is isolated. Artificial wetlands less than one acre in size are not considered Waters of the State under the authority of the RWQCB. Based on historic aerial imagery and topographic maps, this area does not appear to have been part of a historic drainage. Therefore, it would not be under the regulatory authority of the CDFW. Therefore, no drainages or other waters that would be under the jurisdiction of the USACE, CDFW, or RWQCB occur on the project site.

Criteria Area, Narrow Endemic, and Other Special Status Plant Species

According to the Western Riverside County Regional Conservation Authority MSHCP Information Mapping Application, the project site does not require surveys for Criteria Area plant species. However, the project site is required to be assessed for Narrow Endemic plant species. The project site has also been assessed for special status plant species not covered by the MSHCP that have been reported from the project vicinity.

Narrow Endemic species that need to be assessed for the project site include Munz's onion (*Allium munzii*), San Diego ambrosia (*Ambrosia pumila*), many-stemmed dudleya (*Dudleya multicaulis*), spreading navarretia (*Navarretia fossalis*), Californica Orcutt grass (*Orcuttia californica*), and Wright's trichocoronis (*Trichocoronis wrightii*). Of these Narrow Endemic plant species, San Diego ambrosia, spreading navarretia, California Orcutt grass, and Wright's trichocoronis have limited potential to occur based on the presence of marginally suitable habitat (i.e., the on-site basin and/or margins of the agricultural field). Therefore, special status plant surveys were required. Munz's onion and many-stemmed dudleya would not be expected to occur based on lack of suitable habitat.

The majority of the special status plant species reported in the database searches are MSHCP Covered Species; aside from the species listed above, no focused surveys would be needed for MSHCP Covered Species because populations of these species are adequately conserved. However, a few species reported from the vicinity are not MSHCP Covered Species. Salt Spring checkerbloom (*Sidalcea neomexicana*, California Rare Plant Rank [CRPR] 2B.2[1]) occurs in mesic habitats, such as riparian scrub, meadows, seeps (often alkali), and playas (alkali). Alkali soils are present on the project site; therefore, this species has a limited potential to occur around the edges of the artificial basin in the northwestern corner of the northern parcel. Therefore, focused surveys for this species would be needed to determine whether it is present or absent. The remaining species with a CRPR of 1 or 2 reported from the literature review are not expected to occur due to lack of suitable habitat.

Species that are not covered by the MSHCP with a CRPR of 3 or 4 are not typically considered constraints on development.

Focused surveys for Narrow Endemic plant species and species not covered by the MSHCP were conducted in spring/summer 2023. No Narrow Endemic or other special status plants were observed (Appendix C).

Burrowing Owl

The western burrowing owl is a grassland specialist distributed throughout western North America, where it occupies open areas with short vegetation and bare ground within shrub, desert, and grassland environments. Burrowing owls use a wide variety of arid and semi-arid environments, with well-drained, level to gently sloping areas characterized by sparse vegetation and bare ground (Haug et al. 1993; Dechant et al. 2003). Burrowing owls in Florida excavate their own burrows, but western burrowing owls depend upon the presence of burrowing mammals whose burrows are used for roosting and nesting (Haug et al. 1993). The presence or absence of colonial mammal burrows (e.g., California ground squirrels) is often a major factor that limits the presence or absence of burrowing owls. Where mammal burrows are scarce, burrowing owls have been found occupying man-made cavities, such as buried and non-functioning drainpipes, stand-pipes, and dry culverts. Burrowing mammals may burrow beneath rocks; debris; or large, heavy objects such as abandoned cars, concrete blocks, or concrete pads. Large, hard objects

[1] CRPR 2B.2: Plants rare, threatened, or endangered in California but common elsewhere; 20–80% of occurrences threatened.

at burrow entrances stabilize the entrance from collapse and may inhibit excavation by predators. In Southern California, burrowing owls breed and forage in grasslands and prefer flat to low rolling hills in treeless terrain. They are small owls that nest in burrows, typically in open habitats most often along banks and roadsides. The burrowing owl has declined in many other areas due to habitat modification, poisoning of its prey items, shooting, and human disturbance (Remsen 1978).

The burrowing owl is a California Species of Special Concern; burrow sites are protected. This species is considered an Additional Survey Needs species under the MSHCP (Section 6.3.2); the project site is within the area that needs to be assessed for burrowing owl. Suitable habitat is present on the project site; therefore, focused surveys were required.

Focused surveys for burrowing owl were conducted in spring/summer 2023. No burrowing owls or evidence of their presence was observed (Appendix D).

Because site conditions change over time and burrowing owls move seasonally, all projects located within the Additional Survey Area for burrowing owl are required to conduct a pre-construction survey for burrowing owl within 30 days prior to construction to ensure the project would not impact any active burrows.

OTHER ISSUES

Crotch Bumble Bee

The Crotch bumble bee (*Bombus crotchii*) was proposed as a Candidate to be State listed as Endangered in 2019. As a result of a trial court decision and subsequent appeal, this species was initially determined ineligible to be listed under the California Endangered Species Act because the law does not specifically mention invertebrates; the Candidate status was withdrawn. However, the Third District Court of Appeals ruled that the bees and other invertebrates could be protected because elsewhere in the *California Fish and Game Code*, the definition of fish includes invertebrates. In September 2022, the California Supreme Court decided that it would not review the petition for appeal, allowing the decision from the Third District Court to stand, stating that the intent of the law is to protect declining species. Therefore, in October 2022, CDFW reinstated the Candidate Endangered status with their release of the CDFW Special Animals List (CDFW 2022c). This species is not a Covered Species in the MSHCP.

The Crotch bumble bee is a ground nester and often makes its nest in abandoned mammal burrows; it can be found in most native habitat types, although it prefers grassland and scrub habitats. It is primarily associated with plants from the following families: *Fabaceae, Apocynaceae, Asteraceae, Lamiaceae,* and *Boraginaceae* (Richardson 2017, Thorp et. al. 1983). This species has been observed at several locations in the Project region (both historic and recent). The nearest observation of this species was in 1946 near Homeland, approximately 5.5 miles southwest of the project site (CDFW 2022a). There are multiple recent (2020) sightings of this species near Moreno Valley and Beaumont (CDFW 2022a). The project site has been an agricultural area that lacks vegetation; the site has been regularly tilled (detrimental to ground-nesting bees) and may have been exposed to pesticides. While the edges of the agricultural fields may be considered marginally suitable, this species is not expected to occur because the surrounding land uses are agricultural or residential; there are no adjacent areas of grassland or scrub habitats.

Mountain Lion

The mountain lion (*Puma concolor*) is currently a Candidate to be State listed as Threatened as an Evolutionary Significant Unit (ESU); CDFW is in the process of reviewing the petition for listing and evaluating available information. Regardless of the outcome of the proposed listing, this species is already a MSHCP Covered Species. The mountain lion occurs throughout most of California except for the Mojave and Colorado Deserts and the croplands of the Central Valley. Mountain lions occur in a variety of habitats, especially brushy habitats and riparian areas with interspersed irregular terrain, rocky outcrops, and tree/brush edges. Mountain lions use caves, natural cavities, and thickets for cover. Mountain lions use habitat connections for movement among fragmented core habitat (Zeiner 1988). A major threat to this species is fragmentation of habitat by spread of human developments and associated roads. Mountain lion is not expected to occur on the project site due to lack of suitable habitat. Additionally, the project site is also not within an area designated as a MSHCP linkage.

Stephens' Kangaroo Rat

In response to the listing of Stephens' kangaroo rat (*Dipodomys stephensi*), the Riverside County Habitat Conservation Agency (RCHCA) developed a Stephens' Kangaroo Rat Habitat Conservation Plan (SKR HCP). The City of San Jacinto is not a participant in the SKR HCP; however, the MSHCP provides take authorization for projects outside the boundaries of the SKR HCP but within the MSHCP boundaries. Stephens' kangaroo rat is not expected to occur on the project site due to lack of suitable habitat.

Urban/Wildlands Interface Issues

Indirect impacts, often called "edge effects", are those that affect the quality of nearby wildlife habitat resulting from disturbance by construction (such as noise, dust, and urban pollutants) and/or the long-term use of the proposed project site. Development in proximity to an MSHCP Conservation Area may result in edge effects that adversely affect biological resources within the MSHCP Conservation Area. The text below each subheading states the objective of each of these measures as described in the MSHCP.

The proposed project is not immediately adjacent to any MSHCP Criteria Cell but occurs approximately 1,375 feet east of Cell 3291. Lands within Cell 3291 provide for vernal pool species (i.e., Narrow Endemic plants and fairy shrimp).

Drainage

Proposed developments near the MSHCP Conservation Area shall incorporate measures, including measures required through the National Pollutant Discharge Elimination System requirements, to ensure that the quantity and quality of runoff discharged to the MSHCP Conservation Area is not altered in an adverse way when compared with existing conditions. In particular, measures shall be put in place to avoid discharge of untreated surface runoff from developed and paved areas into the MSHCP Conservation Area. Stormwater systems shall be designed to prevent the release of toxins, chemicals, petroleum products, exotic plant materials, or other elements that might degrade or harm biological resources or ecosystem processes within the MSHCP Conservation Area. This can be accomplished using a variety of methods including natural detention basins, grass swales, or mechanical trapping devices. Regular maintenance shall occur to ensure effective operations of runoff control systems.

Toxics

Land uses proposed in proximity to the MSHCP Conservation Area that require use of chemicals or generate bioproducts such as manure that are potentially toxic or may adversely affect wildlife species, habitat, or water quality shall incorporate measures to ensure that application of such chemicals does not result in discharge to the MSHCP Conservation Area. Measures such as those employed to address drainage issues shall be implemented.

Lighting

Night lighting shall be directed away from the MSHCP Conservation Area (i.e., Criteria Cell 3291) to protect species within the MSHCP Conservation Area from direct night lighting. Additionally, shielding should be incorporated in Project designs of all projects as a best management practice to ensure ambient lighting is focused on the areas intended to be illuminated. This would benefit other night-foraging predators such as bats and owls. As the project site is not immediately adjacent to Cell 3291, night lighting is not expected to affect Cell 3291.

Noise

Proposed noise generating land uses affecting the MSHCP Conservation Area shall incorporate setbacks, berms, or walls to minimize the effects of noise on MSHCP Conservation Area (i.e., Criteria Cell 3291) resources pursuant to applicable rules, regulations, and guidelines related to land use noise standards. As the project site is not immediately adjacent to Cell 3291, noise is not expected to affect Cell 3291.

Invasives

When approving landscape plans for development near MSHCP Conservation Areas, Permittees shall consider the invasive, non-native plant species (see MSHCP Table 6-2) and shall require revisions to landscape plans to avoid the use of invasive species for the portions of development that are near an MSHCP Conservation Area. Considerations in reviewing the applicability of this list shall include proximity of planting areas to the MSHCP Conservation Areas, species considered in the planting plans, resources being protected within the MSHCP Conservation Area and their relative sensitivity to invasion, and barriers to plant and seed dispersal, such as walls, topography, and other features.

Barriers

Proposed land uses adjacent to the MSHCP Conservation Area shall incorporate barriers, where appropriate, in individual Project designs to minimize unauthorized public access, domestic animal predation, illegal trespass, or dumping in the MSHCP Conservation Area. Such barriers may include native landscaping, rocks/boulders, fencing, walls, signage, and/or other appropriate mechanisms. As the project site is not immediately adjacent to Cell 3291, no barriers would be necessary.

Grading/Land Development

Manufactured slopes associated with proposed site development shall not extend into the MSHCP Conservation Area. As the project site is not immediately adjacent to Cell 3291, grading and development of the Project would not affect Cell 3291.

Mitigation Fee

The MSHCP requires a Local Development Mitigation Fee for residential development to be paid to the City of San Jacinto. The Project Applicant will be required to pay the fee applicable at the time building permits are issued. The fee varies depending on the proposed residential density. The fees through June 30, 2024 are as follows: low density developments (less than 8 dwelling units per acre) are $4,236/dwelling unit; medium-density developments (9 to 14 dwelling units per acre) are $1,766 per dwelling unit; and high-density developments (more than 14 units per acre) are $781 per dwelling unit. The Local Development Mitigation Fee schedule is automatically adjusted annually; the fee schedule may also be periodically reviewed and the amounts adjusted.

Construction Minimization Measures

Section 7.5.3 of the MSHCP contains a list of standard measures to minimize direct and indirect impacts on biological resources within and adjacent to the project site. These measures are related to protecting water quality, controlling dust, minimizing the spread of invasive plant species, minimizing fire hazards, and other measures. These measures also include requirements to mark project limits through staking/flagging as verified by monitoring personnel (Appendix E).

Nesting Birds/Raptors

The Migratory Bird Treaty Act (MBTA) protects the taking of migratory birds and their nests and eggs. Bird species protected under the provisions of the MBTA are identified by the List of Migratory Birds (*Code of Federal Regulations*, Title 50, §10.13). Section 3503 of the *California Fish and Game Code* makes it unlawful to take, possess, or destroy any bird's nest or any bird's eggs. Section 3513 of the *California Fish and Game Code* prohibits the take and possession of any migratory nongame bird, as designated in the MBTA. Birds have potential to nest throughout the survey area in vegetation, on bare ground, and on structures. If construction would be initiated during the peak bird nesting season (i.e., March 1 to June 30, as defined by Section 7.5.3 of the MSHCP), a pre-construction survey would be required to ensure that no nests are impacted. If an active nest is present, construction may be restricted in the immediate vicinity of the nest until nesting is complete.

Trees in in the northeastern corner of the project site and adjacent to the project site have potential to be used for nesting by raptors such as the American kestrel (*Falco sparverius*). Regulations prohibit activities that "take, possess, or destroy" any raptor nest or egg (*California Fish and Game Code* §3503, 3503.5, and 3513). Additionally, the noise and disturbance associated with construction may disturb a nesting raptor adjacent to the project site. If construction would be initiated during the raptor nesting season (generally between February 1 and June 30), a pre-construction survey would be required to ensure that no raptor nests are impacted. If an active nest is present, construction may be temporarily restricted in the immediate vicinity of the nest until nesting is complete.

Tree Ordinance

The City of San Jacinto Municipal Code prohibits removal of trees from public streets or parkways; authorization must be obtained from the City Council (Section 12.20). Any trees removed for the convenience of construction require replacement at the expense of the entity requesting their removal. The replacement tree must be approved by the parks and recreation commission.

There is no restriction on the removal of trees located on private property; however, tentative tract maps must show the location of all trees having a diameter of four inches or greater.

A tree survey was conducted; a total of 22 trees were that have a diameter of four inches or greater occur on the project site (Appendix F). These include one tree of heaven (*Ailanthus altissima*), one lemon tree (*Citrus limon*), two Mondell pine (*Pinus eldarica*), one peach tree (*Prunus persica*), four Peruvian pepper trees (*Schinus molle*), four California fan palms (*Washingtonia filifera*), and nine Mexican fan palms (*Washingtonia robusta*). The majority of the trees on the Project site are located in the northeast corner of the project site surrounding existing structures. One Peruvian pepper tree is located along the southwest boundary. This tree is rooted outside of the Project boundary, but it has a canopy extending into the project site.

RECOMMENDATIONS

The following is a list of recommendations to ensure that the project is consistent with the MSHCP and other regulations protecting biological resources.

1. A pre-construction survey for burrowing owl will be required regardless of the absence of the species during the 2023 focused burrowing owl surveys. The pre-construction burrowing owl survey must occur 30 days prior to construction in accordance with Section 6.3.2 of the MSHCP. During the breeding season (i.e., March 1 to August 31), restrictions may be placed on construction activities in the vicinity of any active burrow until the burrow is no longer active, as determined by a qualified Biologist. During the wintering season, an active burrow may be closed following CDFW-approved procedures. If possible, construction should be timed to be initiated during the wintering season to minimize potential constraints.
2. If construction activities occur during nesting season for birds (i.e., March 1 to June 30) or nesting raptors (i.e., February 1 to June 30), a pre-construction survey for active bird/raptor nests would be required. Restrictions may be placed on construction activities in the vicinity of any active nest until the nest is no longer active, as determined by a qualified Biologist.
3. Applicable Construction Minimization Measures (Section 7.5.3, Appendix E) would be required to avoid and minimize effects during construction.
4. The proposed project will be required to pay the MSHCP Fee applicable to the proposed density of residential development.

REFERENCES

American Ornithological Society (AOS). 2021 (July). *Check-list of North and Middle American Birds (7th ed., as revised through 62nd Supplement)*. *Ornithology* 138(3). Washington, D.C.: AOU. https://doi.org/10.1093/ornithology/ukab037.

California Department of Fish and Wildlife (CDFW). 2022a (September). California Natural Diversity Database. Records of Occurrence for the Sunnymead, El Casco, Beaumont, Perris, Lakeview, San Jacinto, Romoland, Winchester, and Hemet 7.5-minute quadrangles. Sacramento, CA: CDFW, Natural Heritage Division.

_____. 2022b (July). *Special Vascular Plants, Bryophytes, and Lichens List.* Sacramento, CA: CDFW, Natural Heritage Division.

California Native Plant Society (CNPS). 2022 (September). Electronic Inventory of Rare and Endangered Vascular Plants of California. Records of occurrence for the Sunnymead, El Casco, Beaumont, Perris, Lakeview, San Jacinto, Romoland, Winchester, and Hemet 7.5-minute quadrangles. Sacramento, CA: CNPS. http://www.cnps.org/inventbaldory.

Crother, B.I. (Ed.). September 2017. *Scientific and Standard English Names of Amphibians and Reptiles of North American North of Mexico, with Comments Regarding Confidence in our Understanding* (Edition 8). Shoreview, MN: Society for the Study of Amphibians and Reptiles. https://ssarherps.org/wp-content/uploads/2017/10/8th-Ed-2017-Scientific-and-Standard-English-Names.pdf.

Dechant, J.A., M.L. Sondreal, D.H. Johnson, L.D. Igl, C.M. Goldade, P.A. Rabie, and B.R. Euliss. 2003. Effects of Management Practices on Grassland Birds: Burrowing Owl. Jamestown, ND: Northern Prairie Wildlife Research Center. http://www.npwrc.usgs.gov/resource/literatr/grasbird/buow/buow.htm.

Dudek and Associates, Inc. (Dudek). 2003. *Western Riverside County Multiple Species Habitat Conservation Plan* (Prepared for the Riverside County Integrated Project). Encinitas, CA: Dudek. http://www.wrc-rca.org/Permits_Docs.html.

Eriksen, C. and D. Belk 1999. Fairy Shrimps of California's Puddles, Pools, and Playas. Mad River Press, Inc., Eureka, California.

Eng, L.L., D. Belk and C.H. Eriksen. 1990. California Anostraca: distribution, habitat and status. Journal of Crustacean Biology 10: 247–277.

Haug, E.A., B.A. Milsap, and M.S. Martell. 1993. Burrowing Owl (*Speotyto cunicularia*). The Birds of North America, No. 61 (A. Poole and F. Gill, Eds.). Philadelphia, PA and Washington, D.C.: The Academy of Natural Sciences and the American Ornithologists' Union.

Jepson Flora Project. 2022 (May 31, Revision 10). Jepson eFlora (Records for common species in the Plant Compendium and all species descriptions). Berkeley, CA: The Jepson Herbarium. http://ucjeps.berkeley.edu/eflora/.

Remsen, J.V., Jr. 1978. *Bird Species of Special Concern in California: An Annotated List of Declining or Vulnerable Bird Species* (Administrative Report No. 78-1). Sacramento, CA: CDFG, Wildlife Management Branch.

Richardson, L. 2017. Unpublished database. Information on database and data contributors Available from: http://www.leifrichardson.org/bbna.html [Accessed 22 February 2017).

Riverside, County of. 2006 (as amended). *Burrowing Owl Survey Instructions for the Western Riverside Multiple Species Habitat Conservation Plan Area.* Riverside, CA: the County. http://www.tlma.co.riverside.ca.us/epd/documents/Burrowing_Owl_Survey_ Instructions.pdf.

Smithsonian National Museum of Natural History (SNMNH). 2011. Mammal Species of the World (3rd ed.) (a database based on Wilson, D.E., and D. M. Reeder's 2005 publication entitled *Mammal Species of the World, A Taxonomic and Geographic Reference*, 3rd ed.). Washington, D.C.: SNMNH. http://www.vertebrates.si.edu/msw/mswcfapp/msw/ index.cfm.

Thorp, R. W., D. S. Horning, Jr., and L. L. Dunning. 1983. Bumble bees and cuckoo bumble bees of California. Bulletin of the California Insect Survey 23: 1–79.

Western Riverside County Regional Conservation Authority (RCA). 2022 (September 20, last accessed). Information Mapping Tool [Records for Assessor's Parcel Numbers 432-236-009, 432-260-026, and 432-260-027]. https://www.wrc-rca.org/rcamaps/.

U.S. Department of Agriculture, Natural Resources Conservation Service (USDA NRCS). 2019 (August 31). Soil Survey Geographic (SSURGO) Database for Western Riverside Area, California. Fort Worth, TX: USDA, NRCS.

U.S. Department of Fish and Wildlife. 2012. Endangered and Threatened Wildlife and Plants; Revised Critical Habitat for the Riverside Fairy Shrimp; Final Rule. Federal Register 77:223.

_____. 2006. Endangered and Threatened Wildlife and Plants; Designation of Critical Habitat for Four Vernal Pool Crustaceans and Eleven Vernal Pool Plants. Federal Register 71:28.

_____. 2001. Endangered and Threatened Wildlife and Plants; Final Designation of Critical Habitat for the Riverside fairy Shrimp; Final Rule. Federal Register 66: 29384-29414.

_____. 1994. Endangered and Threatened Wildlife and Plants; Determination of Endangered Status for Three Vernal Pool Plants and the Riverside Fairy Shrimp. Federal Register 59: 48153.

_____. 1993. Endangered and Threatened Wildlife and Plants; Determination of Endangered Status for Three Vernal Pool Plants and the Riverside Fairy Shrimp. Federal Register 58: 41384-41392.

Zeiner, D.C., W.F.Laudenslayer, Jr., K.E. Mayer, and M. White, eds. 1988–1990. California's Wildlife. Vol. I–III. California Depart. of Fish and Game, Sacramento, California.

APPENDIX A

PLANT AND WILDLIFE COMPENDIA

PLANT SPECIES OBSERVED DURING THE SURVEY

Species	
Scientific Name	**Common Name**
GYMNOSPERMS	
PINACEAE – PINE FAMILY	
*Pinus eldarica**	Mondell pine
*Pinus halepense**	Aleppo pine
EUDICOTS	
AMARANTHACEAE – AMARANTH FAMILY	
Amaranthus palmeri	Palmer's amaranth
ANACARDIACEAE – SUMAC FAMILY	
*Schinus molle**	pepper tree
ASTERACEAE – SUNFLOWER FAMILY	
*Centaurea melitensis**	tocalote
*Cotula australis**	Australian cotula
Eclipta prostrata	false daisy
*Erigeron bonariensis**	flax-leaved horseweed
Erigeron canadensis	horseweed
Gnaphalium palustre	marsh cudweed
Helianthus annuus	annual sunflower
*Lactuca serriola**	prickly lettuce
*Oncosiphon pilulifer**	stinknet
*Pseudognaphalium luteoalbum**	white lamb cudweed
*Pulicaria paludosa**	marsh pulicaria
*Senecio vulgaris**	common groundsel
*Sonchus asper ssp. asper**	prickly sow thistle
*Sonchus oleraceus**	common sow thistle
BORAGINACEAE – BORAGE FAMILY	
Amsinckia menziesii	common fiddleneck
Heliotropium curassavicum var. oculatum	seaside heliotrope
BRASSICACEAE – MUSTARD FAMILY	
*Capsella bursa-pastoris**	shepherd's purse
*Descurainia sophia**	wise tansy mustard
*Hirschfeldia incana**	grayish shortpod mustard
*Lepidium didymum**	lesser swine grass
*Sisymbrium irio**	London rocket
CARYOPHYLLACEAE – PINK FAMILY	
*Spergularia bocconi**	Boccone's sand-spurrey
CHENOPODIACEAE – GOOSEFOOT FAMILY	
*Salsola tragus**	Russian thistle
CONVOLVULACEAE – MORNING–GLORY	
Calystegia sp.	morning-glory
EUPHORBIACEAE – SPURGE FAMILY	
Euphorbia albomarginata	rattlesnake sandmat

PLANT SPECIES OBSERVED DURING THE SURVEY

Species	
Scientific Name	**Common Name**
FABACEAE – LEGUME FAMILY	
*Acacia sp.**	acacia
*Medicago sativa**	alfalfa
*Melilotus indicus**	sourclover
GERANIACEAE – GERANIUM FAMILY	
*Erodium cicutarium**	redstem filaree
LYTHRACEAE – LOOSESTRIFE FAMILY	
*Lythrum hyssopifolia**	hyssop-leaf loosestrife
MALVACEAE – MALLOW FAMILY	
*Malva parviflora**	cheeseweed
PLANTAGINACEAE – PLANTAIN FAMILY	
*Plantago major**	common plantain
Veronica peregrina ssp. xalapensis	purslane speedwell
POLYGONACEAE – BUCKWHEAT FAMILY	
*Polygonum aviculare**	knotweed
*Rumex crispus**	curly dock
PORTULACACEAE – PURSLANE FAMILY	
*Portulaca oleracea**	purslane
ROSACEAE – ROSE FAMILY	
*Prunus persica**	peach
RUTACEAE – CITRUS FAMILY	
*Citrus x limon**	lemon tree
SALICACEAE – WILLOW FAMILY	
Salix gooddingii	Goodding's black willow
Salix lasiolepis	arroyo willow
SIMAROUBACEAE – SIMAROUBA FAMILY	
*Ailanthus altissima**	tree of heaven
SOLANACEAE – NIGHTSHADE FAMILY	
*Nicotiana glauca**	tree tobacco
Physalis acutifolia	sharpleaf ground-cherry
*Solanum elaeagnifolium**	white horse-nettle
ZYGOPHYLLACEAE – CALTROP FAMILY	
*Tribulus terrestris**	puncture vine
MONOCOTS	
ARECACEAE – PALM FAMILY	
Washingtonia filifera	California fan palm
*Washingtonia robusta**	Mexican fan palm
CYPERACEAE – SEDGE FAMILY	
Cyperus sp.	flatsedge
JUNCACEAE – RUSH FAMILY	
Juncus bufonius	toad rush

PLANT SPECIES OBSERVED DURING THE SURVEY

Species	
Scientific Name	**Common Name**
POACEAE – GRASS FAMILY	
*Bromus catharticus**	rescue grass
*Bromus rubens**	red brome
*Chloris verticillata**	windmill grass
*Cynodon dactylon**	Bermuda grass
Distichlis spicata	salt grass
*Echinochloa crus-galli**	cock's spur barnyard grass
*Festuca perennis**	rye grass
*Hordeum murinum**	wall barley
Leptochloa fusca	sprangletop
Phalaris sp.	canary grass
*Polypogon monspeliensis**	annual beard grass
TYPHACEAE – CATTAIL FAMILY	
Typha sp.	cattail
* Non-native or invasive species	

WILDLIFE SPECIES OBSERVED DURING THE SURVEYS

Species	
Scientific Name	**Common Name**
BIRDS	
ANATIDAE – SWAN, GOOSE, AND DUCK FAMILY	
Mareca americana	American wigeon
Anas platyrhynchos	mallard
Oxyura jamaicensis	ruddy duck
COLUMBIDAE – PIGEONS AND DOVES	
*Columba livia**	rock pigeon
Zenaida macroura	mourning dove
RALLIDAE – RAIL AND COOT FAMILY	
Fulica americana	American coot
RECURVIROSTRIDAE – STILT AND AVOCET FAMILY	
Himantopus mexicanus	black-necked stilt
SCOLOPACIDAE – SANDPIPER FAMILY	
Limosa fedoa	marbled godwit
Calidris minutilla	least sandpiper
LARIDAE – GULL AND TERN FAMILY	
Larus delawarensis	ring-billed gull
CATHARTIDAE – NEW WORLD VULTURE FAMILY	
Cathartes aura	turkey vulture
ACCIPITRIDAE – HAWK FAMILY	
Buteo jamaicensis	red-tailed hawk
TYRANNIDAE – TYRANT FLYCATCHERS	
Sayornis nigricans	black phoebe
Sayornis saya	Say's phoebe
Tyrannus verticalis	western kingbird
CORVIDAE – JAY AND CROW FAMILY	
Corvus brachyrhynchos	American crow
Corvus corax	common raven
ALAUDIDAE – LARK FAMILY	
Eremophila alpestris	horned lark
HIRUNDINIDAE – SWALLOW FAMILY	
Petrochelidon pyrrhonota	cliff swallow
MIMIDAE – THRASHERS	
Mimus polyglottos	northern mockingbird
STURNIDAE – STARLINGS	
*Sturnus vulgaris**	European starling
PASSERIDAE – OLD WORLD SPARROW FAMILY	
*Passer domesticus**	house sparrow
FRINGILLIDAE – FINCHES	
Haemorhous mexicanus	house finch
Spinus psaltria	lesser goldfinch

WILDLIFE SPECIES OBSERVED DURING THE SURVEYS

Species	
Scientific Name	**Common Name**
ICTERIDAE – BLACKBIRDS AND ORIOLES	
Sturnella neglecta	western meadowlark
Molothrus ater	brown-headed cowbird
Euphagus cyanocephalus	Brewer's blackbird
PASSERELLIDAE – NEW WORLD SPARROW FAMILY	
Melozone crissalis	California towhee
* Non-native Species	

APPENDIX B

FAIRY SHRIMP SURVEYS

August 22, 2023

Stacey Love
Recovery Permit Coordinator
U.S. Fish and Wildlife Service
2177 Salk Avenue, Suite 250
Carlsbad, California 92008

VIA EMAIL
Stacey_Love@fws.gov

Subject: Results of Wet Season Vernal Pool Branchiopod Surveys for the Chacon Farms Property, City of San Jacinto, California

Dear Ms. Love:

This Letter Report presents the findings of wet season vernal pool branchiopod (i.e., fairy shrimp) surveys conducted in 2022–2023 for the Chacon Farms Property (hereinafter referred to as the "Project site") located in the City of San Jacinto in Riverside County, California (Exhibit 1). Surveys were conducted from October 2022 to April 2023 according to guidelines established by the U.S. Fish and Wildlife Service (USFWS) by a Biologist with the necessary Federal Endangered Species Act (ESA) 10(a) survey permit.

PROJECT LOCATION AND DESCRIPTION

The Project site is located north of Esplanade Avenue, west of Cawston Avenue North, South of 7th Street, and east of an unimproved road through agricultural land (Odell Avenue) in the City of San Jacinto in Riverside County, California (Exhibit 1). The Project site is an approximately 75.6-acre property and includes Assessor Parcel Numbers 432-260-009, 432-260-026, and 432-260-027. The Project site is located on the U.S. Geological Survey's (USGS') Lakeview 7.5-minute quadrangle of the San Bernardino Meridian at Township 4 South, Range 1 West, Section 31 and 32 (Exhibit 2).

The proposed Project would provide a new residential housing community. The site plan is still under development and subject to change. Currently, the Project plans to retain the on-site retention basin in the northwestern portion of the Project site.

The Project site is located in the Western Riverside County Multiple Species Habitat Conservation Plan (MSHCP) area, specifically, within the San Jacinto Valley Area Plan. The City of San Jacinto is a signatory to the MSHCP; therefore, the Project would be subject to the provisions of the MSHCP. Per Section 6.1.2 of the MSHCP, the Project site must be assessed for the presence of vernal pools and other habitat for vernal pool branchiopods (i.e., fairy shrimp). The Project site is not located within a MSHCP Criteria Cell; the nearest Criteria Cell (discussed below) is approximately 0.25 miles southwest of the Project site.

5 Hutton Centre Drive
Suite 300
Santa Ana, CA 92707

Tel 714.751.7373
Fax 714.545.8883
www.Psomas.com

ENVIRONMENTAL SETTING

Topography on the Project site is relatively flat with an elevation of approximately 1,500 to 1,510 feet above mean sea level (msl). Soils mapped on the Project site include Grangeville loamy fine sand, drained, 0 to 5 percent slopes; Grangeville sandy loam, sandy substratum, drained, saline-alkali, 0 to 5 percent slopes; Traver loamy fine sand, eroded; Traver loamy fine sand, saline-alkali, eroded; and Traver fine sandy loam, strongly saline-alkali, eroded (Exhibit 3).

The Project site contains the following vegetation types and other areas: field croplands, valley and foothill grassland, disturbed, and developed. The agricultural field is periodically tilled or disced. Surrounding land uses include dairies, agricultural, residential, and rural residential. Active construction was occurring on the property to the west at the time of the field surveys.

There is a basin in the northwest corner of the Project site. This area was reviewed in the field and was found to be an artificial basin with no riparian vegetation present at the time of the survey. The artificial basin undergoes routine maintenance and appears to have been plowed multiple times in the past based on historical aerials. The main source of water for this basin appears to be irrigation from the adjacent agricultural fields; no natural inlet or outlet was observed in the field. The basin does not connect to a natural drainage; therefore, it would not be considered riverine.

The Project site occurs approximately 1,375 feet (0.25 mile) northeast of MSHCP Criteria Cell 3291. Cell 3291 contributes to Proposed Noncontiguous Habitat Block 7. Conservation within this Cell Group focuses on grassland habitat. Proposed Noncontiguous Habitat Block 7 is comprised of a complex of vernal pools west of the City of Hemet. These parcels preserve important populations of Narrow Endemic plant species, including Davidson's saltscale (*Atriplex serenana* var. *davidsonii*), thread-leaved brodiaea (*Brodiaea filifolia*), little mousetail (*Myosurus minimus* ssp. *apus*), California Orcutt grass (*Orcuttia californica*), and spreading navarretia (*Navarretia fossalis*), as well as vernal pool fairy shrimp (*Branchinecta lynchi*)[1]. Maintenance of vernal pool hydrology, water quality associated with Salt Creek, and Traver-Willow-Domino soil series is important for these species. Proposed Noncontiguous Habitat Block 7 is constrained by existing urban development and agricultural use. Treatment and management of edge conditions will be necessary to ensure that habitat quality and vernal pool hydrology are maintained as planned land uses are developed along the edge of this habitat block (Dudek 2003).

BACKGROUND

Fairy shrimp are members of the Order Anostraca that are restricted to inland (i.e., non-marine), non-flowing, primarily ephemeral waters (Eriksen and Belk 1999). They produce embryonated resting eggs called "cysts" that allow them to persist in ephemeral waters. These cysts are viable in conditions such as drying, freezing, or digestion by animals. This characteristic allows them to be distributed between pools over great distances either in the digestive tract or via mud on the bodies of other animals such as waterfowl or cattle. The cysts hatch under appropriate environmental conditions for a particular species.

A search of the California Department of Fish and Wildlife's (CDFW's) California Natural Diversity Database (CNDDB) was conducted prior to initiating the survey effort to determine which listed branchiopod(s) may reside in close proximity to the Project. The search included the Sunnymead, El Casco, Beaumont, Perris, Lakeview, San Jacinto, Romoland, Winchester, and Hemet USGS 7.5-minute

[1] This occurrence is reported in the MSHCP but is not in the CNDDB.

quadrangles (CDFW 2022). Background information on these listed fairy shrimp species is provided below.

Vernal Pool Fairy Shrimp

The USFWS listed the vernal pool fairy shrimp as a Threatened species on September 19, 1994. It is found primarily in the Central Valley and the foothills of the Sierra Nevada Mountains in Northern California north to Oregon (Eriksen and Belk 1999; USFWS 2005a). In Southern California, the species is known only from western Riverside County, the vicinity of Santa Clarita, and the Los Padres National Forest of Ventura County (CDFW 2022). They have been reported at elevations between 25 and 500 feet above msl (USFWS 2005a). The species is usually found in small and shallow vernal pools, although they are sometimes found in a range of natural and artificially created ephemeral habitats such as alkali pools, seasonal drainages, stock ponds, vernal swales, and rock outcrops (USFWS 2005a). They occur in alluvial fans, bedrock, bedrock escarpments, basin rim, floodplain, high terrace, stream terrace, volcanic mudflow, and low terrace formations (USFWS 2005a). Vernal pool fairy shrimp hatch at 50 degree Fahrenheit (10 degrees Celsius) and have been known to reach maturation in as little as 18 days, though 41 days is more typical when water temperature is cooler (Eriksen and Belk 1999). This allows the species to exist in pools that persist for only six to seven weeks in the winter and less in the spring.

The nearest reported occurrence of this species is approximately 4.3 miles to the southwest; this population is presumed extant (CDFW 2022).

On August 6, 2003, the USFWS published a Final Rule designating 839,460 acres of land as critical habitat for the vernal pool fairy shrimp in 21 counties from Oregon south to Ventura County, California (USFWS 2003). Following lawsuits, the USFWS proposed and subsequently finalized a revised critical habitat designation on August 11, 2005. The current final critical habitat designation covers 597,821 acres in 25 counties from Oregon south to Ventura County, California (USFWS 2005a). The Project site is not located in final critical habitat for the vernal pool fairy shrimp.

Riverside Fairy Shrimp

The USFWS listed the Riverside fairy shrimp (*Streptocephalus woottoni*) as an Endangered species on August 3, 1993. The distribution of this species is among the most restricted ranges for any of the fairy shrimp on the west coast. They are known from Ventura, Los Angeles, Orange, western San Diego, and Riverside counties and immediately south of the international border in Baja California, Mexico (USFWS 2005b). They are generally found only in natural and created pools that are deep (greater than 11.8 inches [30 centimeters]). Development and maturation are much slower in this species than other fairy shrimp, with an average of seven to eight weeks to full maturity (Hathaway and Simovich 1996). Due to this slow development, the minimum duration for inundation of a pool that can support Riverside fairy shrimp is nine to ten weeks (Gonzalez et al. 1996; Hathaway and Simovich 1996).

The nearest reported occurrence of this species is approximately 8.7 miles to the southwest; however, this population is listed as extirpated (CDFW 2022). The closest presumed extant population is approximately 12.2 miles to the southwest (CDFW 2022).

On May 30, 2001, the USFWS published a Final Rule designating 6,870 acres of land as critical habitat for the Riverside fairy shrimp in Los Angeles, Orange, Riverside, San Diego, and Ventura Counties (USFWS 2001). USFWS proposed and subsequently finalized a revised critical habitat designation first on April 12, 2005, and again on December 4, 2012. The latter final critical habitat designation currently covers 1,724 acres of land in Orange, San Diego, and Ventura counties (USFWS 2012). The Project site is not located in final critical habitat for Riverside fairy shrimp.

METHODS

The general site assessment was conducted on September 19, 2022, by Psomas Senior Biologist Allison Rudalevige and Psomas Biologist Trevor Bristle. Ms. Rudalevige and Mr. Bristle assessed the Project site and found that the on-site basin provides potential habitat for fairy shrimp; therefore, focused surveys were recommended.

The area surveyed for fairy shrimp consists of two ponding areas on the Project site: Pond 1 and Pond 2 (Exhibits 1 and 2). The USFWS (Carlsbad field office) and the CDFW were notified regarding wet and dry season survey initiation on September 22, 2022. As described above, Pond 1 is an artificial basin that captures runoff from irrigation. Pond 1 was inundated prior to the start of wet season surveys.

Sampling followed the USFWS' *Survey Guidelines for the Listed Large Branchiopods* (USFWS 2017). Psomas Senior Biologist Allison Rudalevige (TE No. 177979-2) performed all surveys. Pond 1 was continuously inundated for 120 days and surveys were performed between October 14, 2022, and February 9, 2023. Pond 2 was initially inundated on November 18, 2022, dried, and was reinundated on December 14, 2022; it held water continuously for 120 days and surveys were completed on April 12, 2023.

The location of each ponding feature was recorded with a Garmin Etrex Vista Global Positioning System (GPS) receiver. During each survey visit, approximate pond surface area, water depth, water temperature, air temperature, and habitat condition were recorded for each feature on USFWS vernal pool data sheets. Photographs of each ponding feature and the surrounding area are included in Attachment A.

Sampling for branchiopod species was performed with the aid of a hand net and/or dip net; the nets were passed through all ponds that retained water at least 1.2 inches (3 centimeters) deep at the time of the survey. Sampling occurred randomly through all portions (e.g., along the margins and throughout the center) of each of the ponds from the bottom to the surface. The net was periodically inspected for fairy shrimp or other aquatic invertebrates.

SURVEY RESULTS

Annual precipitation in 2022/2023 was above average. The region received approximately 16.84 inches of precipitation between May 1, 2022, and April 30, 2023 (data taken from San Jacinto, CA station) (NOAA 2023). The average annual precipitation in the region is 12.20 inches (data averaged from 1991–2020) (NOAA 2023).

Pond 1 and Pond 2 both experienced 120 days of inundation during the 2022/2023 wet season. Pond 1 is an artificial basin collecting irrigation runoff from the adjacent agricultural field, as well as precipitation. Based on historic aerial images, it appears to have been created between 1996 and 2002, filled in between 2002 and 2009, and was recreated in 2009 (NETR 2023). Pond 2 is a slight depressional area adjacent to Pond 1 that was identified to hold water (from irrigation runoff and precipitation) partway through the surveys. This area appears to have been previously graded and tire tracks were observed during the surveys. During periods of high precipitation, Pond 2 overflowed into Pond 1. The ponds' extents shown on Exhibit 1 and 2 represent an intermediate level of inundation. The north end of Pond 1 was periodically dry and Pond 2 varied between a smaller, oval shape; the "U" shape shown; and a continuous surface connection with Pond 1. Table 1 summarizes the results of the survey effort. Attachment B includes the USFWS Vernal Pool Data Sheets.

No listed or non-listed fairy shrimp were observed in Pond 1 or Pond 2 during the survey period. Other aquatic invertebrates observed include Cladocera (i.e., *Daphnia*), Coleoptera, Hemiptera, Culicidae

larvae, and Ephemeroptera larvae. A variety of waterfowl also utilized the ponds, including mallard (*Anas platyrhynchos*), ruddy duck (*Oxyura jamaicensis*), American wigeon (*Mareca americana*), Canada goose (*Branta canadensis*), American coot (*Fulica americana*), and killdeer (*Charadrius vociferus*).

TABLE 1
SUMMARY OF VERNAL POOL BRANCHIOPOD SURVEY RESULTS

Date	Ponding Feature No.	Pond Depth (cm)	Approximate Pond Size (m^2)[b]	Branchiopod Species Detected	Species Density	Number Collected (Males/Females)
October 14, 2022	1 2	25 dry	2,000 n/a	– –	– –	– –
October 19, 2022	1 2	15 dry	1,404 n/a	– –	– –	– –
October 26, 2022	1 2	9 dry	732 n/a	– –	– –	– –
November 2, 2022	1 2	47 dry	2,310 n/a	– –	– –	– –
November 9, 2022	1 2	84 dry	3,042 n/a	– –	– –	– –
November 18, 2022	1 2	55 10	2,332 64	– –	– –	– –
November 23, 2022	1 2	55 8	2,226 36	– –	– –	– –
December 1, 2022	1 2	30 dry	2,240 n/a	– –	– –	– –
December 7, 2022	1 2	20 dry	1,824 n/a	– –	– –	– –
December 14, 2022	1 2	20 4	1,368 36	– –	– –	– –
December 21, 2022	1 2	9 6	1,088 6	– –	– –	– –
December 28, 2022	1 2	14 4	1,056 20	– –	– –	– –
January 4, 2023	1 2	50 15	2,140 144	– –	– –	– –
January 11, 2023	1 2	70 11	2,875 551	– –	– –	– –
January 18, 2023	1 2	120+ 15	3,654 551	– –	– –	– –
January 26, 2023	1 2	110 10	3,375 76	– –	– –	– –
February 1, 2023	1 2	110 8	3,240 57	– –	– –	– –
February 9, 2023[a]	1 2	110 9	3,276 432	– –	– –	– –
February 15, 2023	1 2	n/a 14	n/a 570	– –	– –	– –
February 22, 2023	1 2	n/a 10	n/a 95	– –	– –	– –
March 1, 2023	1 2	n/a 22	n/a 600+	– –	– –	– –
March 8, 2023	1 2	n/a 12	n/a 442	– –	– –	– –

TABLE 1
SUMMARY OF VERNAL POOL BRANCHIOPOD SURVEY RESULTS

Date	Ponding Feature No.	Pond Depth (cm)	Approximate Pond Size (m^2)[b]	Branchiopod Species Detected	Species Density	Number Collected (Males/Females)
March 14, 2023	1 2	n/a 13	n/a 560	– –	– –	– –
March 23, 2023	1 2	n/a 17	n/a 600+	– –	– –	– –
March 31, 2023	1 2	n/a 15	n/a 600+	– –	– –	– –
April 5, 2023	1 2	n/a 15	n/a 600+	– –	– –	– –
April 12, 2023	1 2	n/a 5	n/a 39	– –	– –	– –

cm: centimeters; m^2: square meters; n/a: not applicable; "–" indicates that no fairy shrimp were observed.

[a] Pond 1 experienced 120 days of continuous inundation on February 9, 2023. Data was not collected after this date.
[b] When values for Pond 2 are listed as 600+, the surface water overflowed into Pond 1.

CONCLUSIONS

The results of the wet season surveys conducted for the Project site during the 2022/2023 wet season were negative for listed fairy shrimp. Additionally, no non-listed fairy shrimp were observed. Surveys were conducted during a period of above average precipitation and the two ponds each experienced 120 days of continuous inundation.

According to USFWS protocol, a complete survey consists of one wet season and one dry season survey conducted within a three-year period. Dry season sampling will occur once the substrate in both Pond 1 and Pond 2 have dried sufficiently to avoid damage to cysts.

If you have any comments or questions, please contact Amber Heredia at Amber.Heredia@psomas.com or 714.751.7373.

Sincerely,
PSOMAS

Amber O Heredia
Amber O. Heredia
Senior Project Manager

Allison D. Rudalevige
Allison D. Rudalevige
Senior Biologist

I certify that the information in this survey report and attached exhibits fully and accurately represents my work.

Allison D. Rudalevige
Allison D. Rudalevige (TE No. 177979-2)
Senior Biologist

August 22, 2023
Date

Enclosures: Exhibit 1 – Project Location
Exhibit 2 – USGS 7.5-Minute Digital Quadrangle
Exhibit 3 – Soil Types
Exhibit 4 – Ponding Features
Attachment A – Representative Photographs
Attachment B – Vernal Pool Data Sheets

cc: Richard Michael, Ramona Dairy, LLC
Justin Garcia, CDFW
Chad Hirano, CDFW
Lacey Greene, CDFW

R:\Projects\4RAM\020100\Technical Reports\Fairy Shrimp\Chacon Farms_WetSeason Fairy Shrimp-082223.docx

REFERENCES

California Department of Fish and Wildlife (CDFW). 2022. California Natural Diversity Database. Records of Occurrence on Sunnymead, El Casco, Beaumont, Perris, Lakeview, San Jacinto, Romoland, Winchester, and Hemet USGS 7.5-minute quadrangles. Sacramento, CA: CDFW, Natural Heritage Division.

Dudek and Associates, Inc. (Dudek). 2003. *Western Riverside County Multiple Species Habitat Conservation Plan* (Prepared for the Riverside County Integrated Project). Encinitas, CA: Dudek. http://www.wrc-rca.org/Permits_Docs.html.

Eriksen, C. and D. Belk. 1999. *Fairy Shrimps of California's Puddles, Pools, and Playas*. Eureka, CA: Mad River Press, Inc.

Gonzalez, R.J., J. Drazen, S. Hathaway, B. Bauer, and M. Simovich. 1996. Physiological Correlates of Water Chemistry Requirements in Fairy Shrimps (Anostraca) from Southern California. *Journal of Crustacean Biology* 16: 286–293. Lawrence, KS: The Crustacean Society.

Hathaway, S.A. and M.A. Simovich. 1996. Factors Affecting the Distribution and Co-Occurrence of Two Southern Californian Anostracans (Branchiopoda), *Branchinecta sandiegonensis* and *Streptocephalus woottoni*. *Journal of Crustacean Biology* 16: 669–677. Lawrence, KS: The Crustacean Society.

National Oceanic and Atmospheric Administration (NOAA). 2023 (July 5, date accessed). Regional Climate Center (RCC) Agricultural Applied Climate Information System (AgACIS): San Jacinto, CA station. agacis.rcc-acis.org/.

Nationwide Environmental Title Research, LCC Online (NETR). 2023 (July 5, date accessed). Historic Aerials. Tempe, AZ: NETR. https://www.historicaerials.com.

U.S. Fish and Wildlife Service (USFWS). 2017 (November 13). *Survey Guidelines for the Listed Large Branchiopods*. Sacramento, CA: USFWS.

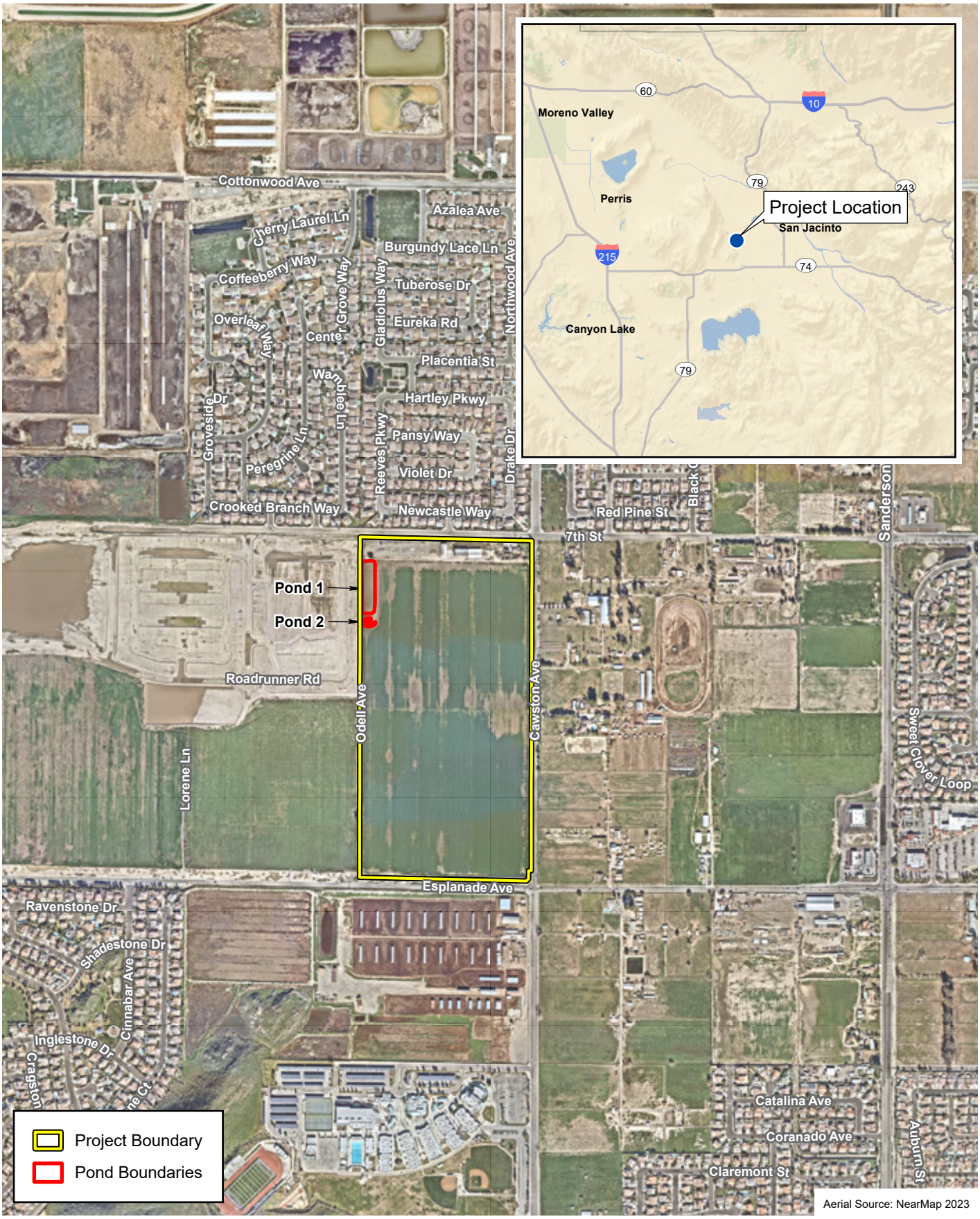
———. 2012 (December 4). Endangered and Threatened Wildlife and Plants; Revised Critical Habitat for the Riverside Fairy Shrimp; Final Rule. *Federal Register* 77(233): 72069–72140. Washington, D.C.: USFWS.

———. 2005a (August 11). Endangered and Threatened Wildlife and Plants; Final Designation of Critical Habitat for Four Vernal Pool Crustaceans and Eleven Vernal Pool Plants in California and Southern Oregon; Final Rule. *Federal Register* 70(154): 46923–46999. Washington, D.C.: USFWS.

———. 2005b (April 12). Endangered and Threatened Wildlife and Plants; Designation of Critical Habitat for the Riverside Fairy Shrimp (*Streptocephalus woottoni*); Final Rule. *Federal Register* 70(69): 19153–19204. Washington, D.C.: USFWS.

———. 2003 (August 6). Endangered and Threatened Wildlife and Plants; Final Designation of Critical Habitat for Four Vernal Pool Crustaceans and Eleven Vernal Pool Plants in California and Southern Oregon; Final Rule. *Federal Register* 68(151): 46683–46732. Washington, D.C.: USFWS.

———. 2001 (May 30). Endangered and Threatened Wildlife and Plants; Final Designation of Critical Habitat for the Riverside Fairy Shrimp; Final Rule. *Federal Register* 66(104): 29383–29414. Washington, D.C.: USFWS.



D:\Projects\4RAM_BaseFiles\Chacon_Farms\PRO\Chacon_Farms_Project\Chacon_Farms_Project.aprx\ex_Project_Site

Project Location

Exhibit 1

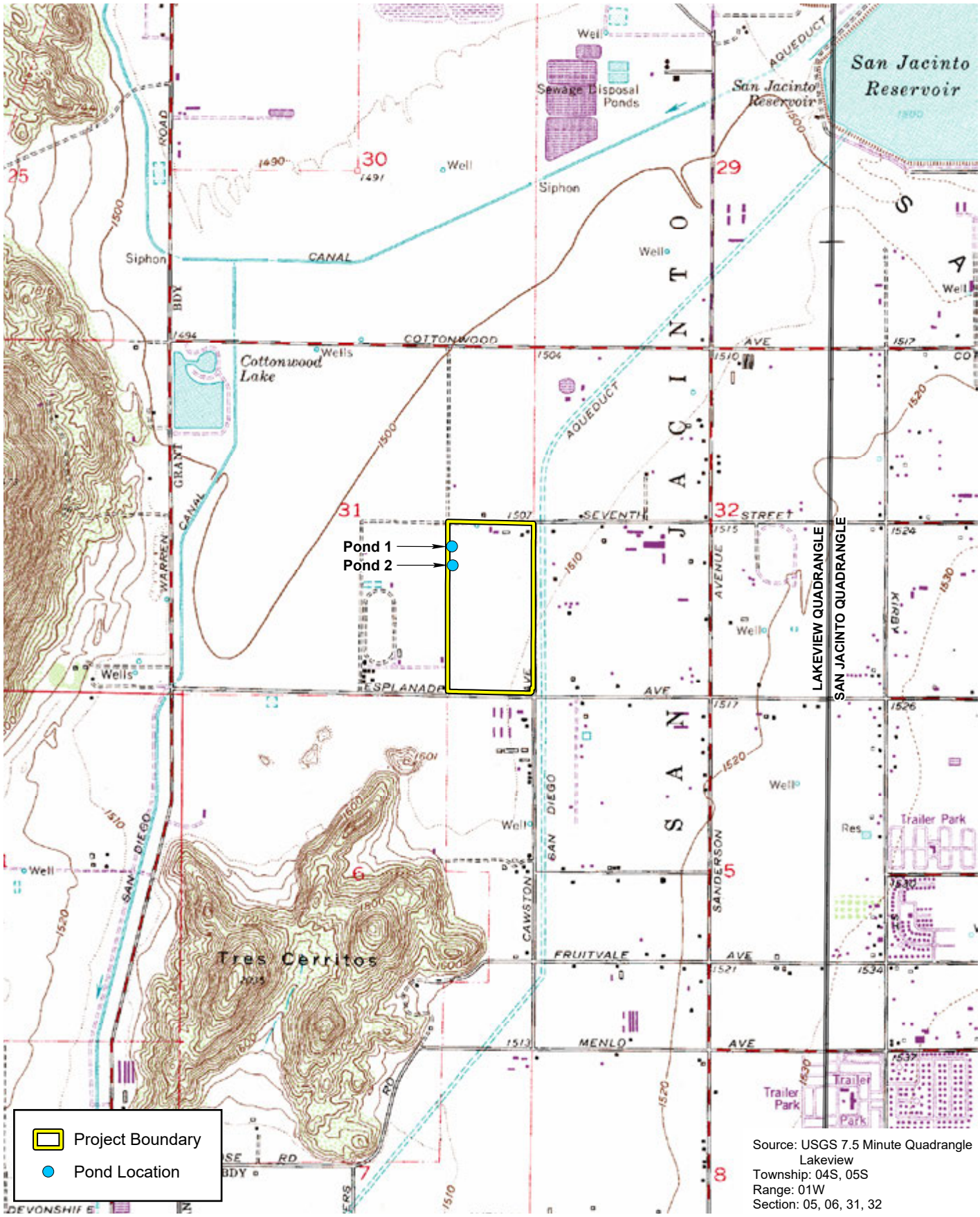
Chacon Farms Property

N W E S

1,000 500 0 1,000 Feet

PSOMAS

(Rev: 8-21-2023 PLO) R:\Projects\4RAM\020100\Graphics\BUOW\ex_Project_Location.pdf



Source: USGS 7.5 Minute Quadrangle
Lakeview
Township: 04S, 05S
Range: 01W
Section: 05, 06, 31, 32

U.S. Geological Survey 7.5-Minute Quadrangle

Exhibit 2

Chacon Farms Property

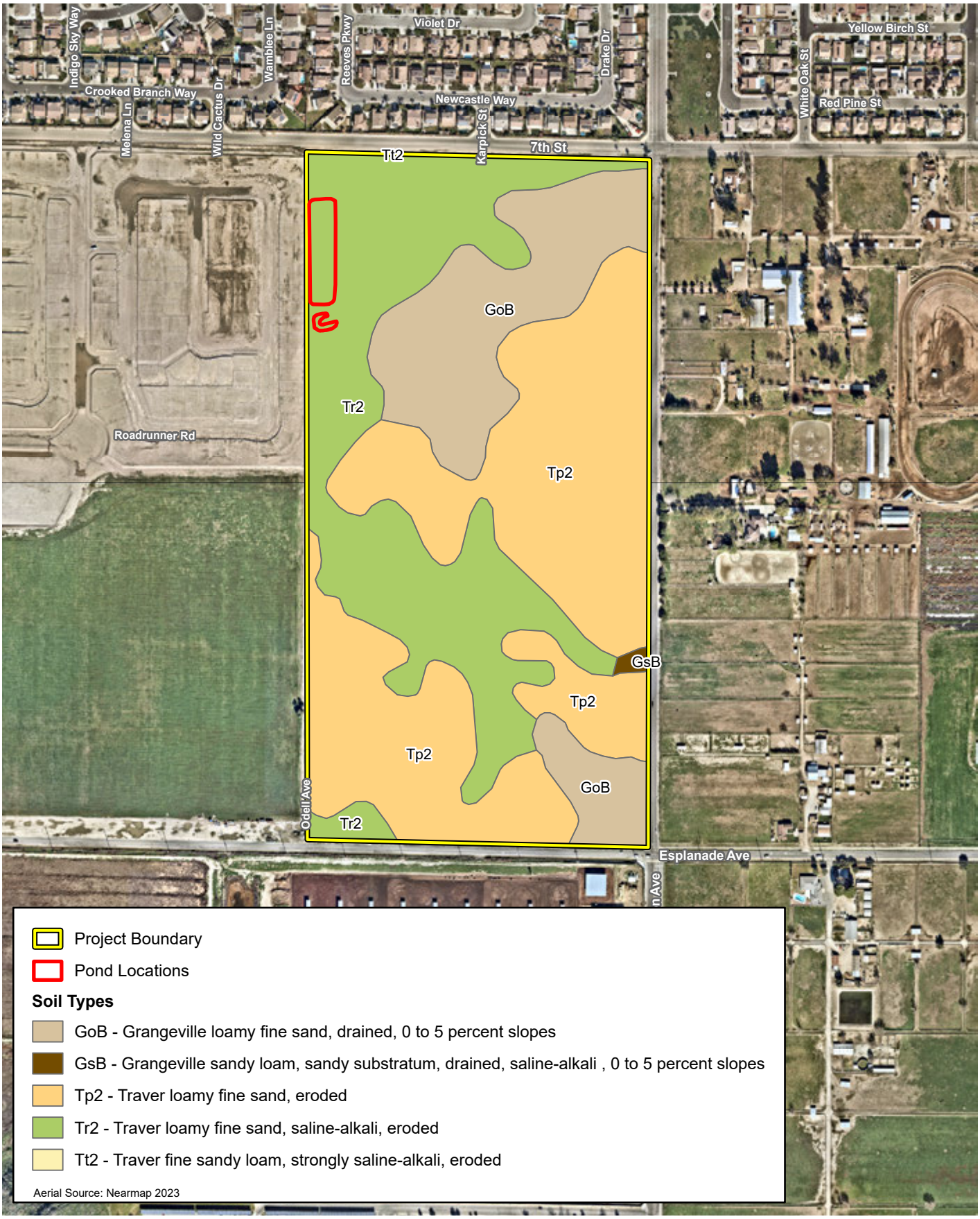
N W E S

2,000 1,000 0 2,000 Feet

PSOMAS

(Rev: 8-21-2023 PLO) R:\Projects\4RAM\020100\Graphics\BUOW\ex_USGS.pdf

D:\Projects\4RAM_BaseFiles\Chacon_Farms\PRO\Chacon_Farms_Project\Chacon_Farms_Project.aprx\ex_USGS



D:\Projects\4RAM_BaseFiles\Chacon_Farms\PRO\Chacon_Farms_Project\Chacon_Farms_Project.aprx\

Soil Types

Exhibit 3

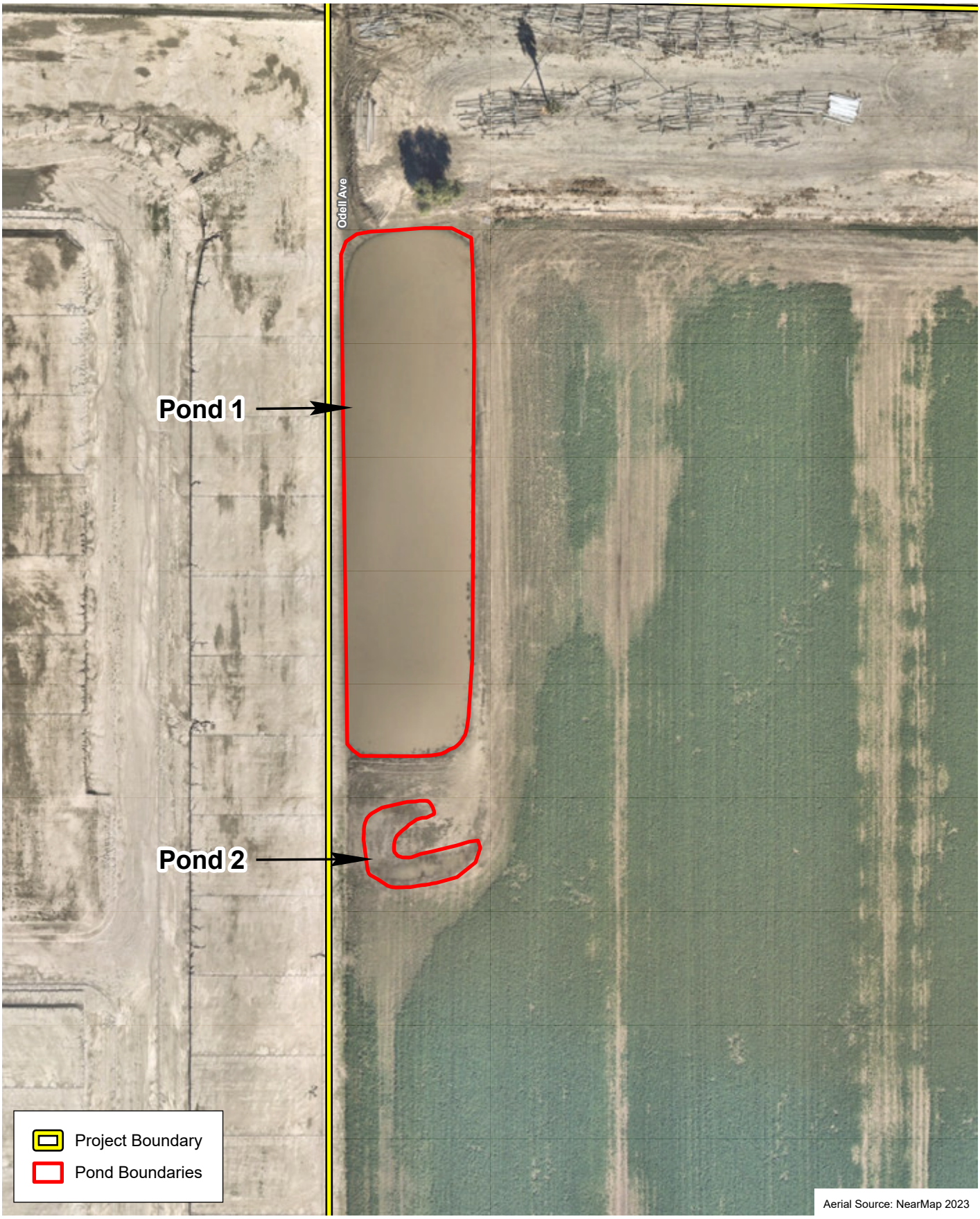
Chacon Farms Property

N W E S

500 250 0 500 Feet

PSOMAS

(Rev: 8-21-2023 JMC) R:\Projects\4RAM\020100\Graphics\FShrimp\ex_SoilTypes.pdf



D:\Projects\4RAM_BaseFiles\Chacon_Farms\PRO\Chacon_Farms_Project\Chacon_Farms_Project.aprx\Pond Features Map

Pond Features

Exhibit 4

Chacon Farms Property

N W E S

100 50 0 100 Feet

PSOMAS

(Rev: 8-21-2023 JMC) R:\Projects\4RAM\020100\Graphics\FShrimp\ex_PondFeatures.pdf

ATTACHMENT A

REPRESENTATIVE PHOTOGRAPHS



October 26, 2022. Overview of the northwestern corner of the Project site. Photo taken by Allison D. Rudalevige (ADR) from southeast of 7th Street and Odell Avenue, facing south.



November 23, 2022. Overview of the northwestern corner of the Project site. Photo taken by ADR from southeast of 7th Street and Odell Avenue, facing north.

D:\Projects\4RAM\020100\GRAPHICS\FShrimp\20230721\ex_SP.ai

Representative Photographs

Attachment A-1

Chacon Farms Property

PSOMAS

(07/21/2023 JMC) R:\Projects\4RAM\020100\Graphics\FShrimp\ex_AttA.pdf



October 26, 2022. Northern side of Pond 1 during a period of low inundation. Photo taken by ADR from southeast of 7th Street and Odell Avenue, facing south.



November 9, 2022. Northern side of Pond 1 during a period of high inundation. Photo taken by ADR from southeast of 7th Street and Odell Avenue, facing south.

D:\Projects\4RAM\020100\GRAPHICS\FShrimp\ex_SP.ai

Representative Photographs

Attachment A-2

Chacon Farms Property

PSOMAS

(07/21/2023 JMC) T:\Projects\4RAM\020100\Graphics\FShrimp\ex_AttA.pdf



November 23, 2022. Western side of Pond 2 during a period of relatively low inundation. Photo taken by ADR from southeast of 7th street and Odell Avenue, facing east.



February 15, 2023. Southwestern corner of Pond 2 (foreground) during a period of moderate inundation. Photo taken by ADR from southeast of 7th Street and Odell Avenue, facing northeast.

D:\Projects\4RAM\020100\GRAPHICS\FShrimp\ex_SP.ai

Representative Photographs

Attachment A-3

Chacon Farms Property

PSOMAS

(07/21/2023 JMC) R:\Projects\4RAM\020100\Graphics\FShrimp\ex_AttA.pdf

ATTACHMENT B

VERNAL POOL DATA SHEETS

Appendix 1. U.S. Fish and Wildlife Service – Data Sheet for Wet Season Surveys For Listed Large Branchiopods

Site or Project Name: Chacon Farms	**County:** Riverside	**Quad:** Lakeview	**Township:** 4S	**Range:** 1W	**Section:** 31,32

SURVEYOR / Permit Number: Allison Rudalevige, TE 177979-2

Date: 10/14/2022 Time: 1120 Weather Conditions: cloudy, cloud 100%, wind 0-1mph

Feature ID #	UTM (Northing, Easting, Datum)	Temp (˚C)		Depth (cm)		Surface Area (m x m)		Crustaceans					Insects				Platyhelminths (flatworms)	Habitat Condition	Notes / Voucher information
		Air	Water	Average	Est. Max.	Present	Est. Max.	Anostracans	Notostracans	Copepods	Ostracods	Cladocera	Coleoptera	Hemiptera	Diptera Culicidae	Diptera Chironomidae			
1	11 S 498192 3737627 WGS84	24	20	25	120+	2000	3654					✓	✓	✓	✓			CP	
2	11 S 498182 3737559 WGS84																	NP, D:TT	not inundated

Notes: Fill in abbreviated names of Anostracans and Notostracans, for all others indicate presence with a check mark. Anostracan and Notostracan Abbreviations: Use first two letters of genus and species name (e.g., LIOC = *Linderiella occidentalis*, BRLI = *Branchinecta lindahli)*.
For habitat conditions use two letter abbreviation as follows: NP = Natural Pool, CP = Constructed Pool; UD = undisturbed, D = disturbed: with TT = tire tracks, T = trash, P = plowed; G = grazed, UG = ungrazed by: C = cattle, H = horses, S = sheep; AB = Algal blooms present.
(Estimate grazing regime by height of grasses and forbs and density of hoof prints) LG = light grazing, MG = moderate grazing, HG = heavy grazing.

Appendix 1. U.S. Fish and Wildlife Service – Data Sheet for Wet Season Surveys For Listed Large Branchiopods

Site or Project Name: Chacon Farms	**County:** Riverside	**Quad:** Lakeview	**Township:** 4S	**Range:** 1W	**Section:** 31,32

SURVEYOR / Permit Number: Allison Rudalevige, TE 177979-2

Date: 10/19/2022 Time: 1000 Weather Conditions: sunny, cloud 0%, wind 0-1mph

Feature ID #	UTM (Northing, Easting, Datum)	Temp (˚C)		Depth (cm)		Surface Area (m x m)		Crustaceans					Insects				Platyhelminths (flatworms)	Habitat Condition	Notes / Voucher information
		Air	Water	Average	Est. Max.	Present	Est. Max.	Anostracans	Notostracans	Copepods	Ostracods	Cladocera	Coleoptera	Hemiptera	Diptera Culicidae	Diptera Chironomidae			
1	11 S 498192 3737627 WGS84	28	17	15	120+	1404	3654					✓	✓	✓	✓			CP	
2	11 S 498182 3737559 WGS84																	NP, D:TT	not inundated

Notes: Fill in abbreviated names of Anostracans and Notostracans, for all others indicate presence with a check mark. Anostracan and Notostracan Abbreviations: Use first two letters of genus and species name (e.g., LIOC = *Linderiella occidentalis*, BRLI = *Branchinecta lindahli)*.
For habitat conditions use two letter abbreviation as follows: NP = Natural Pool, CP = Constructed Pool; UD = undisturbed, D = disturbed: with TT = tire tracks, T = trash, P = plowed; G = grazed, UG = ungrazed by: C = cattle, H = horses, S = sheep; AB = Algal blooms present.
(Estimate grazing regime by height of grasses and forbs and density of hoof prints) LG = light grazing, MG = moderate grazing, HG = heavy grazing.

Appendix 1. U.S. Fish and Wildlife Service – Data Sheet for Wet Season Surveys For Listed Large Branchiopods

Site or Project Name: Chacon Farms	**County:** Riverside	**Quad:** Lakeview	**Township:** 4S	**Range:** 1W	**Section:** 31,32

SURVEYOR / Permit Number: Allison Rudalevige, TE 177979-2

Date: 10/26/2022 Time: 1030 Weather Conditions: sunny, cloud 5%, wind 0-3 mph

Feature ID #	UTM (Northing, Easting, Datum)	Temp (˚C)		Depth (cm)		Surface Area (m x m)		Crustaceans					Insects				Platyhelminths (flatworms)	Habitat Condition	Notes / Voucher information
		Air	Water	Average	Est. Max.	Present	Est. Max.	Anostracans	Notostracans	Copepods	Ostracods	Cladocera	Coleoptera	Hemiptera	Diptera Culicidae	Diptera Chironomidae			
1	11 S 498192 3737627 WGS84	25	16	9	120+	732	3654					✓		✓	✓			CP	
2	11 S 498182 3737559 WGS84																	NP, D:TT	not inundated

Notes: Fill in abbreviated names of Anostracans and Notostracans, for all others indicate presence with a check mark. Anostracan and Notostracan Abbreviations: Use first two letters of genus and species name (e.g., LIOC = *Linderiella occidentalis*, BRLI = *Branchinecta lindahli)*.
For habitat conditions use two letter abbreviation as follows: NP = Natural Pool, CP = Constructed Pool; UD = undisturbed, D = disturbed: with TT = tire tracks, T = trash, P = plowed; G = grazed, UG = ungrazed by: C = cattle, H = horses, S = sheep; AB = Algal blooms present.
(Estimate grazing regime by height of grasses and forbs and density of hoof prints) LG = light grazing, MG = moderate grazing, HG = heavy grazing.

Appendix 1. U.S. Fish and Wildlife Service – Data Sheet for Wet Season Surveys For Listed Large Branchiopods

Site or Project Name: Chacon Farms	**County:** Riverside	**Quad:** Lakeview	**Township:** 4S	**Range:** 1W	**Section:** 31,32

SURVEYOR / Permit Number: Allison Rudalevige, TE 177979-2

Date: 11/02/2022 Time: 1100 Weather Conditions: overcast, cloud 100%, wind 2-5 mph

Feature ID #	UTM (Northing, Easting, Datum)	Temp (˚C)		Depth (cm)		Surface Area (m x m)		Crustaceans					Insects				Platyhelminths (flatworms)	Habitat Condition	Notes / Voucher information
		Air	Water	Average	Est. Max.	Present	Est. Max.	Anostracans	Notostracans	Copepods	Ostracods	Cladocera	Coleoptera	Hemiptera	Diptera Culicidae	Diptera Chironomidae			
1	11 S 498192 3737627 WGS84	15	14	47	120+	2310	3654					✓	✓	✓	✓			CP	
2	11 S 498182 3737559 WGS84																	NP, D:TT	not inundated

Notes: Fill in abbreviated names of Anostracans and Notostracans, for all others indicate presence with a check mark. Anostracan and Notostracan Abbreviations: Use first two letters of genus and species name (e.g., LIOC = *Linderiella occidentalis*, BRLI = *Branchinecta lindahli)*.
For habitat conditions use two letter abbreviation as follows: NP = Natural Pool, CP = Constructed Pool; UD = undisturbed, D = disturbed: with TT = tire tracks, T = trash, P = plowed; G = grazed, UG = ungrazed by: C = cattle, H = horses, S = sheep; AB = Algal blooms present.
(Estimate grazing regime by height of grasses and forbs and density of hoof prints) LG = light grazing, MG = moderate grazing, HG = heavy grazing.

Appendix 1. U.S. Fish and Wildlife Service – Data Sheet for Wet Season Surveys For Listed Large Branchiopods

Site or Project Name: Chacon Farms	**County:** Riverside	**Quad:** Lakeview	**Township:** 4S	**Range:** 1W	**Section:** 31,32

SURVEYOR / Permit Number: Allison Rudalevige, TE 177979-2

Date: 11/09/2022 Time: 1100 Weather Conditions: sunny, cloud 30%, wind 1-3 mph

Feature ID #	UTM (Northing, Easting, Datum)	Temp (˚C)		Depth (cm)		Surface Area (m x m)		Crustaceans					Insects				Platyhelminths (flatworms)	Habitat Condition	Notes / Voucher information
		Air	Water	Average	Est. Max.	Present	Est. Max.	Anostracans	Notostracans	Copepods	Ostracods	Cladocera	Coleoptera	Hemiptera	Diptera Culicidae	Diptera Chironomidae			
1	11 S 498192 3737627 WGS84	15	12	84	120+	3042	3654					✓	✓	✓	✓			CP	
2	11 S 498182 3737559 WGS84																	NP, D:TT	not inundated

Notes: Fill in abbreviated names of Anostracans and Notostracans, for all others indicate presence with a check mark. Anostracan and Notostracan Abbreviations: Use first two letters of genus and species name (e.g., LIOC = *Linderiella occidentalis*, BRLI = *Branchinecta lindahli)*.
For habitat conditions use two letter abbreviation as follows: NP = Natural Pool, CP = Constructed Pool; UD = undisturbed, D = disturbed: with TT = tire tracks, T = trash, P = plowed; G = grazed, UG = ungrazed by: C = cattle, H = horses, S = sheep; AB = Algal blooms present.
(Estimate grazing regime by height of grasses and forbs and density of hoof prints) LG = light grazing, MG = moderate grazing, HG = heavy grazing.

Appendix 1. U.S. Fish and Wildlife Service – Data Sheet for Wet Season Surveys For Listed Large Branchiopods

Site or Project Name: Chacon Farms	**County:** Riverside	**Quad:** Lakeview	**Township:** 4S	**Range:** 1W	**Section:** 31,32

SURVEYOR / Permit Number: Allison Rudalevige, TE 177979-2

Date: 11/18/2022 Time: 1240 Weather Conditions: sunny, cloud 1%, wind 0-2 mph

Feature ID #	UTM (Northing, Easting, Datum)	Temp (˚C)		Depth (cm)		Surface Area (m x m)		Crustaceans					Insects				Platyhelminths (flatworms)	Habitat Condition	Notes / Voucher information
		Air	Water	Average	Est. Max.	Present	Est. Max.	Anostracans	Notostracans	Copepods	Ostracods	Cladocera	Coleoptera	Hemiptera	Diptera Culicidae	Diptera Chironomidae			
1	11 S 498192 3737627 WGS84	22	13	55	120+	2332	3654					✓			✓			CP	
2	11 S 498182 3737559 WGS84	22	19	10	22	64	600+					✓			✓			NP, D:TT	

Notes: Fill in abbreviated names of Anostracans and Notostracans, for all others indicate presence with a check mark. Anostracan and Notostracan Abbreviations: Use first two letters of genus and species name (e.g., LIOC = *Linderiella occidentalis*, BRLI = *Branchinecta lindahli)*.
For habitat conditions use two letter abbreviation as follows: NP = Natural Pool, CP = Constructed Pool; UD = undisturbed, D = disturbed: with TT = tire tracks, T = trash, P = plowed; G = grazed, UG = ungrazed by: C = cattle, H = horses, S = sheep; AB = Algal blooms present.
(Estimate grazing regime by height of grasses and forbs and density of hoof prints) LG = light grazing, MG = moderate grazing, HG = heavy grazing.

Appendix 1. U.S. Fish and Wildlife Service – Data Sheet for Wet Season Surveys For Listed Large Branchiopods

Site or Project Name: Chacon Farms	**County:** Riverside	**Quad:** Lakeview	**Township:** 4S	**Range:** 1W	**Section:** 31,32

SURVEYOR / Permit Number: Allison Rudalevige, TE 177979-2

Date: 11/23/2022 Time: 1230 Weather Conditions: sunny, cloud 5%, wind 0-2 mph

Feature ID #	UTM (Northing, Easting, Datum)	Temp (˚C)		Depth (cm)		Surface Area (m x m)		Crustaceans					Insects				Platyhelminths (flatworms)	Habitat Condition	Notes / Voucher information
		Air	Water	Average	Est. Max.	Present	Est. Max.	Anostracans	Notostracans	Copepods	Ostracods	Cladocera	Coleoptera	Hemiptera	Diptera Culicidae	Diptera Chironomidae			
1	11 S 498192 3737627 WGS84	22	13	55	120+	2226	3654					✓		✓				CP	
2	11 S 498182 3737559 WGS84	22	20	8	22	36	600+					✓			✓			NP, D:TT	

Notes: Fill in abbreviated names of Anostracans and Notostracans, for all others indicate presence with a check mark. Anostracan and Notostracan Abbreviations: Use first two letters of genus and species name (e.g., LIOC = *Linderiella occidentalis*, BRLI = *Branchinecta lindahli)*.
For habitat conditions use two letter abbreviation as follows: NP = Natural Pool, CP = Constructed Pool; UD = undisturbed, D = disturbed: with TT = tire tracks, T = trash, P = plowed; G = grazed, UG = ungrazed by: C = cattle, H = horses, S = sheep; AB = Algal blooms present.
(Estimate grazing regime by height of grasses and forbs and density of hoof prints) LG = light grazing, MG = moderate grazing, HG = heavy grazing.

Appendix 1. U.S. Fish and Wildlife Service – Data Sheet for Wet Season Surveys For Listed Large Branchiopods

Site or Project Name: Chacon Farms	**County:** Riverside	**Quad:** Lakeview	**Township:** 4S	**Range:** 1W	**Section:** 31,32

SURVEYOR / Permit Number: Allison Rudalevige, TE 177979-2

Date: 12/01/2022 Time: 1230 Weather Conditions: overcast, cloud 90%, wind 1-3 mph

Feature ID #	UTM (Northing, Easting, Datum)	Temp (˚C)		Depth (cm)		Surface Area (m x m)		Crustaceans					Insects				Platyhelminths (flatworms)	Habitat Condition	Notes / Voucher information
		Air	Water	Average	Est. Max.	Present	Est. Max.	Anostracans	Notostracans	Copepods	Ostracods	Cladocera	Coleoptera	Hemiptera	Diptera Culicidae	Diptera Chironomidae			
1	11 S 498192 3737627 WGS84	10	12	30	120+	2240	3654					✓		✓				CP	
2	11 S 498182 3737559 WGS84																	NP, D:TT	not inundated

Notes: Fill in abbreviated names of Anostracans and Notostracans, for all others indicate presence with a check mark. Anostracan and Notostracan Abbreviations: Use first two letters of genus and species name (e.g., LIOC = *Linderiella occidentalis*, BRLI = *Branchinecta lindahli)*.
For habitat conditions use two letter abbreviation as follows: NP = Natural Pool, CP = Constructed Pool; UD = undisturbed, D = disturbed: with TT = tire tracks, T = trash, P = plowed; G = grazed, UG = ungrazed by: C = cattle, H = horses, S = sheep; AB = Algal blooms present.
(Estimate grazing regime by height of grasses and forbs and density of hoof prints) LG = light grazing, MG = moderate grazing, HG = heavy grazing.

Appendix 1. U.S. Fish and Wildlife Service – Data Sheet for Wet Season Surveys For Listed Large Branchiopods

Site or Project Name: Chacon Farms | **County:** Riverside | **Quad:** Lakeview | **Township:** 4S | **Range:** 1W | **Section:** 31,32

SURVEYOR / Permit Number: Allison Rudalevige, TE 177979-2

Date: 12/07/2022 | Time: 1115 | Weather Conditions: overcast, cloud 95%, wind 0-2 mph

Feature ID #	UTM (Northing, Easting, Datum)	Temp (˚C)		Depth (cm)		Surface Area (m x m)		Crustaceans					Insects				Platyhelminths (flatworms)	Habitat Condition	Notes / Voucher information
		Air	Water	Average	Est. Max.	Present	Est. Max.	Anostracans	Notostracans	Copepods	Ostracods	Cladocera	Coleoptera	Hemiptera	Diptera Culicidae	Diptera Chironomidae			
1	11 S 498192 3737627 WGS84	12	14	20	120+	1824	3654					✓						CP	
2	11 S 498182 3737559 WGS84																	NP, D:TT	not inundated

Notes: Fill in abbreviated names of Anostracans and Notostracans, for all others indicate presence with a check mark. Anostracan and Notostracan Abbreviations: Use first two letters of genus and species name (e.g., LIOC = *Linderiella occidentalis*, BRLI = *Branchinecta lindahli)*.
For habitat conditions use two letter abbreviation as follows: NP = Natural Pool, CP = Constructed Pool; UD = undisturbed, D = disturbed: with TT = tire tracks, T = trash, P = plowed; G = grazed, UG = ungrazed by: C = cattle, H = horses, S = sheep; AB = Algal blooms present.
(Estimate grazing regime by height of grasses and forbs and density of hoof prints) LG = light grazing, MG = moderate grazing, HG = heavy grazing.

Appendix 1. U.S. Fish and Wildlife Service – Data Sheet for Wet Season Surveys For Listed Large Branchiopods

Site or Project Name: Chacon Farms	**County:** Riverside	**Quad:** Lakeview	**Township:** 4S	**Range:** 1W	**Section:** 31,32

SURVEYOR / Permit Number: Allison Rudalevige, TE 177979-2

Date: 12/14/2022 Time: 1100 Weather Conditions: sunny, cloud 0%, wind 0-2 mph

Feature ID #	UTM (Northing, Easting, Datum)	Temp (˚C)		Depth (cm)		Surface Area (m x m)		Crustaceans					Insects				Platyhelminths (flatworms)	Habitat Condition	Notes / Voucher information
		Air	Water	Average	Est. Max.	Present	Est. Max.	Anostracans	Notostracans	Copepods	Ostracods	Cladocera	Coleoptera	Hemiptera	Diptera Culicidae	Diptera Chironomidae			
1	11 S 498192 3737627 WGS84	13	10	20	120+	1368	3654					✓		✓				CP	
2	11 S 498182 3737559 WGS84	13	17	4	22	36	600+											NP, D:TT	

Notes: Fill in abbreviated names of Anostracans and Notostracans, for all others indicate presence with a check mark. Anostracan and Notostracan Abbreviations: Use first two letters of genus and species name (e.g., LIOC = *Linderiella occidentalis*, BRLI = *Branchinecta lindahli)*.
For habitat conditions use two letter abbreviation as follows: NP = Natural Pool, CP = Constructed Pool; UD = undisturbed, D = disturbed: with TT = tire tracks, T = trash, P = plowed; G = grazed, UG = ungrazed by: C = cattle, H = horses, S = sheep; AB = Algal blooms present.
(Estimate grazing regime by height of grasses and forbs and density of hoof prints) LG = light grazing, MG = moderate grazing, HG = heavy grazing.

Appendix 1. U.S. Fish and Wildlife Service – Data Sheet for Wet Season Surveys For Listed Large Branchiopods

Site or Project Name: Chacon Farms | **County:** Riverside | **Quad:** Lakeview | **Township:** 4S | **Range:** 1W | **Section:** 31,32

SURVEYOR / Permit Number: Allison Rudalevige, TE 177979-2

Date: 12/21/2022 | Time: 1115 | Weather Conditions: sunny, cloud 0%, wind 0-2 mph

Feature ID #	UTM (Northing, Easting, Datum)	Temp (˚C)		Depth (cm)		Surface Area (m x m)		Crustaceans					Insects				Platyhelminths (flatworms)	Habitat Condition	Notes / Voucher information
		Air	Water	Average	Est. Max.	Present	Est. Max.	Anostracans	Notostracans	Copepods	Ostracods	Cladocera	Coleoptera	Hemiptera	Diptera Culicidae	Diptera Chironomidae			
1	11 S 498192 3737627 WGS84	13	13	9	120+	1088	3654					✓		✓				CP	
2	11 S 498182 3737559 WGS84	13	19	6	22	6	600+					✓						NP, D:TT	

Notes: Fill in abbreviated names of Anostracans and Notostracans, for all others indicate presence with a check mark. Anostracan and Notostracan Abbreviations: Use first two letters of genus and species name (e.g., LIOC = *Linderiella occidentalis*, BRLI = *Branchinecta lindahli)*.
For habitat conditions use two letter abbreviation as follows: NP = Natural Pool, CP = Constructed Pool; UD = undisturbed, D = disturbed: with TT = tire tracks, T = trash, P = plowed; G = grazed, UG = ungrazed by: C = cattle, H = horses, S = sheep; AB = Algal blooms present.
(Estimate grazing regime by height of grasses and forbs and density of hoof prints) LG = light grazing, MG = moderate grazing, HG = heavy grazing.

Appendix 1. U.S. Fish and Wildlife Service – Data Sheet for Wet Season Surveys For Listed Large Branchiopods

Site or Project Name: Chacon Farms	**County:** Riverside	**Quad:** Lakeview	**Township:** 4S	**Range:** 1W	**Section:** 31,32

SURVEYOR / Permit Number: Allison Rudalevige, TE 177979-2

Date: 12/28/2022 Time: 1200 Weather Conditions: partly cloudy, cloud 45%, wind 1-3 mph

Feature ID #	UTM (Northing, Easting, Datum)	Temp (˚C)		Depth (cm)		Surface Area (m x m)		Crustaceans					Insects				Platyhelminths (flatworms)	Habitat Condition	Notes / Voucher information
		Air	Water	Average	Est. Max.	Present	Est. Max.	Anostracans	Notostracans	Copepods	Ostracods	Cladocera	Coleoptera	Hemiptera	Diptera Culicidae	Diptera Chironomidae			
1	11 S 498192 3737627 WGS84	14	19	14	120+	1056	3654					✓		✓				CP	
2	11 S 498182 3737559 WGS84	14	20	4	22	20	600+					✓						NP, D:TT	

Notes: Fill in abbreviated names of Anostracans and Notostracans, for all others indicate presence with a check mark. Anostracan and Notostracan Abbreviations: Use first two letters of genus and species name (e.g., LIOC = *Linderiella occidentalis*, BRLI = *Branchinecta lindahli)*.
For habitat conditions use two letter abbreviation as follows: NP = Natural Pool, CP = Constructed Pool; UD = undisturbed, D = disturbed: with TT = tire tracks, T = trash, P = plowed; G = grazed, UG = ungrazed by: C = cattle, H = horses, S = sheep; AB = Algal blooms present.
(Estimate grazing regime by height of grasses and forbs and density of hoof prints) LG = light grazing, MG = moderate grazing, HG = heavy grazing.

Appendix 1. U.S. Fish and Wildlife Service – Data Sheet for Wet Season Surveys For Listed Large Branchiopods

Site or Project Name: Chacon Farms	**County:** Riverside	**Quad:** Lakeview	**Township:** 4S	**Range:** 1W	**Section:** 31,32

SURVEYOR / Permit Number: Allison Rudalevige, TE 177979-2

Date: 1/4/2023 Time: 1015 Weather Conditions: cloudy, cloud 100%, wind 1-3 mph

Feature ID #	UTM (Northing, Easting, Datum)	Temp (˚C)		Depth (cm)		Surface Area (m x m)		Crustaceans					Insects				Platyhelminths (flatworms)	Habitat Condition	Notes / Voucher information
		Air	Water	Average	Est. Max.	Present	Est. Max.	Anostracans	Notostracans	Copepods	Ostracods	Cladocera	Coleoptera	Hemiptera	Diptera Culicidae	Diptera Chironomidae			
1	11 S 498192 3737627 WGS84	17	12	50	120+	2140	3654					✓		✓				CP	
2	11 S 498182 3737559 WGS84	17	14	15	22	144	600+											NP, D:TT	

Notes: Fill in abbreviated names of Anostracans and Notostracans, for all others indicate presence with a check mark. Anostracan and Notostracan Abbreviations: Use first two letters of genus and species name (e.g., LIOC = *Linderiella occidentalis*, BRLI = *Branchinecta lindahli)*.
For habitat conditions use two letter abbreviation as follows: NP = Natural Pool, CP = Constructed Pool; UD = undisturbed, D = disturbed: with TT = tire tracks, T = trash, P = plowed; G = grazed, UG = ungrazed by: C = cattle, H = horses, S = sheep; AB = Algal blooms present.
(Estimate grazing regime by height of grasses and forbs and density of hoof prints) LG = light grazing, MG = moderate grazing, HG = heavy grazing.

Appendix 1. U.S. Fish and Wildlife Service – Data Sheet for Wet Season Surveys For Listed Large Branchiopods

Site or Project Name: Chacon Farms	**County:** Riverside	**Quad:** Lakeview	**Township:** 4S	**Range:** 1W	**Section:** 31,32

SURVEYOR / Permit Number: Allison Rudalevige, TE 177979-2

Date: 1/11/2023 Time: 1130 Weather Conditions: sunny, cloud 60%, wind 0-3 mph

Feature ID #	UTM (Northing, Easting, Datum)	Temp (˚C)		Depth (cm)		Surface Area (m x m)		Crustaceans					Insects				Platyhelminths (flatworms)	Habitat Condition	Notes / Voucher information
		Air	Water	Average	Est. Max.	Present	Est. Max.	Anostracans	Notostracans	Copepods	Ostracods	Cladocera	Coleoptera	Hemiptera	Diptera Culicidae	Diptera Chironomidae			
1	11 S 498192 3737627 WGS84	14	13	70	120+	2875	3654					✓		✓				CP	
2	11 S 498182 3737559 WGS84	14	14	11	22	551	600+											NP, D:TT	pond "U" shaped

Notes: Fill in abbreviated names of Anostracans and Notostracans, for all others indicate presence with a check mark. Anostracan and Notostracan Abbreviations: Use first two letters of genus and species name (e.g., LIOC = *Linderiella occidentalis*, BRLI = *Branchinecta lindahli)*.
For habitat conditions use two letter abbreviation as follows: NP = Natural Pool, CP = Constructed Pool; UD = undisturbed, D = disturbed: with TT = tire tracks, T = trash, P = plowed; G = grazed, UG = ungrazed by: C = cattle, H = horses, S = sheep; AB = Algal blooms present.
(Estimate grazing regime by height of grasses and forbs and density of hoof prints) LG = light grazing, MG = moderate grazing, HG = heavy grazing.

Appendix 1. U.S. Fish and Wildlife Service – Data Sheet for Wet Season Surveys For Listed Large Branchiopods

Site or Project Name: Chacon Farms	**County:** Riverside	**Quad:** Lakeview	**Township:** 4S	**Range:** 1W	**Section:** 31,32

SURVEYOR / Permit Number: Allison Rudalevige, TE 177979-2

Date: 1/18/2023 Time: 1215 Weather Conditions: sunny, cloud 10%, wind 0-2 mph

Feature ID #	UTM (Northing, Easting, Datum)	Temp (˚C)		Depth (cm)		Surface Area (m x m)		Crustaceans					Insects				Platyhelminths (flatworms)	Habitat Condition	Notes / Voucher information
		Air	Water	Average	Est. Max.	Present	Est. Max.	Anostracans	Notostracans	Copepods	Ostracods	Cladocera	Coleoptera	Hemiptera	Diptera Culicidae	Diptera Chironomidae			
1	11 S 498192 3737627 WGS84	13	15	120+	120+	3654	3654					✓	✓	✓				CP	
2	11 S 498182 3737559 WGS84	13	15	15	22	551	600+					✓						NP, D:TT	pond "U" shaped

Notes: Fill in abbreviated names of Anostracans and Notostracans, for all others indicate presence with a check mark. Anostracan and Notostracan Abbreviations: Use first two letters of genus and species name (e.g., LIOC = *Linderiella occidentalis*, BRLI = *Branchinecta lindahli)*.
For habitat conditions use two letter abbreviation as follows: NP = Natural Pool, CP = Constructed Pool; UD = undisturbed, D = disturbed: with TT = tire tracks, T = trash, P = plowed; G = grazed, UG = ungrazed by: C = cattle, H = horses, S = sheep; AB = Algal blooms present.
(Estimate grazing regime by height of grasses and forbs and density of hoof prints) LG = light grazing, MG = moderate grazing, HG = heavy grazing.

Appendix 1. U.S. Fish and Wildlife Service – Data Sheet for Wet Season Surveys For Listed Large Branchiopods

Site or Project Name: Chacon Farms	**County:** Riverside	**Quad:** Lakeview	**Township:** 4S	**Range:** 1W	**Section:** 31,32

SURVEYOR / Permit Number: Allison Rudalevige, TE 177979-2

Date: 1/26/2023 Time: 1350 Weather Conditions: sunny, cloud 0%, wind 5-10 mph

Feature ID #	UTM (Northing, Easting, Datum)	Temp (˚C)		Depth (cm)		Surface Area (m x m)		Crustaceans					Insects				Platyhelminths (flatworms)	Habitat Condition	Notes / Voucher information
		Air	Water	Average	Est. Max.	Present	Est. Max.	Anostracans	Notostracans	Copepods	Ostracods	Cladocera	Coleoptera	Hemiptera	Diptera Culicidae	Diptera Chironomidae			
1	11 S 498192 3737627 WGS84	12	11	110	120+	3375	3654					✓		✓				CP	
2	11 S 498182 3737559 WGS84	12	18	10	22	76	600+					✓	✓					NP, D:TT	

Notes: Fill in abbreviated names of Anostracans and Notostracans, for all others indicate presence with a check mark. Anostracan and Notostracan Abbreviations: Use first two letters of genus and species name (e.g., LIOC = *Linderiella occidentalis*, BRLI = *Branchinecta lindahli)*.
For habitat conditions use two letter abbreviation as follows: NP = Natural Pool, CP = Constructed Pool; UD = undisturbed, D = disturbed: with TT = tire tracks, T = trash, P = plowed; G = grazed, UG = ungrazed by: C = cattle, H = horses, S = sheep; AB = Algal blooms present.
(Estimate grazing regime by height of grasses and forbs and density of hoof prints) LG = light grazing, MG = moderate grazing, HG = heavy grazing.

Appendix 1. U.S. Fish and Wildlife Service – Data Sheet for Wet Season Surveys For Listed Large Branchiopods

Site or Project Name: Chacon Farms	**County:** Riverside	**Quad:** Lakeview	**Township:** 4S	**Range:** 1W	**Section:** 31,32

SURVEYOR / Permit Number: Allison Rudalevige, TE 177979-2

Date: 2/1/2023 | Time: 1320 | Weather Conditions: sunny, cloud 0%, wind 2-5 mph

Feature ID #	UTM (Northing, Easting, Datum)	Temp (˚C)		Depth (cm)		Surface Area (m x m)		Crustaceans					Insects				Platyhelminths (flatworms)	Habitat Condition	Notes / Voucher information
		Air	Water	Average	Est. Max.	Present	Est. Max.	Anostracans	Notostracans	Copepods	Ostracods	Cladocera	Coleoptera	Hemiptera	Diptera Culicidae	Diptera Chironomidae			
1	11 S 498192 3737627 WGS84	19	16	110	120+	3240	3654					✓	✓	✓				CP	
2	11 S 498182 3737559 WGS84	19	20	8	22	57	600+					✓	✓					NP, D:TT	

Notes: Fill in abbreviated names of Anostracans and Notostracans, for all others indicate presence with a check mark. Anostracan and Notostracan Abbreviations: Use first two letters of genus and species name (e.g., LIOC = *Linderiella occidentalis*, BRLI = *Branchinecta lindahli)*.
For habitat conditions use two letter abbreviation as follows: NP = Natural Pool, CP = Constructed Pool; UD = undisturbed, D = disturbed: with TT = tire tracks, T = trash, P = plowed; G = grazed, UG = ungrazed by: C = cattle, H = horses, S = sheep; AB = Algal blooms present.
(Estimate grazing regime by height of grasses and forbs and density of hoof prints) LG = light grazing, MG = moderate grazing, HG = heavy grazing.

Appendix 1. U.S. Fish and Wildlife Service – Data Sheet for Wet Season Surveys For Listed Large Branchiopods

Site or Project Name: Chacon Farms | **County:** Riverside | **Quad:** Lakeview | **Township:** 4S | **Range:** 1W | **Section:** 31,32

SURVEYOR / Permit Number: Allison Rudalevige, TE 177979-2

Date: 2/9/2023 | Time: 1010 | Weather Conditions: sunny, cloud 0%, wind 1-3 mph

Feature ID #	UTM (Northing, Easting, Datum)	Temp (˚C)		Depth (cm)		Surface Area (m x m)		Crustaceans					Insects				Platyhelminths (flatworms)	Habitat Condition	Notes / Voucher information
		Air	Water	Average	Est. Max.	Present	Est. Max.	Anostracans	Notostracans	Copepods	Ostracods	Cladocera	Coleoptera	Hemiptera	Diptera Culicidae	Diptera Chironomidae			
1	11 S 498192 3737627 WGS84	13	12	110	120+	3276	3654					✓		✓				CP	120 days inundation
2	11 S 498182 3737559 WGS84	13	9	9	22	432	600+					✓						NP, D:TT	pond "U" shaped

Notes: Fill in abbreviated names of Anostracans and Notostracans, for all others indicate presence with a check mark. Anostracan and Notostracan Abbreviations: Use first two letters of genus and species name (e.g., LIOC = *Linderiella occidentalis*, BRLI = *Branchinecta lindahli)*.
For habitat conditions use two letter abbreviation as follows: NP = Natural Pool, CP = Constructed Pool; UD = undisturbed, D = disturbed: with TT = tire tracks, T = trash, P = plowed; G = grazed, UG = ungrazed by: C = cattle, H = horses, S = sheep; AB = Algal blooms present.
(Estimate grazing regime by height of grasses and forbs and density of hoof prints) LG = light grazing, MG = moderate grazing, HG = heavy grazing.

Appendix 1. U.S. Fish and Wildlife Service – Data Sheet for Wet Season Surveys For Listed Large Branchiopods

Site or Project Name: Chacon Farms | **County:** Riverside | **Quad:** Lakeview | **Township:** 4S | **Range:** 1W | **Section:** 31,32

SURVEYOR / Permit Number: Allison Rudalevige, TE 177979-2

Date: 2/15/2023 | Time: 1315 | Weather Conditions: sunny, cloud 0%, wind 0-2 mph

Feature ID #	UTM (Northing, Easting, Datum)	Temp (˚C)		Depth (cm)		Surface Area (m x m)		Crustaceans					Insects				Platyhelminths (flatworms)	Habitat Condition	Notes / Voucher information
		Air	Water	Average	Est. Max.	Present	Est. Max.	Anostracans	Notostracans	Copepods	Ostracods	Cladocera	Coleoptera	Hemiptera	Diptera Culicidae	Diptera Chironomidae			
1	11 S 498192 3737627 WGS84																		>120 days inundation
2	11 S 498182 3737559 WGS84	11	20	14	22	570	600+					✓	✓					NP, D:TT	pond "U" shaped

Notes: Fill in abbreviated names of Anostracans and Notostracans, for all others indicate presence with a check mark. Anostracan and Notostracan Abbreviations: Use first two letters of genus and species name (e.g., LIOC = *Linderiella occidentalis*, BRLI = *Branchinecta lindahli)*.
For habitat conditions use two letter abbreviation as follows: NP = Natural Pool, CP = Constructed Pool; UD = undisturbed, D = disturbed: with TT = tire tracks, T = trash, P = plowed; G = grazed, UG = ungrazed by: C = cattle, H = horses, S = sheep; AB = Algal blooms present.
(Estimate grazing regime by height of grasses and forbs and density of hoof prints) LG = light grazing, MG = moderate grazing, HG = heavy grazing.

Appendix 1. U.S. Fish and Wildlife Service – Data Sheet for Wet Season Surveys For Listed Large Branchiopods

Site or Project Name: Chacon Farms	**County:** Riverside	**Quad:** Lakeview	**Township:** 4S	**Range:** 1W	**Section:** 31,32

SURVEYOR / Permit Number: Allison Rudalevige, TE 177979-2

Date: 2/22/2023 Time: 1030 Weather Conditions: partly cloudy, cloud 40%, wind 5-8 mph

Feature ID #	UTM (Northing, Easting, Datum)	Temp (˚C)		Depth (cm)		Surface Area (m x m)		Crustaceans					Insects				Platyhelminths (flatworms)	Habitat Condition	Notes / Voucher information
		Air	Water	Average	Est. Max.	Present	Est. Max.	Anostracans	Notostracans	Copepods	Ostracods	Cladocera	Coleoptera	Hemiptera	Diptera Culicidae	Diptera Chironomidae			
1	11 S 498192 3737627 WGS84																		>120 days inundation
2	11 S 498182 3737559 WGS84	11	14	10	22	95	600+					✓			✓			NP, D:TT	

Notes: Fill in abbreviated names of Anostracans and Notostracans, for all others indicate presence with a check mark. Anostracan and Notostracan Abbreviations: Use first two letters of genus and species name (e.g., LIOC = *Linderiella occidentalis*, BRLI = *Branchinecta lindahli)*.
For habitat conditions use two letter abbreviation as follows: NP = Natural Pool, CP = Constructed Pool; UD = undisturbed, D = disturbed: with TT = tire tracks, T = trash, P = plowed; G = grazed, UG = ungrazed by: C = cattle, H = horses, S = sheep; AB = Algal blooms present.
(Estimate grazing regime by height of grasses and forbs and density of hoof prints) LG = light grazing, MG = moderate grazing, HG = heavy grazing.

Appendix 1. U.S. Fish and Wildlife Service – Data Sheet for Wet Season Surveys For Listed Large Branchiopods

Site or Project Name: Chacon Farms	**County:** Riverside	**Quad:** Lakeview	**Township:** 4S	**Range:** 1W	**Section:** 31,32

SURVEYOR / Permit Number: Allison Rudalevige, TE 177979-2

Date: 3/1/2023 | Time: 1100 | Weather Conditions: cloudy, showers, cloud 100%, wind 5-10 mph

Feature ID #	UTM (Northing, Easting, Datum)	Temp (˚C)		Depth (cm)		Surface Area (m x m)		Crustaceans					Insects				Platyhelminths (flatworms)	Habitat Condition	Notes / Voucher information
		Air	Water	Average	Est. Max.	Present	Est. Max.	Anostracans	Notostracans	Copepods	Ostracods	Cladocera	Coleoptera	Hemiptera	Diptera Culicidae	Diptera Chironomidae			
1	11 S 498192 3737627 WGS84																		>120 days inundation
2	11 S 498182 3737559 WGS84	8	10	22	22	600+	600+					✓			✓			NP, D:TT	pond overflowing

Notes: Fill in abbreviated names of Anostracans and Notostracans, for all others indicate presence with a check mark. Anostracan and Notostracan Abbreviations: Use first two letters of genus and species name (e.g., LIOC = *Linderiella occidentalis*, BRLI = *Branchinecta lindahli)*.
For habitat conditions use two letter abbreviation as follows: NP = Natural Pool, CP = Constructed Pool; UD = undisturbed, D = disturbed: with TT = tire tracks, T = trash, P = plowed; G = grazed, UG = ungrazed by: C = cattle, H = horses, S = sheep; AB = Algal blooms present.
(Estimate grazing regime by height of grasses and forbs and density of hoof prints) LG = light grazing, MG = moderate grazing, HG = heavy grazing.

Appendix 1. U.S. Fish and Wildlife Service – Data Sheet for Wet Season Surveys For Listed Large Branchiopods

Site or Project Name: Chacon Farms	**County:** Riverside	**Quad:** Lakeview	**Township:** 4S	**Range:** 1W	**Section:** 31,32

SURVEYOR / Permit Number: Allison Rudalevige, TE 177979-2

Date: 3/8/2023 Time: 1030 Weather Conditions: sunny, cloud 60%, wind 3-5 mph

Feature ID #	UTM (Northing, Easting, Datum)	Temp (˚C)		Depth (cm)		Surface Area (m x m)		Crustaceans					Insects				Platyhelminths (flatworms)	Habitat Condition	Notes / Voucher information
		Air	Water	Average	Est. Max.	Present	Est. Max.	Anostracans	Notostracans	Copepods	Ostracods	Cladocera	Coleoptera	Hemiptera	Diptera Culicidae	Diptera Chironomidae			
1	11 S 498192 3737627 WGS84																		>120 days inundation
2	11 S 498182 3737559 WGS84	15	20	12	22	442	600+					✓	✓					NP, D:TT	pond "U" shaped

Notes: Fill in abbreviated names of Anostracans and Notostracans, for all others indicate presence with a check mark. Anostracan and Notostracan Abbreviations: Use first two letters of genus and species name (e.g., LIOC = *Linderiella occidentalis*, BRLI = *Branchinecta lindahli)*.
For habitat conditions use two letter abbreviation as follows: NP = Natural Pool, CP = Constructed Pool; UD = undisturbed, D = disturbed: with TT = tire tracks, T = trash, P = plowed; G = grazed, UG = ungrazed by: C = cattle, H = horses, S = sheep; AB = Algal blooms present.
(Estimate grazing regime by height of grasses and forbs and density of hoof prints) LG = light grazing, MG = moderate grazing, HG = heavy grazing.

Appendix 1. U.S. Fish and Wildlife Service – Data Sheet for Wet Season Surveys For Listed Large Branchiopods

Site or Project Name: Chacon Farms | **County:** Riverside | **Quad:** Lakeview | **Township:** 4S | **Range:** 1W | **Section:** 31,32

SURVEYOR / Permit Number: Allison Rudalevige, TE 177979-2

Date: 3/14/2023 | Time: 0945 | Weather Conditions: cloudy, cloud 100%, wind 1-3 mph

Feature ID #	UTM (Northing, Easting, Datum)	Temp (˚C)		Depth (cm)		Surface Area (m x m)		Crustaceans					Insects				Platyhelminths (flatworms)	Habitat Condition	Notes / Voucher information
		Air	Water	Average	Est. Max.	Present	Est. Max.	Anostracans	Notostracans	Copepods	Ostracods	Cladocera	Coleoptera	Hemiptera	Diptera Culicidae	Diptera Chironomidae			
1	11 S 498192 3737627 WGS84																		>120 days inundation
2	11 S 498182 3737559 WGS84	17	15	13	22	560	600+					✓						NP, D:TT	pond "U" shaped

Notes: Fill in abbreviated names of Anostracans and Notostracans, for all others indicate presence with a check mark. Anostracan and Notostracan Abbreviations: Use first two letters of genus and species name (e.g., LIOC = *Linderiella occidentalis*, BRLI = *Branchinecta lindahli)*.
For habitat conditions use two letter abbreviation as follows: NP = Natural Pool, CP = Constructed Pool; UD = undisturbed, D = disturbed: with TT = tire tracks, T = trash, P = plowed; G = grazed, UG = ungrazed by: C = cattle, H = horses, S = sheep; AB = Algal blooms present.
(Estimate grazing regime by height of grasses and forbs and density of hoof prints) LG = light grazing, MG = moderate grazing, HG = heavy grazing.

Appendix 1. U.S. Fish and Wildlife Service – Data Sheet for Wet Season Surveys For Listed Large Branchiopods

Site or Project Name: Chacon Farms	**County:** Riverside	**Quad:** Lakeview	**Township:** 4S	**Range:** 1W	**Section:** 31,32

SURVEYOR / Permit Number: Allison Rudalevige, TE 177979-2

Date: 3/23/2023 Time: 1215 Weather Conditions: cloudy, showers, cloud 100%, wind 1-3 mph

Feature ID #	UTM (Northing, Easting, Datum)	Temp (˚C)		Depth (cm)		Surface Area (m x m)		Crustaceans					Insects				Platyhelminths (flatworms)	Habitat Condition	Notes / Voucher information
		Air	Water	Average	Est. Max.	Present	Est. Max.	Anostracans	Notostracans	Copepods	Ostracods	Cladocera	Coleoptera	Hemiptera	Diptera Culicidae	Diptera Chironomidae			
1	11 S 498192 3737627 WGS84																		>120 days inundation
2	11 S 498182 3737559 WGS84	12	15	17	22	600+	600+					✓						NP, D:TT	pond overflowing

Notes: Fill in abbreviated names of Anostracans and Notostracans, for all others indicate presence with a check mark. Anostracan and Notostracan Abbreviations: Use first two letters of genus and species name (e.g., LIOC = *Linderiella occidentalis*, BRLI = *Branchinecta lindahli)*.
For habitat conditions use two letter abbreviation as follows: NP = Natural Pool, CP = Constructed Pool; UD = undisturbed, D = disturbed: with TT = tire tracks, T = trash, P = plowed; G = grazed, UG = ungrazed by: C = cattle, H = horses, S = sheep; AB = Algal blooms present.
(Estimate grazing regime by height of grasses and forbs and density of hoof prints) LG = light grazing, MG = moderate grazing, HG = heavy grazing.

Appendix 1. U.S. Fish and Wildlife Service – Data Sheet for Wet Season Surveys For Listed Large Branchiopods

Site or Project Name: Chacon Farms	**County:** Riverside	**Quad:** Lakeview	**Township:** 4S	**Range:** 1W	**Section:** 31,32

SURVEYOR / Permit Number: Allison Rudalevige, TE 177979-2

Date: 3/31/2023 Time: 1015 Weather Conditions: sunny, cloud 10%, wind 0-3 mph

Feature ID #	UTM (Northing, Easting, Datum)	Temp (˚C)		Depth (cm)		Surface Area (m x m)		Crustaceans					Insects				Platyhelminths (flatworms)	Habitat Condition	Notes / Voucher information
		Air	Water	Average	Est. Max.	Present	Est. Max.	Anostracans	Notostracans	Copepods	Ostracods	Cladocera	Coleoptera	Hemiptera	Diptera Culicidae	Diptera Chironomidae			
1	11 S 498192 3737627 WGS84																		>120 days inundation
2	11 S 498182 3737559 WGS84	18	15	15	22	600+	600+					✓	✓	✓	✓			NP, D:TT	pond overflowing

Notes: Fill in abbreviated names of Anostracans and Notostracans, for all others indicate presence with a check mark. Anostracan and Notostracan Abbreviations: Use first two letters of genus and species name (e.g., LIOC = *Linderiella occidentalis*, BRLI = *Branchinecta lindahli)*.
For habitat conditions use two letter abbreviation as follows: NP = Natural Pool, CP = Constructed Pool; UD = undisturbed, D = disturbed: with TT = tire tracks, T = trash, P = plowed; G = grazed, UG = ungrazed by: C = cattle, H = horses, S = sheep; AB = Algal blooms present.
(Estimate grazing regime by height of grasses and forbs and density of hoof prints) LG = light grazing, MG = moderate grazing, HG = heavy grazing.

Appendix 1. U.S. Fish and Wildlife Service – Data Sheet for Wet Season Surveys For Listed Large Branchiopods

Site or Project Name: Chacon Farms	**County:** Riverside	**Quad:** Lakeview	**Township:** 4S	**Range:** 1W	**Section:** 31,32

SURVEYOR / Permit Number: Allison Rudalevige, TE 177979-2

Date: 4/5/2023 Time: 1130 Weather Conditions: sunny, cloud 0%, wind 0-3 mph

Feature ID #	UTM (Northing, Easting, Datum)	Temp (˚C)		Depth (cm)		Surface Area (m x m)		Crustaceans					Insects				Platyhelminths (flatworms)	Habitat Condition	Notes / Voucher information
		Air	Water	Average	Est. Max.	Present	Est. Max.	Anostracans	Notostracans	Copepods	Ostracods	Cladocera	Coleoptera	Hemiptera	Diptera Culicidae	Diptera Chironomidae			
1	11 S 498192 3737627 WGS84																		>120 days inundation
2	11 S 498182 3737559 WGS84	18	20	15	22	600+	600+					✓			✓			NP, D:TT	pond overflowing

Notes: Fill in abbreviated names of Anostracans and Notostracans, for all others indicate presence with a check mark. Anostracan and Notostracan Abbreviations: Use first two letters of genus and species name (e.g., LIOC = *Linderiella occidentalis*, BRLI = *Branchinecta lindahli)*.
For habitat conditions use two letter abbreviation as follows: NP = Natural Pool, CP = Constructed Pool; UD = undisturbed, D = disturbed: with TT = tire tracks, T = trash, P = plowed; G = grazed, UG = ungrazed by: C = cattle, H = horses, S = sheep; AB = Algal blooms present.
(Estimate grazing regime by height of grasses and forbs and density of hoof prints) LG = light grazing, MG = moderate grazing, HG = heavy grazing.

Appendix 1. U.S. Fish and Wildlife Service – Data Sheet for Wet Season Surveys For Listed Large Branchiopods

Site or Project Name: Chacon Farms | **County:** Riverside | **Quad:** Lakeview | **Township:** 4S | **Range:** 1W | **Section:** 31,32

SURVEYOR / Permit Number: Allison Rudalevige, TE 177979-2

Date: 4/12/2023 | Time: 1330 | Weather Conditions: sunny, cloud 0%, wind 0-3 mph

Feature ID #	UTM (Northing, Easting, Datum)	Temp (˚C)		Depth (cm)		Surface Area (m x m)		Crustaceans					Insects				Platyhelminths (flatworms)	Habitat Condition	Notes / Voucher information
		Air	Water	Average	Est. Max.	Present	Est. Max.	Anostracans	Notostracans	Copepods	Ostracods	Cladocera	Coleoptera	Hemiptera	Diptera Culicidae	Diptera Chironomidae			
1	11 S 498192 3737627 WGS84																		>120 days inundation
2	11 S 498182 3737559 WGS84	21	20	5	22	39	600+					✓	✓		✓			NP, D:TT	120 days inundation

Notes: Fill in abbreviated names of Anostracans and Notostracans, for all others indicate presence with a check mark. Anostracan and Notostracan Abbreviations: Use first two letters of genus and species name (e.g., LIOC = *Linderiella occidentalis*, BRLI = *Branchinecta lindahli)*.
For habitat conditions use two letter abbreviation as follows: NP = Natural Pool, CP = Constructed Pool; UD = undisturbed, D = disturbed: with TT = tire tracks, T = trash, P = plowed; G = grazed, UG = ungrazed by: C = cattle, H = horses, S = sheep; AB = Algal blooms present.
(Estimate grazing regime by height of grasses and forbs and density of hoof prints) LG = light grazing, MG = moderate grazing, HG = heavy grazing.

MEMORANDUM

January 24, 2024

To:
Richard Michael
Ramona Dairy, LLC

From:
Amber Heredia
Allison D. Rudalevige
Psomas

Subject: Summary of Dry Season Soil Collection for Vernal Pool Branchiopods Conducted for the Chacon Farms Property in the City of San Jacinto, California

---

This memo summarizes dry season soil collection activities conducted for vernal pool branchiopods (i.e., fairy shrimp) for the Chacon Farms Property (hereinafter referred to as the "Project site") located in the City of San Jacinto in Riverside County, California (Exhibit 1). The Project site is on the U.S. Geological Survey's Lakeview 7.5-minute quadrangle of the San Bernardino Meridian at Township 4 South, Range 1 West, Section 31 and 32 (Exhibit 2). The proposed Project would provide a new residential housing community. The Project's site plan is still under development and subject to change. Currently, the Project plans to retain the on-site retention basin in the northwestern portion of the Project site.

A complete fairy shrimp survey consists of one wet season survey and one dry season survey within a three-year period. Notification of wet and dry season surveys was submitted to the U.S. Fish and Wildlife Service (USFWS) on September 22, 2022. Wet season surveys were performed between October 14, 2022, and April 12, 2023; no fairy shrimp were observed. Soil sampling for dry season surveys was conducted in accordance with the USFWS' *Survey Guidelines for the Listed Large Branchiopods*.[1] Soil samples were collected by Psomas Senior Biologist Allison Rudalevige (TE No. 177979-3), whose permit authorizes collection of an unquantified number of fairy shrimp cysts contained within soil samples pursuant to Special Term and Condition 7.d of the permit noted above.

The sampling area for vernal pool branchiopods was assessed during a general survey for the Project.[2] An artificial basin (Pond 1) was observed in the northwestern corner of the Project site. During wet season surveys, a second area of ponding (Pond 2) was observed just south of the basin. It should be noted that the second area of ponding is a portion of the active agricultural field. Ponding was likely a result of cropland irrigation coupled with the very high rainfall over the 2022–2023 wet season; rainfall in the Project region over the 2022–2023 season was 16.84 inches compared to an average of 12.20 inches (NOAA 2023[3]). Nevertheless, because this area held water over the wet season survey period, dry season samples were collected from the area. Therefore, a total of two features had soils collected for processing (Exhibit 3). Attachment A provides representative photographs of the two sampled features.

Soil samples were collected on August 1, 2023. The number of soil samples collected was based upon the feature size (i.e., maximum area of inundation observed during wet season surveys). Pond 1 had a maximum size of approximately 3,654 square meters and 100 samples were collected. Pond 2 had a maximum size of approximately 600 square meters and 50 samples were collected. Between 50 and 100 milliliters of soil was collected from each of the sampling points. Soils were dry at the time of sampling. The area around Pond 2 had been graded/tilled following the end of the wet season surveys. Intact clumps

1 U.S. Fish and Wildlife Service. 2017 (November 7). *Survey Guidelines for the Listed Large Branchiopods*. Sacramento, CA: USFWS.
2 Psomas. 2022 (November 28). *Habitat Assessment for Chacon Farms Property*. Santa Ana, CA: Psomas.
3 National Oceanic and Atmospheric Administration (NOAA). 2023 (July 5, date accessed). Regional Climate Center (RCC) Agricultural Applied Climate Information System (AgACIS): San Jacinto, CA station. agacis.rcc-acis.org/.

of soil were prioritized for sampling. A hand spade was used to carefully lift soil from the top 1 to 3 centimeters of the soil surface. Care was taken to leave the soil in clumps to protect cysts that might be present. Soil was placed in a ziptop plastic bag, which was labeled and sealed. Soil samples were shipped to Helm Biological Consulting (Brent Helm TE #795930-12) for analysis and culturing. A small number of *Branchinecta* sp. cysts were observed in the soil samples for both features. However, no cysts hatched during processing.

At the suggestion of Helm Biological Consulting, additional soil was collected to increase the number of cysts to increase the probability of collecting cysts that would hatch. On September 29, 2023, additional soil was collected from Pond 2; Pond 1 was inundated at the time. On October 13, 2023, additional soil was collected from Pond 1. Approximately 2/3 of the pond was inundated; soil was collected from dry areas. The additional soil samples were shipped to Helm Biological Consulting for analysis and culturing. The second set of soil samples from Ponds 1 and 2 contained *Branchinecta* sp. cysts. No cysts hatched during processing of Pond 2 samples. A single cyst from Pond 1 hatched and was reared to maturity. It was identified as versatile fairy shrimp (*Branchinecta lindahli*), a common fairy shrimp species. Because only one cyst hatched out of all the cysts in four samples (i.e., two samples for two pond features) that each went through multiple rounds of hatching treatments, the results was determined not adequate to determine whether the federally Threatened vernal pool fairy shrimp (*Branchinecta lynchi*) was present or absent. Therefore, the *Branchinecta* cysts have been transferred to Caren Goldberg (Washington State University) for DNA extraction and analysis using methods optimized in Steele et al. (2009).[4] Sequences will be analyzed for a match with vernal pool fairy shrimp, the federally Threatened species, or versatile fairy shrimp, a common fairy shrimp species. Additionally, a qPCR assay may be used to detect versatile fairy shrimp DNA. Detailed cyst analysis, culturing methods and results, and DNA results will be provided to the USFWS under separate covers.

If you have any questions regarding the content of this memo, please contact Allison Rudalevige at 714.751.7373.

I certify that the information in this survey report and attached exhibits fully and accurately represents my work.



Allison D. Rudalevige (TE No. 177979-3)
Senior Biologist

Enclosures: Exhibits 1–3
Attachment A – Representative Photographs

cc: Stacey Love, USFWS
Chad Hirano, CDFW

R:\Projects\4RAM\020100\Technical Reports\Fairy Shrimp\Dry Season Memo-012424.docx

[4] Steele, A.N., M.A. Simovich, D. Pepino, K. McNamarra Schroeder, A.G. Vandergast, and A.J. Bohobak. 2009. Optimized DNA Extraction Methods for Encysted Embryos of the Endangered Fairy Shrimp, *Branchinecta sandiegonensis*. *Conservation Genetics* 10:1777–1781.



Aerial Source: NearMap 2023

D:\Projects\4RAM_BaseFiles\Chacon_Farms\PRO\Chacon_Farms_Project\Chacon_Farms_Project.aprx\ex_Project_Location

Project Location

Exhibit 1

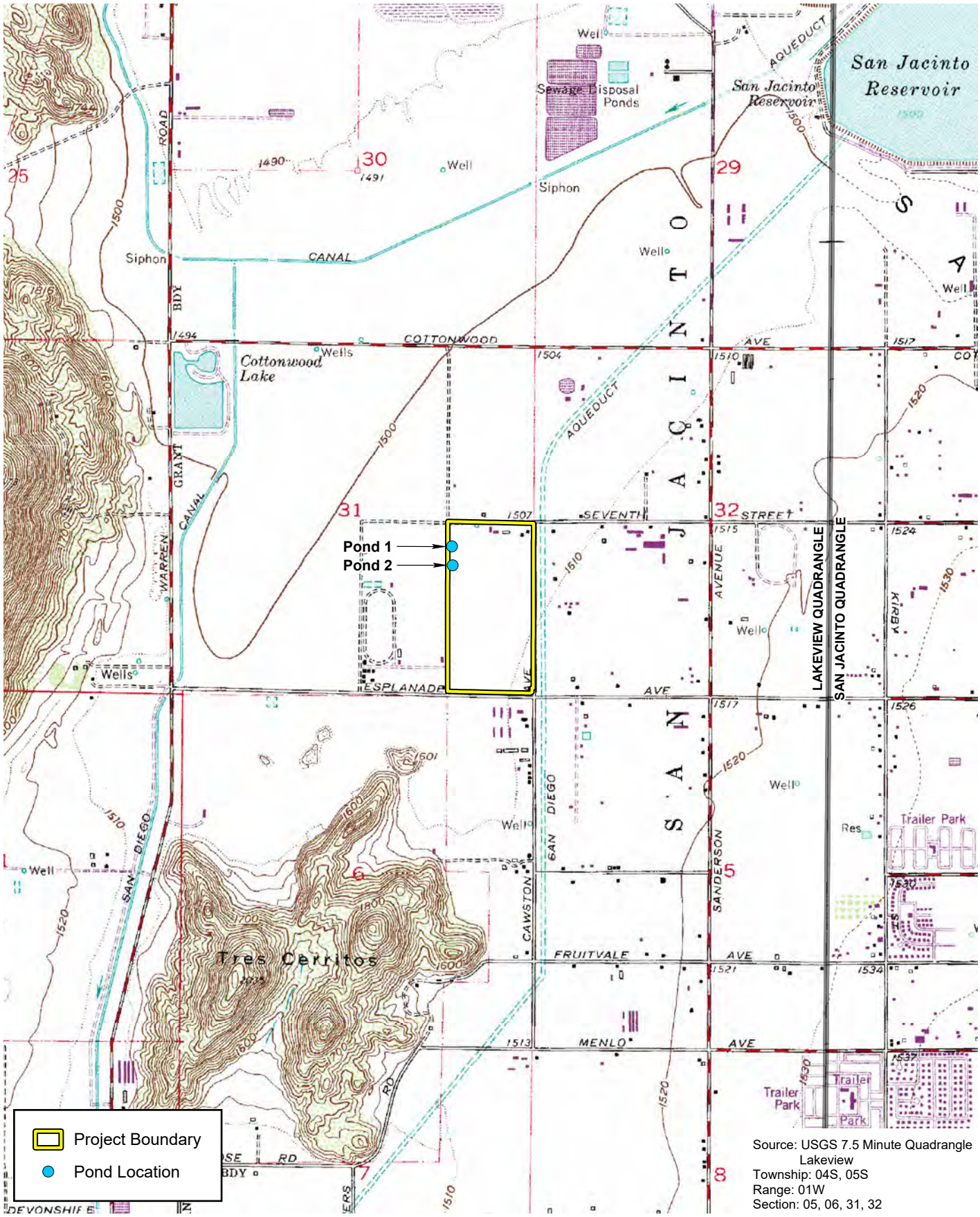
Chacon Farms Property

N
W E
S

1,000 500 0 1,000 Feet

PSOMAS

(Rev: 1-03-2024 PLO) R:\Projects\4RAM\020100\Graphics\FShrimp_Dry\ex_Project_Location.pdf



Source: USGS 7.5 Minute Quadrangle
Lakeview
Township: 04S, 05S
Range: 01W
Section: 05, 06, 31, 32

U.S. Geological Survey 7.5-Minute Quadrangle

Exhibit 2

Chacon Farms Property

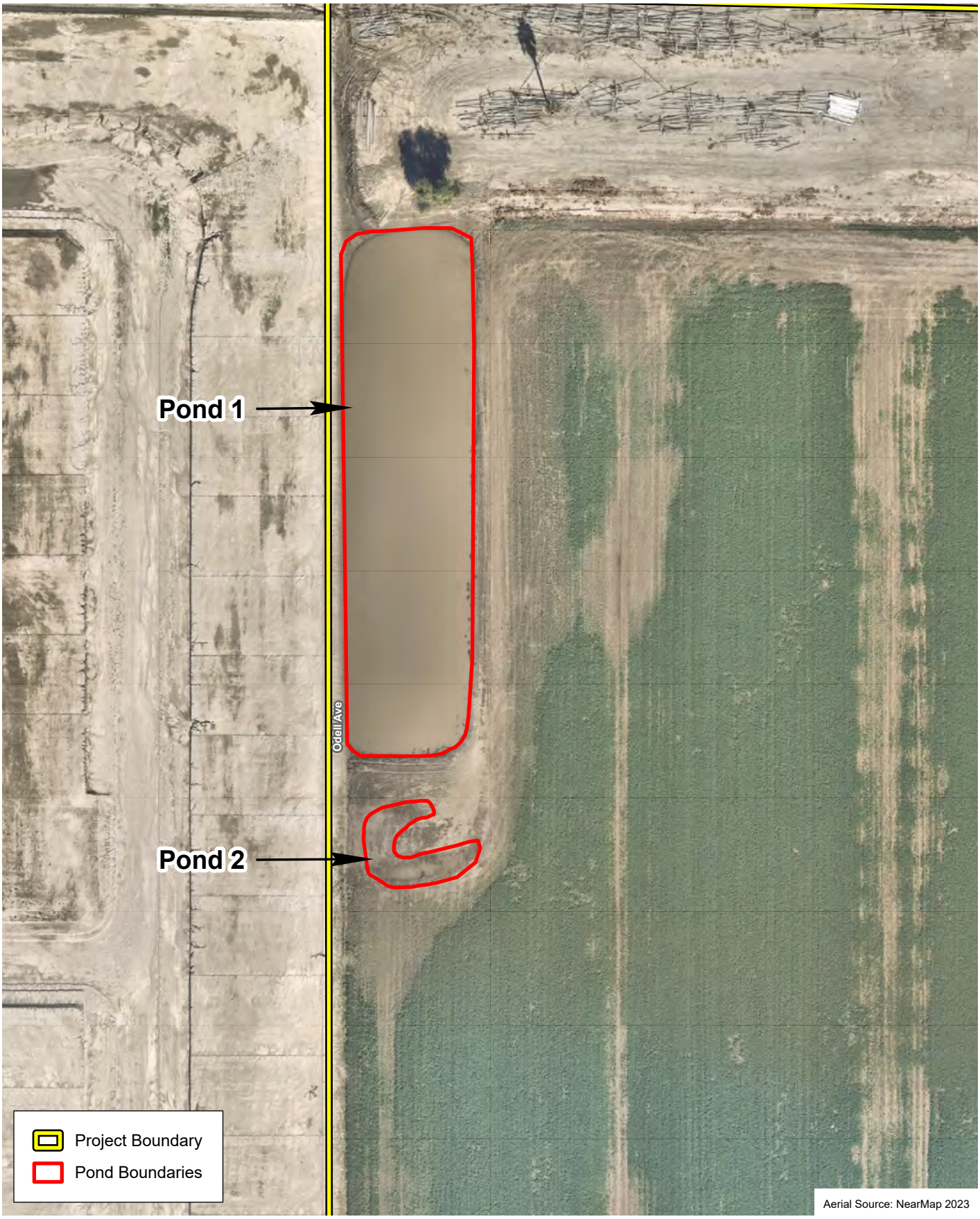
N W E S

2,000 1,000 0 2,000 Feet

PSOMAS

(Rev: 1-03-2024 PLO) R:\Projects\4RAM\020100\Graphics\FShrimp_Dry\ex_USGS.pdf

D:\Projects\4RAM_BaseFiles\Chacon_Farms\PRO\Chacon_Farms_Project\Chacon_Farms_Project.aprx\ex_USGS



D:\Projects\4RAM_BaseFiles\Chacon_Farms\PRO\Chacon_Farms_Project\Chacon_Farms_Project.aprx\Pond Features Map

Pond Features

Exhibit 3

Chacon Farms Property

N W E S

100 50 0 100 Feet

PSOMAS

(Rev: 1-03-2024 PLO) R:\Projects\4RAM\020100\Graphics\FShrimp_Dry\ex_PondFeatures.pdf

ATTACHMENT A

REPRESENTATIVE PHOTOGRAPHS



Photo 1. Overview of the northwestern corner of the Project site from southeast of 7th Street and Odell Avenue. Photo taken by Allison D. Rudalevige (ADR) of Pond 1 on August 1, 2023.



Photo 2. Undisturbed soils in Pond 1. Photo taken by Allison D. Rudalevige (ADR) on August 1, 2023.

D:\Projects\4RAM_BaseFiles\Chacon_Farms\Graphics\FShrimp_Dry\AttA_Photos1.ai

Representative Photographs

Attachment A-1

Chacon Farms Property

PSOMAS



Photo 3. Overview of the northwestern portion of the Project site from southeast of 7th Street and Odell Avenue. Photo taken by Allison D. Rudalevige (ADR) of Pond 2 on August 1, 2023.



Photo 4. Overview of the northwestern portion of the Project site from southeast of 7th Street and Odell Avenue. Photo taken by Allison D. Rudalevige (ADR) of Pond 2 on September 29, 2023.

D:\Projects\4RAM_BaseFiles\Chacon_Farms\Graphics\FShrimp_Dry\AttA_Photos2.ai

Representative Photographs

Attachment A-2

Chacon Farms Property

PSOMAS

DRY SOIL ANALYSIS AND CYSTS CULTURING FOR THE DETECTION OF FEDERALLY-LISTED LARGE BRANCHIOPODS AT THE CHACON FARMS-CAWSTON AVENUE PROJECT SITE, HEMET, RIVERSIDE COUNTY, CALIFORNIA



Prepared for:

PSOMAS

PSOMAS
5 Hutton Centre Dr., Ste 300
Santa Ana, CA 92707
***Contact*: Amber Heredia**
(916) 335-0503

***Prepared by*:**

HELM BIOLOGICAL CONSULTING
4600 Karchner Rd, Sheridan, CA 95681

HELM BIOLOGICAL CONSULTING
4600 Karchner Road
Sheridan, CA 95681
***Contact*: Dr. Brent Helm**
(530) 633-0220

February 2024

HELM
BIOLOGICAL CONSULTING
A Tansley Team Division
4600 Karchner Rd, Sheridan, CA 95681

DRY SOIL ANALYSIS AND CYSTS CULTURING FOR THE DETECTION OF FEDERALLY-LISTED LARGE BRANCHIOPODS AT THE CHACON FARMS-CAWSTON AVENUE PROJECT, HEMET, RIVERSIDE COUNTY, CALIFORNIA

INTRODUCTION

Helm Biological Consulting (HBC), a division of Tansley Team, Inc., was contracted by Psomas to perform an analysis of soils and cysts culturing collected from dry seasonally inundated depressions (hereafter "ponds") at the Chacon Farms-Cawston Avenue Project (hereafter "Project"), for the presence of large branchiopods (fairy shrimp, tadpole shrimp, and clam shrimp) that are listed as threatened or endangered under the federal Endangered Species Act (e.g., the endangered Riverside fairy shrimp [*Streptocephalus woottoni*], and the threatened vernal pool fairy shrimp [*Branchinecta lynchi*]).

The Project is located in the City of San Jacinto in Riverside County, California, (Figure 1). The project involves construction of a new residential development. The Project is located on the eastern ½ of the south-eastern ¼ of Section 31, Township 4 South, Range 1 West, and San Bernardino Base & Meridian of the U.S. Geological Survey's (USGS') Lakeview 7.5-minute quadrangle map; approximate center coordinates are: 33.776206, -121923819. The Project is located on Assessor Parcel Numbers 432-260-009, 432-260-026, and 432-260- 027 (Figure 2).

The remainder of this report discusses the methods and results of the soil examinations and subsequent cyst culturing to determine the potential presence of federally-listed large branchiopods at the Project.

"I certify that the information in this survey report and attached exhibits fully and accurately represents my work."

Brent P. Helm Signature _____ Date 2-2-2023
(TE-795930-12)



D:\Projects\4RAMI_BaseFiles\Chacon_Farms\PRC\Chacon_Farms_Project\Chacon_Farms_Project_aprvlex_Project_Site

Project Location

Exhibit 1

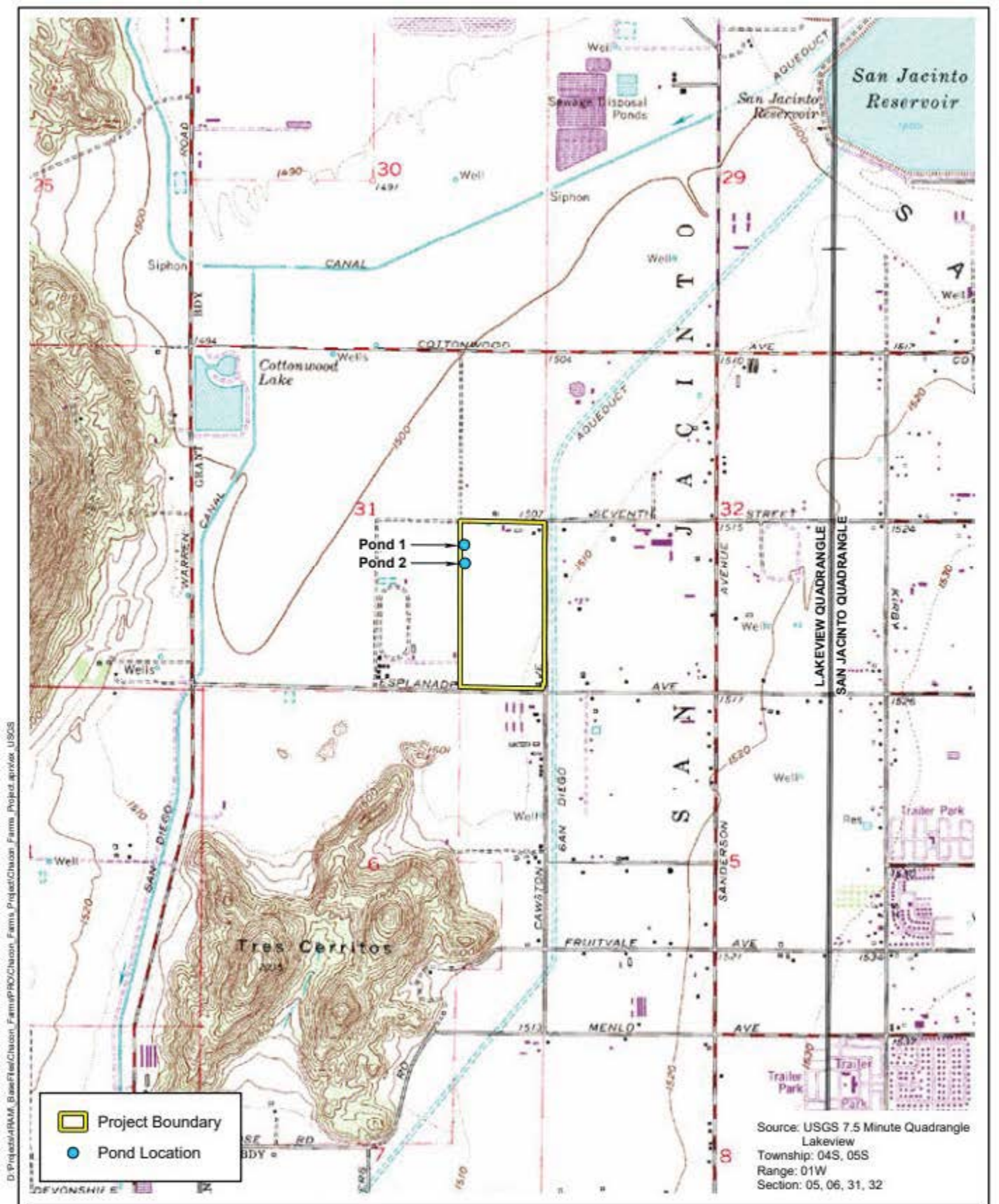
Chacon Farms Property

N W E S

1,000 500 0 1,000 Feet

PSOMAS

(Rev. 8-21-2023 PLO) R:\Projects\4RAMI\020100\Graphics\BUOW\ex_Project_Location.pdf



U.S. Geological Survey 7.5-Minute Quadrangle

Exhibit 2

Chacon Farms Property

2,000 1,000 0 2,000 Feet

PSOMAS

(Rev: 8-21-2023 PLO) R:\Projects\4RAM020100\Graphics\BUOWex_USGS.pdf

D:\Projects\4RAM_BaseFiles\Chacon_Farms\PROJ\Chacon_Farms_Project.aprx\ex_USGS

METHODS

Methods followed U.S. Fish and Wildlife Service's (USFWS 2017) *Survey Guidelines for Listed Large Branchiopods* for dry-season sampling and consisted of soil collection, processing, and analysis as described below.

SOIL COLLECTION

Dry-season soil samples were collected on August 1, 2023 by Psomas permitted biologist Allison Rudalevige as authorized by USFWS under permit number TE-177979-2 of Section 10(a)(1)(A) of the federal Endangered Species Act (ESA), 16 U.S.C. 1531 *et seq.,* and its implementing regulations (Appendix A). The collected soils were delivered to HBC for subsequent processing and analysis as described below.

SOIL PROCESSING AND ANALYSIS

Soil samples obtained from Psomas were processed and analyzed by Dr. Brent Helm of HBC under recovery permit numbers TE-795930-12 of Section 10(a)(1)(A) of the federal Endangered Species Act (ESA), 16 U.S.C. 1531 *et seq.,* and its implementing regulations. In HBC's laboratory, a brine solution was prepared by mixing table salt (NaCl) with lukewarm tap water in a large container. The collected soil material was placed in the brine solution. The soil material was then gently worked by hand to breakdown any persistent soil structure. The organic material rising to the top of the brine solution was skimmed off and placed in a 600-micron diameter pore-size sieve stacked atop a 75-micron diameter pore-size sieve. The soil material was processed through the top sieve by flushing it with lukewarm tap water while gently rubbing it with a soft-bristle brush. The soil retained from the 75-micron diameter pore size sieve was then removed and thinly (≈1.0 mm) spread into plastic petri dishes.

The contents of each petri dish were examined under a 10 to 252-power zoom binocular microscope. A minimum of 0.5-hour was spent searching the contents of each petri dish for large branchiopod cysts (embryonic eggs). Dr. Helm's large branchiopod cyst reference collection and scanning electron micrographs of cysts (Belk 1989, Brendock *et al*. 2008, Gilchrist 1978, Hill and Shepard 1998, Mura 1991, Thiery *et al.* 1995, and Rabet 2010) were used to identify and compare any cysts observed within the soil samples. This processing method (described above) favors the detection of cysts belonging to the genera *Branchinecta*, *Lepidurus*, and *Streptocephalus* since these three genera have species that are federally listed. However, this method is less precise in detecting the presence of *Linderiella* cysts since they are fragile and often lose their spines in the process, rendering their external cyst morphology similar to other invertebrates (e.g., copepods and hydracarina) eggs/cysts. Evidence of other aquatic macroinvertebrates encountered was also noted on the laboratory data sheet.

CYST CULTURING

Petri dishes containing soils with *Branchinecta* cysts were placed into individual six-quart plastic containers. The soils were saturated with 50° F well water (non-chlorinated) and allowed to dry. This saturation and drying process was repeated three times. The soils were then inundated completely with 50° F well water. The containers holding the inundated soils were inserted into an environmental chamber. The environmental chamber controls were set to mimic the winter light, humidity, and temperature fluctuations of the Project's vicinity. The contents of the containers were monitored daily for fairy shrimp hatchlings (instars).

If no hatchlings were observed after ten (10) days, the containers were removed from the environmental chamber and the soils were allowed to completely dry before reinitiating the hatching process described above. A total of three hatching attempts were performed on each soil sample.

Fairy shrimp hatchlings were feed ground fish food and reared in the environmental chamber until they were mature enough to be identified using dichotomous keys and diagrams from "Fairy Shrimps of California's Puddles, Pools, and Playas" (Eriksen and Belk 1999) and two more recent publications concerning the identification of San Diego fairy shrimp (*Branchinecta sandiegonensis*) (Simovich *et al.* 2013, Patel *et al.* 2018); along with comparisons to Dr. Helm's large branchiopod reference collection.

RESULTS

SOIL COLLECTION

Soils were collected from two targeted ponds onsite that could potentially support federally-listed large branchiopods (Figure 3).

SOIL ANALYSIS

Visual examinations of the soils after processing revealed the presence of cysts belonging to the genus *Branchinecta* in both of the ponds sampled (Table 1). Representative photographs of the ponds sampled are provided in Appendix B.

CYST CULTURING

The non-special status versatile fairy shrimp (*Branchinecta lindahli*) was successfully hatched and raised to maturity from one of the two pond soils that were observed to have *Branchinecta* cysts (Table 2).

Table 1. Results of Soil Examinations For PSOMAS-Chacon Farms-Caw ston Ave Project

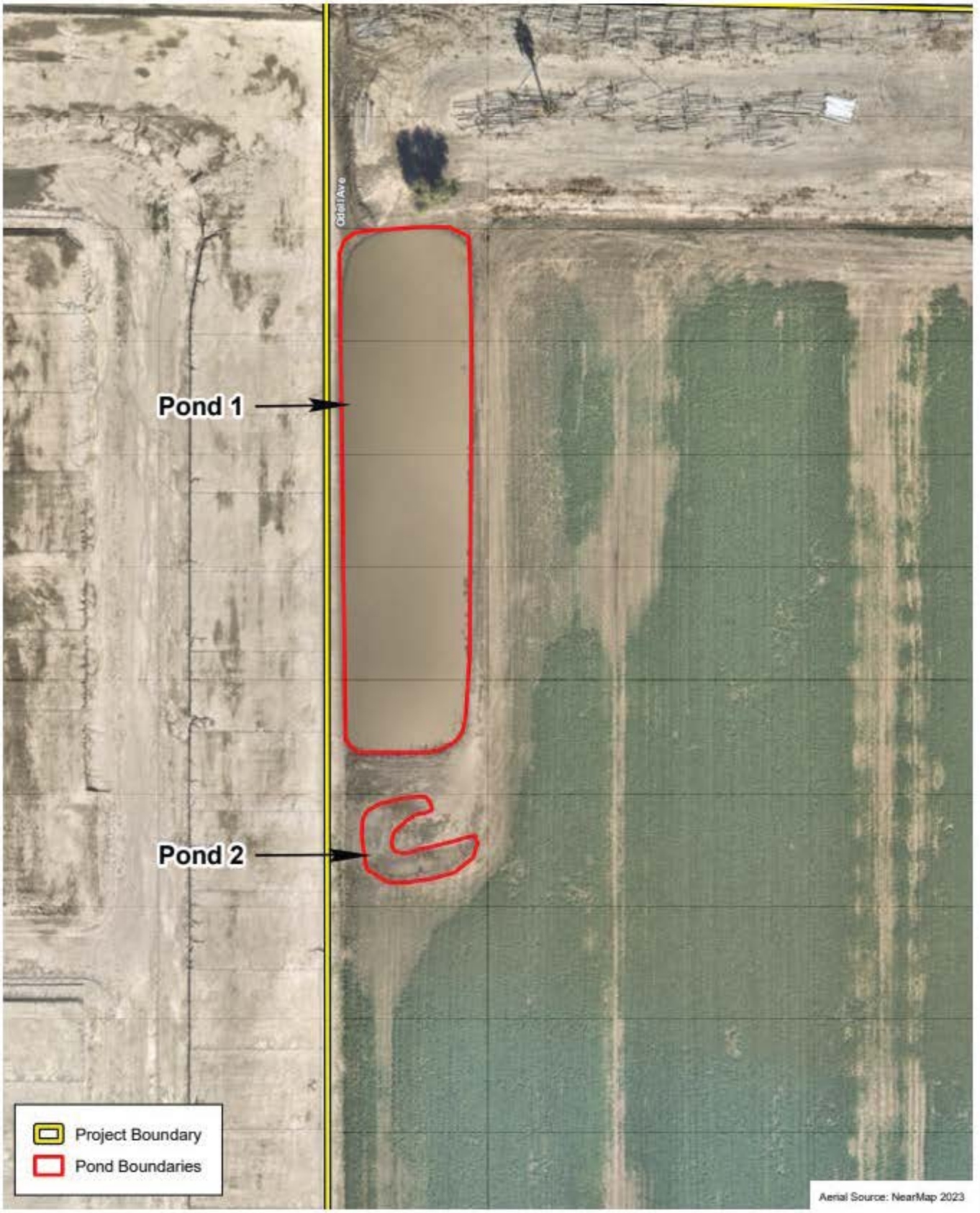
Pond No.	Insect Exo-Skeletons	Cladocera Ephippia	Ostracods Live/Cysts/ Carapaces	Branchiopod (*Branchinecta* sp.)	Nematoda	Collembola
Pond 1	X	X	X	*Med*	X	X
Pond 2	X	X		*Med*	X	X
X=Present						

*Abundance categories are derived from USFWS's Survey Guidelines for the Listed Large Branchiopods - Section VI(d) (none = no cysts found in sample; low abundance = estimate of 1-10 cysts/100 ml soil; medium abundance = estimate of 11-50 cysts/100 ml soil; high abundance = estimate of more than 50 cysts/100 ml soil)

Table 2. Cyst Culturing Results from Soils Collected at the Chacon Farms- Cawston Avenue Project, Riverside County, California

	Hatching Round #									Total		
	1			2			3					
Pond #	# of BRsp Hatched	# of Identified BRLI Male	Female	# of BRsp Hatched	# of Identified BRLI Male	Female	# of BRsp Hatched	# of Identified BRLI Male	Female	# of BRsp Hatched	# of Identified BRLI Male	Female
1	0	0	0	0	0	0	1	1	0	1	1	0
2	0	0	0	0	0	0	0	0	0	0	0	0
Total	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**1**	**0**	**1**	**1**	**0**

Note: BRsp = Immature *Branchinecta* sp., BRLI = versatile fairy shrimp (*Branchinecta lindahli*)



D:\Projects\4RAM_BaseFiles\Chacon_Farms\PRO\Chacon_Farms_Project\Chacon_Farms_Project.aprx\Pond Features Map

Pond Features

Exhibit 4

Chacon Farms Property

N W E S

100 50 0 100 Feet

PSOMAS

(Rev. 8-21-2023 JMC) R:\Projects\4RAM\020100\Graphics\FShrimp\ex_PondFeatures.pdf

DISCUSSION

For more conclusive evidence of the absence of federally-listed fairy shrimp, the *Branchinecta* cysts were sent to Dr. Caren Goldberg of Washington State University at the request of Psomas.

LITERATURE CITED

Belk, D. 1989. Identification of species in the Conchostraca genus *Eulimnadia* by egg shell morphology. Journal of Crustacean Biology. 9(1): 115-125.

Brendock, L., D. C. Rogers, J. Olesen, S. Weeks, and W. R. Hoch. 2008. Global diversity of large branchiopods (Crustacea: Branchiopoda) in freshwater. Hydrobiologia. 595: 167- 176.

Eriksen, C. H., and D. Belk. 1999. Fairy shrimps of California's puddles, pools, and playas. Mad River Press, Inc. Eureka, California. 196 pp.

Gilchrist, B. M. 1978. Scanning electron microscope studies of the egg shell in some Anostraca (Crustacea: Branchiopoda). Cell and Tissue Research. 193: 337-351.

Hill, R. E., and W. D. Shepard. 1998. Observation on the identification of California anostracan cysts. Hydrobiologia. 359: 113-123.

Mura, G. 1991. SEM morphology of resting eggs in the species of the genus *Branchinecta* from North America. Journal of Crustacean Biology. 11: 432-436.

Patel, K.V., M. A. Simovich, N. S. Graige, and A. J. Bohonak. 2018. A clash of characters: The effect of variation on a morphological hybrid index for an endangered California fairy shrimp *Branchinecta sandiegonensis* (Fugate, 1993)(Crustacea: Anostraca). Journal of Crustacean Biology. 38(3): 349-353.

Rabet, N. 2010. Revision of the egg morphology of *Eulimnadia* (Crustacea, Branchiopoda, Spinicaudata). Zoosystema. 32 (3): 373-391.

Simovich, M. A., K. B. Davis, and A. J. Bohonak. 2013. Landscape homogenization threatens the genetic integrity of the endangered San Diego fairy shrimp *Branchinecta sandiegonensis* (Branchiopoda: Anostraca). Journal of Crustacean Biology. 33(5): 730-740.

Thiery, A., J. Brtek, and C. Gasc. 1995. Cysts morphology of European branchiopods (Crustacea: Anostraca, Notostraca, Spinicaudata, Laevicaudata). Bulletin du Muséum national d'histoire naturelle.17 (1-2): 107-140.

U.S. Department of the Interior, U.S. Fish and Wildlife Service (USFWS). 2017. Survey guidelines for the listed large branchiopods. 24 pp. Dated: 31 May 2015 (Revised November 13, 2017).

APPENDIX A.
USFWS AUTHORIZATION LETTER

PSOMAS

Balancing the Natural and Built Environment

September 22, 2022

Stacey Love
Recovery Permit Coordinator
Carlsbad Fish and Wildlife Office
2177 Salk Avenue, Suite 250
Carlsbad, California 92008

VIA EMAIL
Stacey_Love@fws.gov

Subject: Notification of Wet and Dry Season Vernal Pool Branchiopod Surveys for the Cawston Avenue Property in the City of San Jacinto, Riverside County, California

Dear Ms. Love:

This letter is to inform the U.S. Fish and Wildlife Service (USFWS) that Psomas anticipates conducting wet and dry season surveys for vernal pool branchiopods (i.e., fairy shrimp) for the Cawston Avenue Property (hereinafter referred to as the "project site") within 15 days of receipt of this notification. The project site is located in the City of San Jacinto in Riverside County, California, (Exhibit 1). The project involves construction of a new residential development. The Project site is located on the U.S. Geological Survey's (USGS') Lakeview 7.5-minute quadrangle at Township 4 South, Range 1 West, Section 31 (Exhibit 2). The Project is located on Assessor Parcel Numbers 432-260-009, 432-260-026, and 432-260-027. One ponding feature (approximately 1 acre in size) was observed during a general habitat assessment and will be sampled. This feature is an artificial depression that appears to receive irrigation runoff from the surrounding agriculture fields. Inundation was observed during the habitat assessment performed on September 19, 2022.

Survey methods will follow current USFWS survey protocol. A wet season survey will be initiated within 15 days of this notification, given the presence of inundation on September 19, 2022. If the ponding feature dries over the course of the survey, the site will be monitored for inundation following rain events. Per permit authorization, no more than 20 individuals of each species (or less than 50 percent of the estimated subpopulation) will be collected from each feature per sampling visit. Collection of soil samples will occur when the soil is dry. Processing and identification of vernal pool branchiopods to species will use high resolution microscopy and hydration/hatching/rearing of individual eggs. Permitted Biologist Allison Rudalevige (TE #177979-2) will perform the wet season survey and collect the soil samples; authorization to collect an unquantifiable number of vernal pool branchiopod eggs contained within soil samples is given in Special Terms and Conditions 7.d of Ms. Rudalevige's permit. Permitted Biologist Brent Helm (TE #795930-10.2) will process the soil samples and hydrate/hatch/rear/identify the eggs.

5 Hutton Centre Drive
Suite 300
Santa Ana, CA 92707

Tel 714.751.7373
Fax 714.545.8883
www.Psomas.com

Please contact Amber Heredia or Allison Rudalevige at (714) 751-7373 if you have any questions.

Sincerely,
PSOMAS

Amber O. Heredia
Senior Project Manager

Allison D. Rudalevige
Senior Biologist
(Permit No. TE# 177979-2)

Attachments: Exhibits 1 and 2

cc: Justin Garcia, CDFW
Richard Michael, Ramona Dairy, LLC

R:\Projects\4RAM\020100\Technical Reports\Fairy Shrimp\FShrimp Notif-092222.docx

APPENDIX B.
REPRESENTATIVE PHOTOGRAPHS



(Above) Photo of Pond 1 taken from the north end facing south, taken by Psomas senior biologist, Allison Rudalevige. (Below) Photo of Pond 2 taken from the west end facing east, taken by Psomas senior biologist Allison Rudalevige.



Fairy Shrimp Species Identification

Report to PSOMAS (Amber Heredia amber.heredia@psomas.com)

Caren Goldberg and Mary Sterling

February 21, 2024

Context: As communicated during contracting, we are an academic lab that has not previously worked with fairy shrimp cysts or *B. lynchi.* Because we do not have a positive control or validated assay for *B. lynchi*, we ran several tests.

Conclusion:

Sequences and qPCR results confirm that one of the samples from Pond 2 was *B. lindahli.* We cannot conclude anything about the other samples.

Methods and Results:

We received fairy shrimp cysts on January 23, 2024, that had gone through three rounds of processing under a variety of temperature/humidity conditions prior to being sent to us.

We used techniques from Steele et al. (2009) to extract DNA from the embryos in 35 of the cysts. Specifically, while using a dissecting scope, we soaked each cyst in bleach for 5-10 minutes until the outer capsule had separated from the embryo and transferred to an NaCl detergent for another 5 minutes before transferring to 1.5 mL pop top tube. We then followed the Qiagen Supplementary Protocol: Purification of total DNA from insects using the DNeasy Blood & Tissue Kit.

Samples run in a 1% gel did not produce visible bands, indicating no or very low quantities of DNA recovered.

Samples were analyzed with a qPCR assay for *B. lindahli* and one sample from Pond 2 tested positive. However, this assay has not been fully validated against *B. lynchi*.

We attempted to amplify all DNA extracts using J-2 and 2198-2 primers (Steele et al. 2009). The PCR reaction contained 1x Qiagen Multiplex PCR Mastermix, 0.2µM of each primer, 3µl of DNA per sample and 6.2µl of water to reach final volume of 20µl. The thermocycling profile was 95°C for 15 min followed by 50 cycles of 94°C denaturing for 30 s, 51°C annealing for 90 s, 72°C extension for 1 minute; final extension was 60°C for 30 min. This resulted in an amplicon for 2 of the samples as visualized in a 2% gel, both from Pond 2 and including the sample that had tested positive in qPCR. These amplicons were Sanger sequenced and the one that also tested positive in qPCR resulted in a match to *B. lindahli*, with a query cover of 96% and percentage of identity of 99.84%. This sequence differed from *B. lynchi* at many locations. The other sequence did not match anything in Genbank.

Finally, samples were tested following the methods for *B. lynchi* amplification from Deiner et al. (2017), using COI-FS-intF and BrUniR (2042) (Vandergast et al. 2009). The PCR reaction contained 1x Qiagen Multiplex PCR Mastermix, 0.2µl of 10uM each primer, 3µl of DNA per sample and 6.2µl of water to reach final volume of 20µl. The thermocycling profile was 95°C for 15 min followed by 50 cycles of 94°C denaturing for 30 s, 50°C annealing for 1 min 30 s, 72°C extension for 1 minute; final extension was 60°C

for 30 min. In a 2% agarose gel, only positive controls for *B. lindahli* and *B. sandiegonensis* produced products; all DNA extractions from cysts tested negative.

Literature cited

Deiner K, Hull JM, May B (2017) Range-wide phylogeographic structure of the vernal pool fairy shrimp (Branchinecta lynchi). PLoS ONE 12(5): e0176266. https://doi.org/10.1371/journal.pone.0176266

Steele AN, Simovich MA, Pepino D, McNamara Schroeder K, Vandergast AG, Bohonak AJ (2009) Optimized DNA extraction methods for encysted embryos of the endangered fairy shrimp, *Branchinecta sandiegonensis*. Conservation Genetics 10:1777-1781. DOI 10.1007/s10592-008-9733-8

Vandergast AG, Wood DA, Simovich M, Bohonak AJ (2009) Identification of co-occurring Branchinecta fairy shrimp species from encysted embryos using multiplex polymerase chain reaction. Molecular Ecology Resources 9(3):767–70. https://doi.org/10.1111/j.1755-0998.2009.02522.x PMID: 21564739

APPENDIX C

SPECIAL STATUS PLANT SURVEYS

August 22, 2023

Richard Michael
Ramon Dairy, LLC
2452 Ramona Expressway
San Jacinto, California 92582

VIA EMAIL
richard@homealaska.net

Subject: Results of Special Status Plant Surveys for the Chacon Farms Property in the City of San Jacinto, Riverside County, California

Dear Mr. Michael:

This Letter Report presents the results of focused surveys for special status plant species for the Chacon Farms Property (hereinafter referred to as the "Project site") located in the City of San Jacinto in Riverside County, California (Exhibit 1). The purpose of the surveys was to determine the presence or absence of special status plant species on the Project site.

PROJECT LOCATON AND DESCRIPTION

The Project site is located north of Esplanade Avenue, west of Cawston Avenue North, South of 7th Street, and east of an unimproved road through agricultural land (Odell Avenue) in the City of San Jacinto in Riverside County, California (Exhibit 1). The Project site is an approximately 75.6-acre property and includes Assessor Parcel Numbers 432-260-009, 432-260-026, and 432-260-027. The Project site is located on the U.S. Geological Survey's (USGS') Lakeview 7.5-minute quadrangle of the San Bernardino Meridian at Township 4 South, Range 1 West, Section 31 and 32 (Exhibit 2).

The proposed Project would provide a new residential housing community. The site plan is still under development and subject to change. Currently, the Project plans to retain the on-site retention basin in the northwestern portion of the Project site.

The Project is located in the Western Riverside County Multiple Species Habitat Conservation Plan (MSHCP) area, specifically, within the San Jacinto Valley Area Plan. The City of San Jacinto is a signatory to the MSHCP; therefore, the Project would be subject to the provisions of the MSHCP. The Project site is not located within an MSHCP Criteria Cell; the nearest Criteria Cell is approximately 0.25 miles southwest of the Project site. According to the Western Riverside County Regional Conservation Authority MSHCP Information Mapping Application (2023), the Project site is required to be assessed for Narrow Endemic plant species.

EXISTING CONDITIONS

Topography on the Project site is relatively flat with an elevation of approximately 1,500 to 1,510 feet above mean sea level. Soils mapped on the Project site include Grangeville loamy fine sand, drained, 0 to 5 percent slopes; Grangeville sandy loam, sandy substratum, drained, saline-alkali, 0 to 5 percent slopes; Traver loamy fine sand, eroded; Traver loamy fine sand, saline-alkali, eroded; and Traver fine sandy loam, strongly saline-alkali, eroded (Exhibit 3).

5 Hutton Centre Drive
Suite 300
Santa Ana, CA 92707

Tel 714.751.7373
Fax 714.545.8883
www.Psomas.com

The Project site contains the following vegetation types and other areas: field croplands, valley and foothill grassland, disturbed, and developed. The agricultural field is periodically tilled or disced. Representative site photos of the Project site are included in Attachment A. Surrounding land uses include dairies, agricultural, residential, and rural residential. Active construction was occurring on the property to the west at the time of the field surveys.

There is a basin in the northwest corner of the Project site. This area was reviewed in the field and was found to be an artificial basin with no riparian vegetation present at the time of the survey. The artificial basin undergoes routine maintenance and appears to have been plowed multiple times in the past based on historical aerials. The main source of water for this basin appears to be irrigation from the adjacent agricultural fields; no natural inlet or outlet was observed in the field.

The Project site occurs approximately 1,375 feet (0.25 mile) northeast of MSHCP Criteria Cell 3291. Cell 3291 contributes to Proposed Noncontiguous Habitat Block 7. Conservation within this Cell Group focuses on grassland habitat. Proposed Noncontiguous Habitat Block 7 is comprised of a complex of vernal pools west of the City of Hemet. These parcels preserve important populations of Narrow Endemic plant species, including Davidson's saltscale (*Atriplex serenana* var. *davidsonii*), thread-leaved brodiaea (*Brodiaea filifolia*), little mousetail (*Myosurus minimus* ssp. *apus*), California Orcutt grass (*Orcuttia californica*), and spreading navarretia (*Navarretia fossalis*), as well as vernal pool fairy shrimp (*Branchinecta lynchi*). Maintenance of vernal pool hydrology, water quality associated with Salt Creek, and Traver-Willow-Domino soil series is important for these species. Proposed Noncontiguous Habitat Block 7 is constrained by existing urban development and agricultural use. Treatment and management of edge conditions will be necessary to ensure that habitat quality and vernal pool hydrology are maintained as planned land uses are developed along the edge of this habitat block (Dudek 2003).

According to the Western Riverside County Regional Conservation Authority MSHCP Information Mapping Application (2023), the Project site is required to be assessed for the following Narrow Endemic plant species: Munz's onion (*Allium munzii*), San Diego ambrosia (*Ambrosia pumila*), many-stemmed dudleya (*Dudleya multicaulis*), spreading navarretia (*Navarretia fossalis*), Californica Orcutt grass (*Orcuttia californica*), and Wright's trichocoronis (*Trichocoronis wrightii*). Of these Narrow Endemic plant species, San Diego ambrosia, spreading navarretia, California Orcutt grass, and Wright's trichocoronis were determined to have limited potential to occur based on the presence of marginally suitable habitat (i.e., the on-site basin and/or margins of the agricultural field). Focused botanical surveys would be required to determine the presence or absence of these species on the Project site. Munz's onion and many-stemmed dudleya would not be expected to occur based on lack of suitable habitat.

SURVEY METHODS

Botanical surveys were floristic in nature and consistent with the protocols created by the California Department of Fish and Wildlife (CDFW; CDFW 2018).

Prior to the field surveys, a literature search was conducted to identify special status plant species reported from the vicinity of the Project site. As discussed above, the following Narrow Endemic plant species were determined to have potential to occur on the Project site: San Diego ambrosia, spreading navarretia, California Orcutt grass, and Wright's trichocoronis. The Project site was also assessed for special status plant species not covered by the MSHCP. Sources reviewed include the USGS Lakeview, San Jacinto, Winchester, and Hemet 7.5-minute quadrangles in the California Native Plant Society's Inventory of Rare and Endangered Plants (CNPS 2023) and the CDFW's California Natural Diversity Database (CDFW 2023a).

Annual precipitation in 2022/2023 was above average. The region received approximately 16.84 inches of precipitation between May 1, 2022, and April 30, 2023 (data taken from San Jacinto, CA station) (NOAA 2023). The average annual precipitation in the region is 12.20 inches (data averaged from 1991 – 2020) (NOAA 2023).

Reference populations are monitored for annual and difficult-to-detect target species to ensure that the surveys were comprehensive. This is especially relevant during periods of unusual rainfall patterns or below average rainfall. If conditions at a nearby reference population are suitable for germination and growth, then it can be inferred that conditions would also be suitable on the survey area. Reference populations were not monitored for species with a California Rare Plant Rank (CRPR) of 3 or 4 or for species lacking a publicly accessible reference population. San Diego ambrosia was observed in a vegetative state in Lake Elsinore on April 26, 2023. Reference populations for other target species (spreading navarretia and Wright's trichocoronis) at publicly-accessible locations have been unreliable in recent years.

Surveys were conducted on May 3 and July 6, 2023, by Psomas Senior Biologist Allison Rudalevige. The total number of person-hours spent surveying was approximately 3 hours. A systematic survey was conducted in all areas of suitable special status plant habitat in the survey area. All plant species observed were recorded in field notes. Plant species were identified in the field or collected for future identification. Plants were identified to the taxonomic level necessary to determine whether they were a special status species. Plants were identified using taxonomic keys, descriptions, and illustrations in Jepson Flora Project (2022) and Baldwin et al. (2012). Nomenclature of plant taxa conform to the *Special Vascular Plants, Bryophytes, and Lichens List* (CDFW 2023b) for special status species and the Jepson eFlora (Jepson Flora Project 2022) for all other taxa.

Any special status plant species observed would have been mapped on an iPad loaded with Avenza Maps software or with a handheld Garmin Global Positioning System (GPS) unit. Data would have been collected on the number and phenology of individuals (estimated for large populations) and microsite characteristics (e.g., slope, aspect, soil texture, surrounding habitat, and associated species).

SURVEY RESULTS

No special status plant species were observed during the surveys. Table 2 identifies the special status plants reported from the literature review with their potential to occur on the Project site and the survey results. A list of all plants observed in the survey area during special status plant surveys is included in Attachment B.

Although reference populations and regional rainfall amounts were monitored to ensure the scientific adequacy of these focused surveys, there is always a minimal potential for false negative survey results as species could possibly be present on a project site but may not be detectable at the time of the surveys.

TABLE 2
SPECIAL STATUS PLANT SPECIES REPORTED
FROM THE PROJECT SITE VICINITY

Species	Federal Status	State Status	California Rare Plant Rank	MSHCP Coverage	Habitat*	Potential to Occur in the Survey Area; Results of the Surveys
Abronia villosa var. *aurita* chaparral sand-verbena	—	—	1B.1	Not Covered	Sandy areas in chaparral, coastal scrub, desert dunes. Blooms: (January) March – September.	Not expected to occur; no suitable habitat.
Allium munzii Munz's onion	FE	ST	1B.1	Narrow Endemic	Clay and mesic areas in chaparral, cismontane woodland, coastal scrub, pinyon and juniper woodland, valley and foothill grassland. Blooms: March – May.	Not expected to occur; no suitable habitat.
Ambrosia pumila San Diego ambrosia	FE	—	1B.1	Narrow Endemic	A variety of substrates (including alkaline, clay, loam, and sand) in chaparral, coastal scrub, valley and foothill grassland, vernal pools, and often disturbed areas. Blooms: April – October.	Not expected to occur because not observed during focused surveys; marginally suitable habitat.
Deinandra paniculata paniculate tarplant	—	—	4.2	Not Covered	Usually vernally mesic, sometimes sandy substrate in coastal scrub, valley and foothill grassland, and vernal pools. Blooms: (March) April – November.	Not expected to occur because not observed during focused surveys; marginally suitable habitat.
Dudleya multicaulis many-stemmed dudleya	—	—	1B.2	Narrow Endemic	Heavy, often clayey soils or grassy slopes in chaparral, coastal scrub, valley and foothill grassland. Blooms: April – July.	Not expected to occur; no suitable habitat.
Imperata brevifolia California satintail	—	—	2B.1	Not Covered	Mesic areas in chaparral, coastal scrub, meadows and seeps, Mojavean desert scrub, riparian scrub. Blooms: September – May.	Not expected to occur; no suitable habitat.

TABLE 2
SPECIAL STATUS PLANT SPECIES REPORTED
FROM THE PROJECT SITE VICINITY

Species	Federal Status	State Status	California Rare Plant Rank	MSHCP Coverage	Habitat*	Potential to Occur in the Survey Area; Results of the Surveys
Lepidium virginicum var. *robinsonii* Robinson's pepper-grass	—	—	4.3	Not Covered	Dry soils in chaparral and coastal scrub. Blooms: January – July.	Not expected to occur because not observed during focused surveys; marginally suitable habitat.
Navarretia fossalis spreading navarretia	FT	—	1B.1	Narrow Endemic	Chenopod scrub, marshes and swamps, playas, vernal pools. Blooms: April – June.	Not expected to occur because not observed during focused surveys; marginally suitable habitat.
Orcuttia californica California Orcutt grass	FE	SE	1B.1	Narrow Endemic	Vernal pools. Blooms: April – August.	Not expected to occur because not observed during focused surveys; marginally suitable habitat.
Parkinsonia microphylla little-leaved palo verde	—	—	4.3	Not Covered	Mojavean desert scrub. Blooms: April – May.	Not expected to occur; no suitable habitat.
Pseudognaphalium leucocephalum Salt Spring white rabbit-tobacco	—	—	2B.2	Not Covered	Gravelly and sandy areas of chaparral, cismontane woodland, coastal scrub, riparian woodland. Blooms: (July) August – November (December)	Not expected to occur; no suitable habitat.
Sidalcea neomexicana Salt Spring checkerbloom	—	—	2B.2	Not Covered	Alkali springs and marshes in playas, chaparral, coastal scrub, lower montane coniferous forest, and Mojavean desert scrub. Blooms: March – June.	Not expected to occur because not observed during focused surveys; marginally suitable habitat.
Tortula californica California screw moss	—	—	1B.2	Not Covered	Sandy areas in chenopod scrub, valley and foothill grassland.	Not expected to occur; no suitable habitat.

TABLE 2
SPECIAL STATUS PLANT SPECIES REPORTED
FROM THE PROJECT SITE VICINITY

Species	Federal Status	State Status	California Rare Plant Rank	MSHCP Coverage	Habitat*	Potential to Occur in the Survey Area; Results of the Surveys
Trichocoronis wrightii Wright's trichocoronis	—	—	2B.1	Narrow Endemic	Marshes and swamps, meadows and seeps, riparian forest, vernal pools. Blooms May – September.	Not expected to occur because not observed during focused surveys; marginally suitable habitat.

MSHCP: Multiple Species Habitat Conservation Plan
LEGEND:

Federal Status		**State Status**	
FE	Endangered	SE	Endangered
FT	Threatened	ST	Threatened

California Rare Plant Rank (CRPR)
1B Plants Rare, Threatened, or Endangered in California and elsewhere
2B Plants Rare, Threatened, or Endangered in California but more common elsewhere
4 Plants of limited distribution – A Watch List

CRPR Threat Code Extensions
.1 Seriously threatened in California (over 80% of occurrences threatened; high degree and immediacy of threat)
.2 Fairly threatened in California (20–80% of occurrences threatened; moderate degree and immediacy of threat)
.3 Not very threatened in California (<20% of occurrences threatened; low degree and immediacy of threat or no current threats known)

For blooming period, months included in parentheses are uncommon.

* Sources include CNPS 2023 and Jepson Flora Project 2022.

Psomas appreciates the opportunity to assist on this Project. If you have any comments or questions, please contact Amber Heredia (Amber.Heredia@psomas.com) or Allison Rudalevige (Allison.Rudalevige@psomas.com).

Sincerely,
PSOMAS

Amber O. Heredia
Senior Project Manager, Resource Management

Allison D. Rudalevige
Senior Biologist

Attachments: Exhibits 1–3
A – Representative Site Photos
B – Plant Compendium

R:\Projects\4RAM\020100\Technical Reports\Plants\Chacon Farms-Plants-082223.docx

REFERENCES

Baldwin, B.G., D.J. Keil, R. Patterson, T.J. Rosatti, and D.H. Wilken (Eds.). 2012. *The Jepson Manual: Vascular Plants of California* (Second ed.). Berkeley, CA: University of California Press.

California Department of Fish and Wildlife (CDFW). 2023a. California Natural Diversity Database. Records of Occurrence for the Lakeview, San Jacinto, Winchester, and Hemet USGS quadrangles. Sacramento, CA: CDFW, Natural Heritage Division.

———. 2023b (April). *Special Vascular Plants, Bryophytes, and Lichens List.* Sacramento, CA: CDFW, Natural Heritage Division.

———. 2018 (March 20). *Protocols for Surveying and Evaluating Impacts to Special Status Native Plant Populations and Sensitive Natural Communities*. Sacramento, CA: CDFW.

California Native Plant Society (CNPS). 2023. Inventory of Rare and Endangered Plants. Records of Occurrence for the Lakeview, San Jacinto, Winchester, and Hemet USGS quadrangles and information on special status species. Sacramento, CA: CNPS. http://www.cnps.org/inventory.

Dudek and Associates, Inc. (Dudek). 2003. *Western Riverside County Multiple Species Habitat Conservation Plan* (Prepared for the Riverside County Integrated Project). Encinitas, CA: Dudek. http://www.wrc-rca.org/Permits_Docs.html.

Jepson Flora Project. 2022 (May 31, Revision 10). Jepson eFlora (Records for common species in the Plant Compendium and all species descriptions). Berkeley, CA: The Jepson Herbarium. http://ucjeps.berkeley.edu/eflora/.

National Oceanic and Atmospheric Administration (NOAA). 2023 (June 28, access date). Regional Climate Center (RCC) Agricultural Applied Climate Information System (AgACIS): San Jacinto, CA station. agacis.rcc-acis.org/.

Western Riverside County Regional Conservation Authority (RCA). 2023 (August). Information Mapping Tool. https://www.wrc-rca.org/rcamaps/.



D:\Projects\4RAM\020100\MXD\HAlex_Project_Location_20220922.mxd

Project Location

Exhibit 1

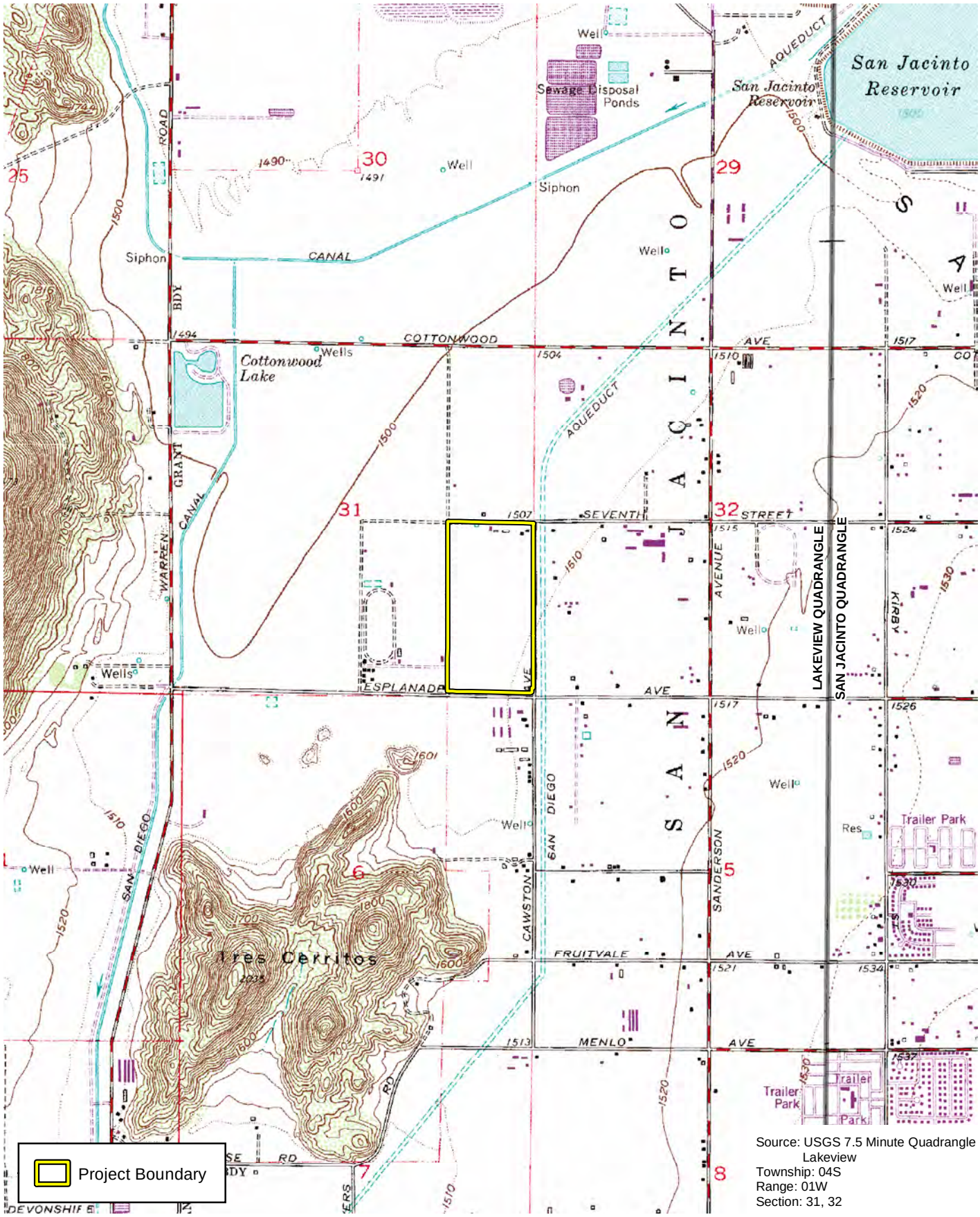
Chacon Farms Property

N W E S

1,000 500 0 1,000 Feet

PSOMAS

(Rev: 09/30/2022 MMD) R:\Projects\4RAM\020100\Graphics\SSPlants\ex_Project_Location.pdf



Source: USGS 7.5 Minute Quadrangle
Lakeview
Township: 04S
Range: 01W
Section: 31, 32

D:\Projects\4RAM\020100\MXD\HAlex_USGS_20220922.mxd

Topography

Exhibit 2

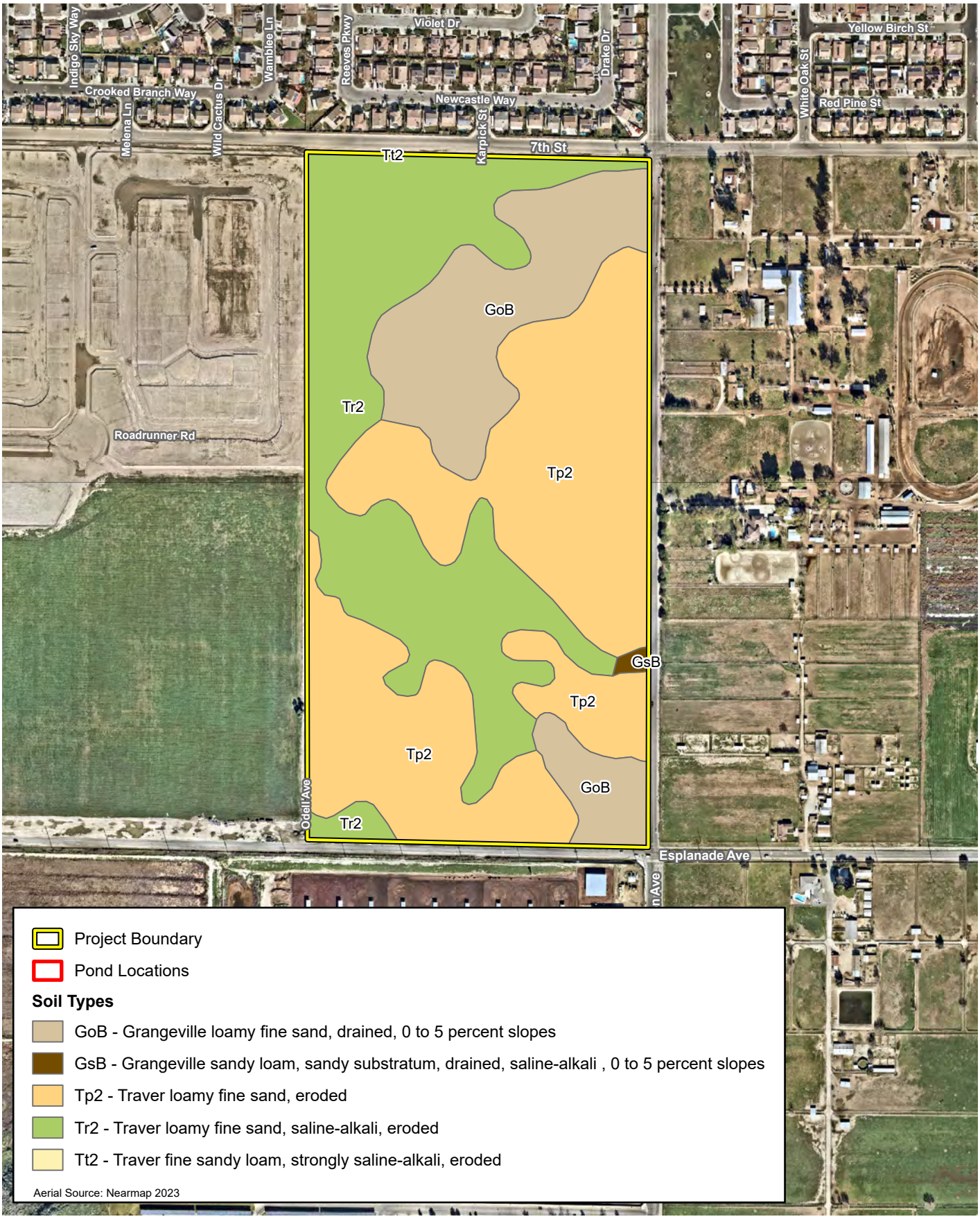
Chacon Farms Property

N W E S

2,000 1,000 0 2,000 Feet

PSOMAS

(Rev: 9-30-2022 MMD) R:\Projects\4RAM\020100\Graphics\SSPlants\ex_USGS.pdf



D:\Projects\4RAM_BaseFiles\Chacon_Farms\PRO\Chacon_Farms_Project\Chacon_Farms_Project.aprx\

Soil Types

Exhibit 3

Chacon Farms Property

N W E S

500 250 0 500 Feet

PSOMAS

(Rev: 8-21-2023 JMC) R:\Projects\4RAM\020100\Graphics\SSPlants\ex_SoilTypes.pdf

ATTACHMENT A

REPRESENTATIVE SITE PHOTOS



May 3, 2023. Representative habitat on the Project site.



July 6, 2023. View of representative habitat within the on-site basin on the Project site.

D:\Projects\4RAM\020100\GRAPHICS\SSPlants\AttA_SP.ai

Site Photographs

Attachment A

Chacon Farms Property

PSOMAS

ATTACHMENT B

PLANT COMPENDIUM

PLANTS OBSERVED IN THE SURVEY AREA DURING SPECIAL STATUS PLANT SURVEYS

Species	
Species	**Common Name**
GYMNOSPERMS	
PINACEAE – PINE FAMILY	
*Pinus eldarica**	Mondell pine
*Pinus halepense**	Aleppo pine
EUDICOTS	
AMARANTHACEAE – AMARANTH FAMILY	
Amaranthus palmeri	Palmer's amaranth
ANACARDIACEAE – SUMAC FAMILY	
*Schinus molle**	pepper tree
ASTERACEAE – SUNFLOWER FAMILY	
*Cotula australis**	Australian cotula
Eclipta prostrata	false daisy
*Erigeron bonariensis**	flax-leaved horseweed
Erigeron canadensis	horseweed
Gnaphalium palustre	marsh cudweed
Helianthus annuus	annual sunflower
*Lactuca serriola**	prickly lettuce
*Oncosiphon pilulifer**	stinknet
*Pseudognaphalium luteoalbum**	white lamb cudweed
*Pulicaria paludosa**	marsh pulicaria
*Senecio vulgaris**	common groundsel
*Sonchus asper ssp. asper**	prickly sow thistle
*Sonchus oleraceus**	common sow thistle
BORAGINACEAE – BORAGE FAMILY	
Amsinckia menziesii	common fiddleneck
Heliotropium curassavicum var. oculatum	seaside heliotrope
BRASSICACEAE – MUSTARD FAMILY	
*Capsella bursa-pastoris**	shepherd's purse
*Descurainia sophia**	wise tansy mustard
*Hirschfeldia incana**	grayish shortpod mustard
*Lepidium didymum**	lesser swine grass
*Sisymbrium irio**	London rocket
CARYOPHYLLACEAE – PINK FAMILY	
*Spergularia bocconi**	Boccone's sand-spurrey
CHENOPODIACEAE – GOOSEFOOT FAMILY	
*Salsola tragus**	Russian thistle
EUPHORBIACEAE – SPURGE FAMILY	
Euphorbia albomarginata	rattlesnake sandmat
FABACEAE – LEGUME FAMILY	
*Acacia sp.**	acacia
*Medicago sativa**	alfalfa
*Melilotus indicus**	sourclover

PLANTS OBSERVED IN THE SURVEY AREA DURING SPECIAL STATUS PLANT SURVEYS

Species	
Species	**Common Name**
GERANIACEAE – GERANIUM FAMILY	
*Erodium cicutarium**	redstem filaree
LYTHRACEAE – LOOSESTRIFE FAMILY	
*Lythrum hyssopifolia**	hyssop-leaf loosestrife
MALVACEAE – MALLOW FAMILY	
*Malva parviflora**	cheeseweed
PLANTAGINACEAE – PLANTAIN FAMILY	
*Plantago major**	common plantain
Veronica peregrina ssp. xalapensis	purslane speedwell
POLYGONACEAE – BUCKWHEAT FAMILY	
*Polygonum aviculare**	knotweed
*Rumex crispus**	curly dock
PORTULACACEAE – PURSLANE FAMILY	
*Portulaca oleracea**	purslane
ROSACEAE – ROSE FAMILY	
*Prunus persica**	peach
RUTACEAE – CITRUS FAMILY	
*Citrus x limon**	lemon tree
SALICACEAE – WILLOW FAMILY	
Salix gooddingii	Goodding's black willow
Salix lasiolepis	arroyo willow
SIMAROUBACEAE – SIMAROUBA FAMILY	
*Ailanthus altissima**	tree of heaven
SOLANACEAE – NIGHTSHADE FAMILY	
*Nicotiana glauca**	tree tobacco
Physalis acutifolia	sharpleaf ground-cherry
*Solanum elaeagnifolium**	white horse-nettle
ZYGOPHYLLACEAE – CALTROP FAMILY	
*Tribulus terrestris**	puncture vine
MONOCOTS	
ARECACEAE – PALM FAMILY	
Washingtonia filifera	California fan palm
*Washingtonia robusta**	Mexican fan palm
CYPERACEAE – SEDGE FAMILY	
Cyperus sp.	flatsedge
JUNCACEAE – RUSH FAMILY	
Juncus bufonius	toad rush
POACEAE – GRASS FAMILY	
*Bromus catharticus**	rescue grass
*Bromus rubens**	red brome
*Chloris verticillata**	windmill grass
*Cynodon dactylon**	Bermuda grass
Distichlis spicata	salt grass

PLANTS OBSERVED IN THE SURVEY AREA DURING SPECIAL STATUS PLANT SURVEYS

Species	
Species	**Common Name**
*Echinochloa crus-galli**	cock's spur barnyard grass
*Festuca perennis**	rye grass
*Hordeum murinum**	wall barley
Leptochloa fusca	sprangletop
Phalaris sp.	canary grass
*Polypogon monspeliensis**	annual beard grass
TYPHACEAE – CATTAIL FAMILY	
Typha sp.	cattail
* Non-native or invasive species	

APPENDIX D

BURROWING OWL SURVEYS

Western Burrowing Owl Surveys for Chacon Farms Property Assessor Parcel Numbers: 432-260-009, 432-260-026, and 432-260-027 (75.6-Acre Project, Total Area Surveyed: 75.6 Acres) Cawston Avenue in the City of San Jacinto, Perris USGS 7.5-Minute Series Map Township 4S, Range 3W, Section 6

Prepared For:
Ramona Dairy, LLC
2452 Ramona Expressway
San Jacinto, California 92582

Prepared By:
Psomas
5 Hutton Centre Drive, Suite 300
Santa Ana, California 92707
Jonathan Aguayo
Jonathan.Aguayo@psomas.com

Principal Investigator:
Psomas
5 Hutton Centre Drive, Suite 300
Santa Ana, California 92707
Jonathan Aguayo
Jonathan.Aguayo@psomas.com

Surveys Conducted By:
Jonathan Aguayo
Trevor Bristle

Surveys Conducted On:
April 13, May 10, June 19, and July 12, 2023

Report Date:
August 21, 2023

CERTIFICATION

I hereby certify that the statements furnished above and in the attached exhibits present the 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 and belief.

DATE: 8/22/2023 SIGNED: 

TABLE OF CONTENTS

SECTION

Project Location and Description 1
Background 1
Survey Methods 2
Survey Results 3
Recommendations 4
References 5

LIST OF TABLES

Table **Page**

1 Summary of Burrowing Owl Surveys 4

LIST OF EXHIBITS

Follows Page

1 Project Location 1
2 U.S. Geological Survey 7.5-Minute Quadrangle 1
3 Vegetation Types 1
4 Potential Burrow Locations 3

LIST OF APPENDICES

A Site Photographs
B Wildlife Compendium

This report presents the findings of focused surveys for the western burrowing owl (*Athene cunicularia hypugaea*) for the Chacon Farms Property (hereinafter referred to as the "Project site") located in the City of San Jacinto in Riverside County, California. The purpose of the surveys was to determine the presence or absence of the western burrowing owl during its nesting period (i.e., March 1 to August 31) on or immediately adjacent to the Project site. The surveys were completed in accordance with the Burrowing Owl Survey Instructions for the Western Riverside County Multiple Species Habitat Conservation Plan (MSHCP) (County of Riverside 2006).

The Project site is located within the MSHCP "San Jacinto Valley Area Plan" but is not within an MSHCP Criteria Cell. The Riverside County Integrated Project Conservation Summary Report Generator requires a habitat assessment for western burrowing owl. The assessment determined that suitable habitat for the western burrowing owl was present in the Project site and adjacent areas; therefore, focused surveys were required.

PROJECT LOCATION AND DESCRIPTION

The proposed Project would provide a new residential housing community. The Project site is located north of Esplanade Avenue, west of Cawston Avenue, south of 7th Street, and east of an unimproved road through agricultural land (Odell Avenue) in the City of San Jacinto in Riverside County, California (Exhibit 1). The Project site includes Assessor Parcel Numbers 432-260-009, 432-260-026, and 432-260-027.

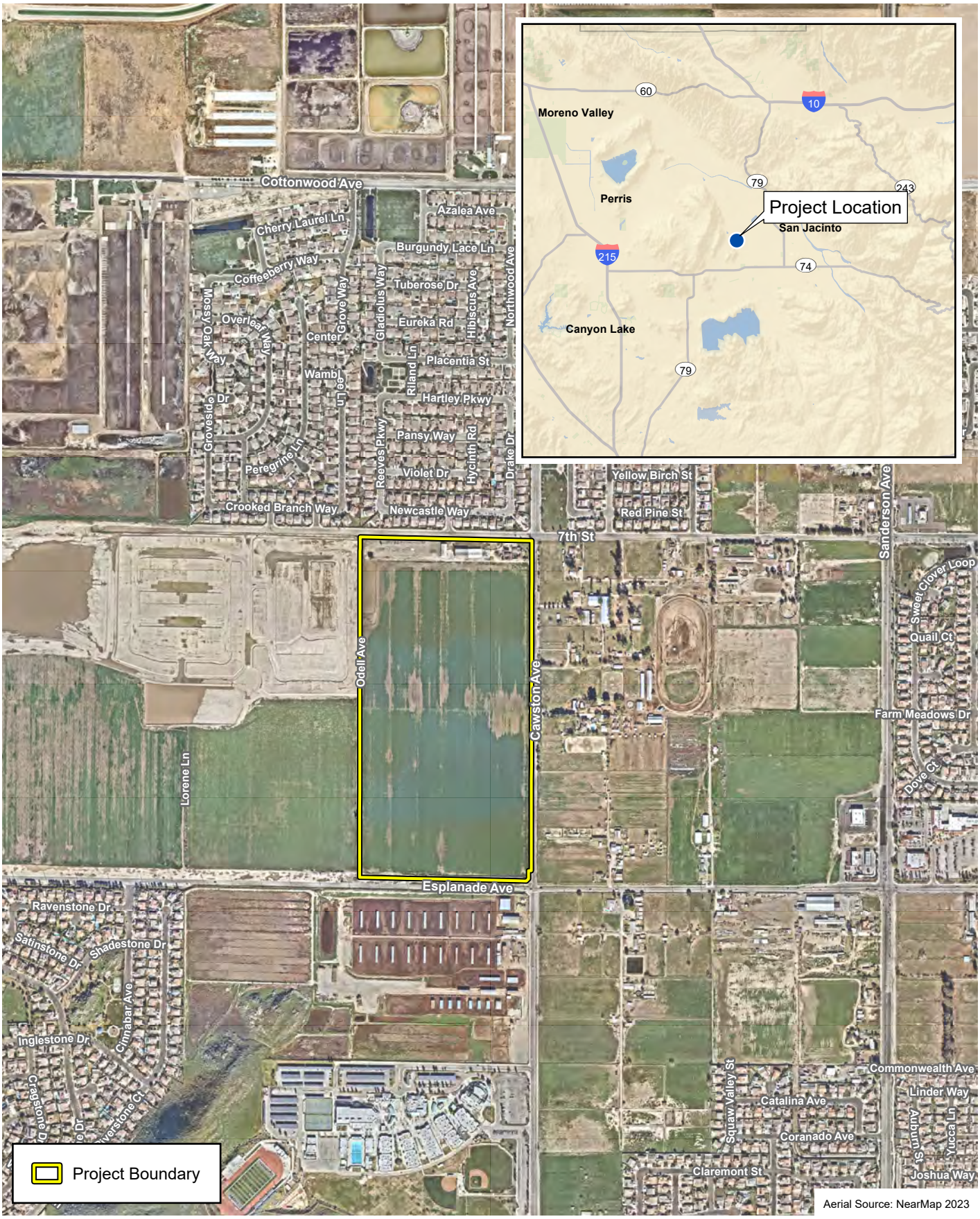
The Project site is located on the U.S. Geological Survey's (USGS') Lakeview 7.5-minute quadrangle of the San Bernardino Meridian at Township 4 South, Range 1 West, Section 31 and 32 (Exhibit 2). Topography on the Project site is relatively flat with an elevation of approximately 1,500 to 1,510 feet above mean sea level. Surrounding land uses include dairies, agricultural, residential, and rural residential. Active construction was occurring on the property to the west at the time of the focused surveys.

Vegetation types observed on the Project site include field croplands and valley and foothill grassland; disturbed and developed landcovers are also present (Exhibit 3).

The burrowing owl focused survey was conducted throughout the Project site. Adjacent areas were on private property and were not accessible. However, when possible, areas containing suitable habitat within 500 feet of the Project site were surveyed using binoculars. Representative site photos are included in Appendix A.

BACKGROUND

The western burrowing owl is a grassland specialist distributed throughout western North America, where it occupies open areas with short vegetation and bare ground within shrub, desert, and grassland environments. Burrowing owls use a wide variety of arid and semi-arid environments, with well-drained, level to gently sloping areas characterized by sparse vegetation and bare ground (Haug et al. 1993; Dechant et al. 2003). Burrowing owls in Florida excavate their own burrows, but western burrowing owls depend upon the presence of burrowing mammals whose burrows are used for roosting and nesting (Haug et al. 1993). The presence or absence of colonial mammal burrows (e.g., California ground squirrels [*Spermophilus beecheyi*]) is often a major factor that limits the presence or absence of burrowing owls. Where mammal burrows are scarce, burrowing owls have been found occupying man-made cavities (e.g., buried and non-functioning drainpipes, stand-pipes, and dry culverts). Burrowing mammals may burrow beneath rocks; debris; or large, heavy objects (e.g., abandoned cars, concrete blocks, or concrete pads).



Aerial Source: NearMap 2023

D:\Projects\4RAM_BaseFiles\Chacon_Farms\PRO\Chacon_Farms_Project\Chacon_Farms_Project.apnx\ex_Project_Site

Project Location

Exhibit 1

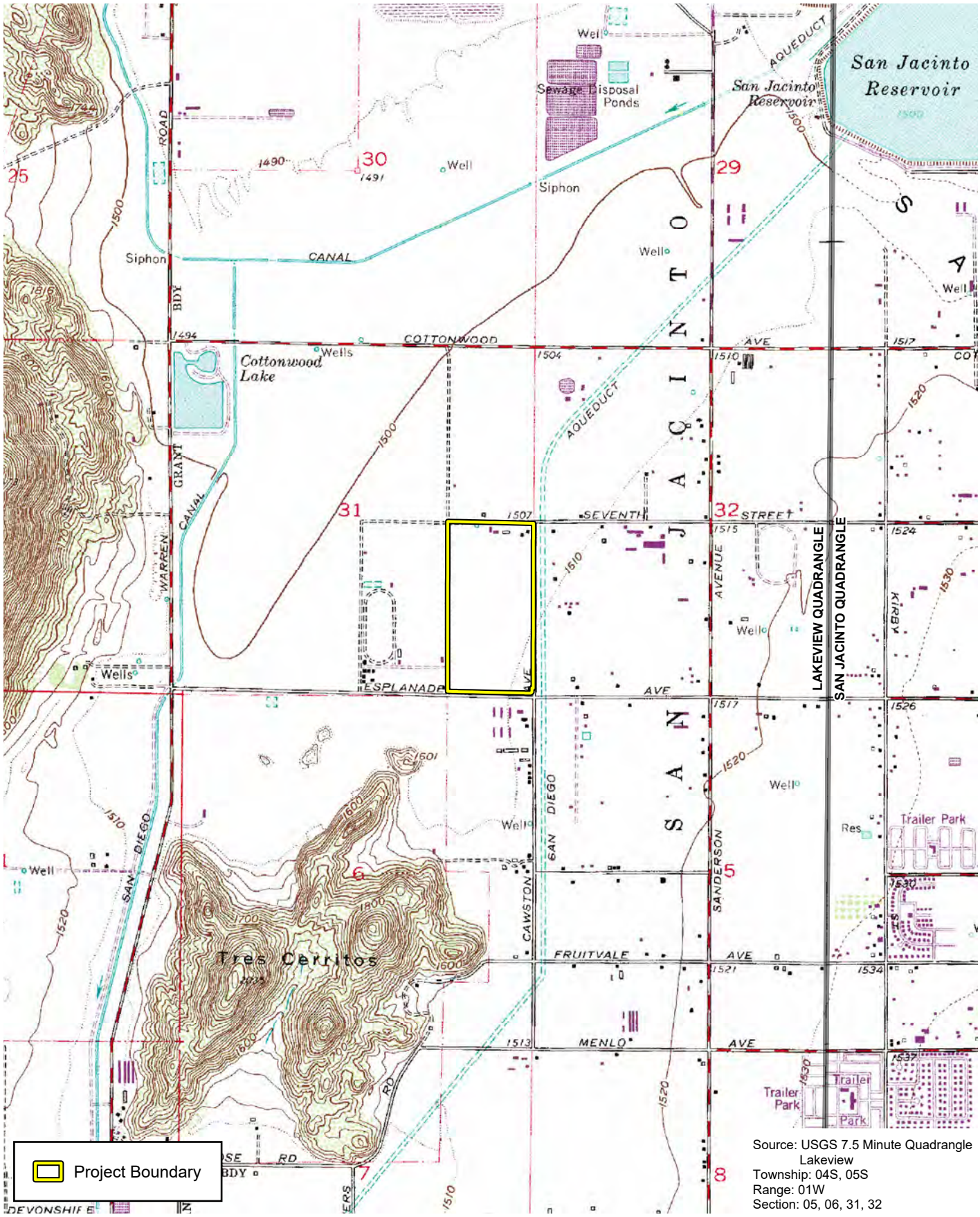
Chacon Farms Property

N W E S

1,000 500 0 1,000 Feet

PSOMAS

(Rev: 8-10-2023 PLO) R:\Projects\4RAM\020100\Graphics\BUOW\ex_Project_Location.pdf



Source: USGS 7.5 Minute Quadrangle
Lakeview
Township: 04S, 05S
Range: 01W
Section: 05, 06, 31, 32

U.S. Geological Survey 7.5-Minute Quadrangle

Exhibit 2

Chacon Farms Property

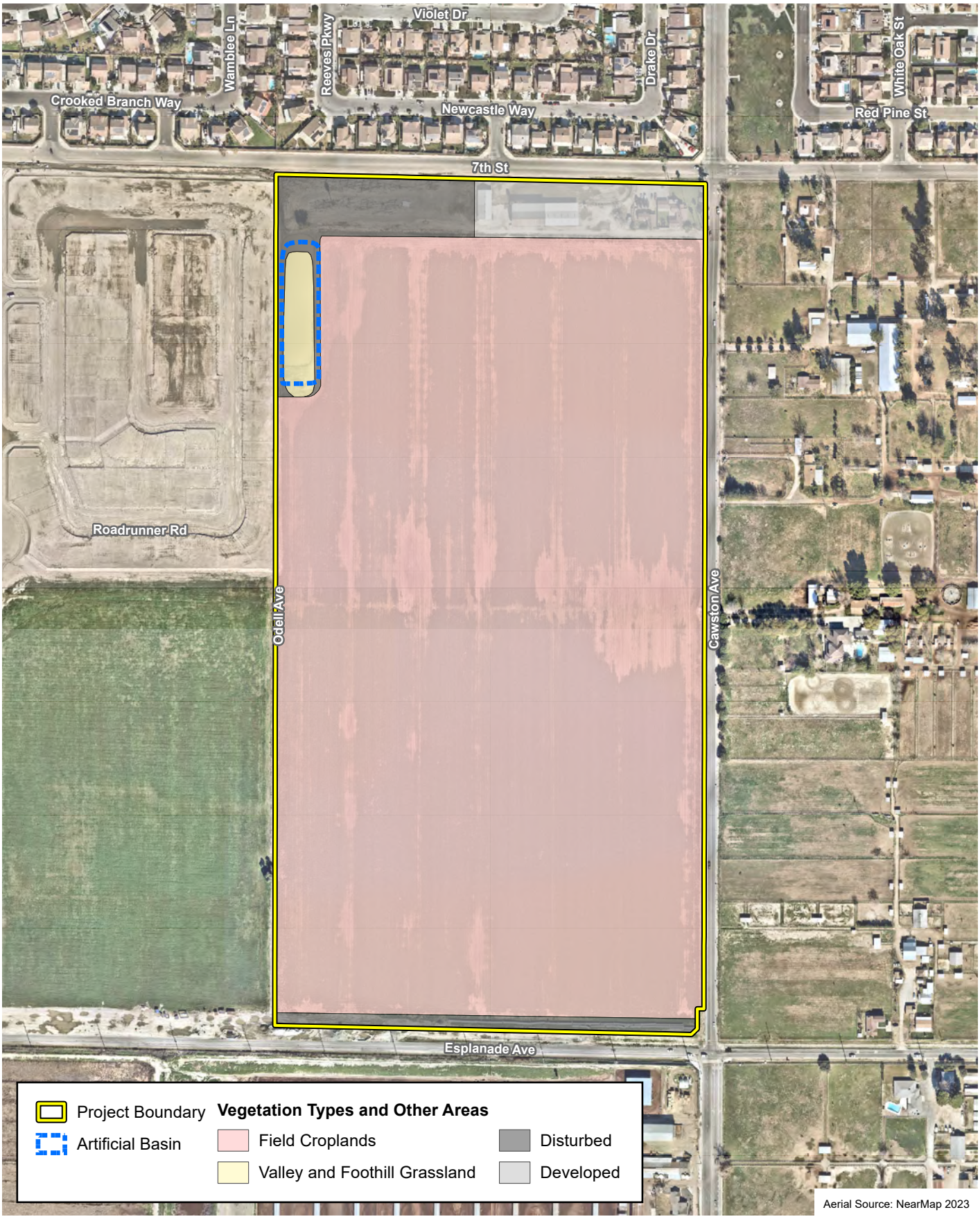
N W E S

2,000 1,000 0 2,000 Feet

PSOMAS

(Rev: 8-10-2023 PLO) R:\Projects\4RAM\020100\Graphics\BUOW\ex_USGS.pdf

D:\Projects\4RAM_BaseFiles\Chacon_Farms\PRO\Chacon_Farms_Project\Chacon_Farms_Project.aprx\ex_USGS



D:\Projects\4RAM_BaseFiles\Chacon_Farms\PRO\Chacon_Farms_Project\Chacon_Farms_Project.aprx\ex_Vegetation

Vegetation Types

Exhibit 3

Chacon Farms Property

N W E S

400 200 0 400

Feet

PSOMAS

(Rev: 8-21-2023 PLO) R:\Projects\4RAM\020100\Graphics\BUOW\ex_Vegetation.pdf

Large, hard objects at burrow entrances stabilize the entrance from collapse and may inhibit excavation by predators.

Burrowing owls often use “satellite”, or non-nesting burrows, moving chicks into them from the nesting burrow, presumably to reduce the risk of predation (Desmond and Savidge 1998) and possibly to avoid nest parasites (Dechant et al. 2003). One pair may use up to ten satellite burrows (James and Seabloom 1968). Individual burrowing owls have a moderate to high site fidelity to previously used burrow complexes and often use the same burrows for nesting year after year.

The western burrowing owl was once abundant and widely distributed within coastal Southern California, but it has declined precipitously in Los Angeles, Orange, San Diego, Riverside, and San Bernardino Counties. A petition was submitted to list the California population of the western burrowing owl as an Endangered or Threatened species (CBD et al. 2003); the California Department of Fish and Wildlife (CDFW) declined to list the burrowing owl as either Threatened or Endangered in consideration of its overall population throughout the State. However, the CDFW considers the burrowing owl to be a California Species of Special Concern.

A search of the CDFW’s California Natural Diversity Database was conducted prior to initiating the survey effort. There are several occurrences reported within five miles; the majority of the occurrences are located to the southwest towards Winchester (CDFW 2023).

SURVEY METHODS

Surveys followed the survey instructions in the Western Riverside County MSHCP (Riverside County 2006). These guidelines outline a survey methodology that has been approved by the CDFW and the U.S. Fish and Wildlife Service. Surveys for the burrowing owl are conducted during the breeding season, which extends from March 1 to August 31. These surveys are done in three phases: (1) habitat assessment; (2) burrow surveys; and (3) focused owl surveys.

HABITAT ASSESSMENT

The first step, habitat assessment, identifies whether the Project site provides potential habitat for the species. This determination is made by a Biologist that is knowledgeable in burrowing owl habitat, ecology, and identification. The Biologist conducts the assessment by walking the Project site and an approximate 500-foot buffer area around the Project site (if it is accessible) to visually inspect and assess the potential for burrowing owls.

The habitat assessment was conducted on September 19, 2022, by Psomas Senior Biologist Allison Rudalevige and Psomas Biologist Trevor Bristle. The assessment was conducted by walking the Project site to visually inspect it and assess its potential for burrowing owls. The Project site was considered to be suitable for the western burrowing owl. Focused burrow surveys were recommended for the Project site.

BURROW SURVEY

The second step, burrow survey, identifies suitable burrow(s) and location(s) of occupied burrow(s). A qualified Biologist conducts the burrow survey by walking through suitable habitat on the Project site and areas within approximately 500 feet of the Project site (if it is accessible) via transects spaced no more than approximately 100 feet apart in order to ensure 100 percent visual coverage of the ground surface. If no potentially active burrows are detected, then no focused owl surveys are required. Psomas Senior Biologist Jonathan Aguayo and Mr. Bristle conducted the burrow survey on April 13, 2023. Any natural or man-made cavities large enough to allow a burrowing owl to enter were inspected for evidence of occupation. Evidence of occupation may

include prey remains, cast pellets, white-wash, feathers, and observations of owls adjacent to burrows. The burrow survey was not conducted within five days of rain, which could have washed away potential sign. Surveys beyond fenced property boundaries were limited to what could be observed with binoculars.

Any burrows observed were mapped on an aerial photograph and recorded with a Global Positioning System (GPS) unit or iPad (Exhibit 4).

CREPUSCULAR SURVEYS

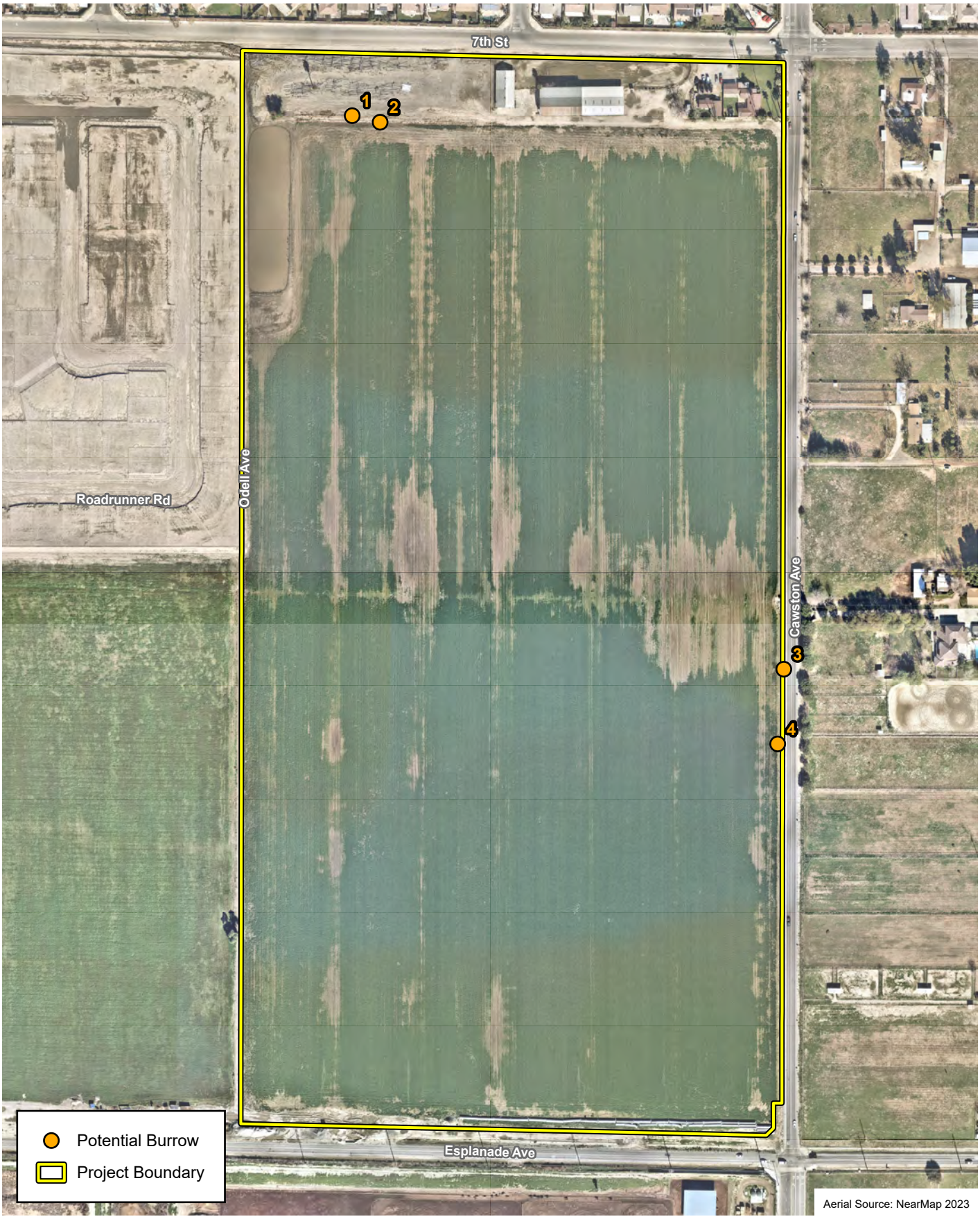
If owls or potentially-occupied burrows or cavities are located during the burrow survey, then crepuscular (dawn or dusk) focused burrowing owl surveys are required. Focused surveys were conducted within the Project site where burrowing owls had a potential to occur based on the results of the habitat assessment and the burrow survey. These surveys were conducted from either one hour before sunrise to two hours after, or from two hours before sunset to one hour after. These surveys are conducted only with sufficient light to follow burrowing owl flights. Mr. Aguayo and Mr. Bristle conducted the initial crepuscular survey on April 13, 2023. Subsequent surveys were conducted by Mr. Aguayo on May 10, June 19, and July 12, 2023. All potential habitat in the Project site was surveyed to achieve 100 percent visual coverage of the area. Surveys beyond fenced property boundaries were limited to what could be observed with binoculars. Binoculars were also used to inspect holes; crevices; and potential perches (e.g., rocks, fence posts, and other elevated structures) for the presence of owls while listening for owl calls.

Any active burrows and burrowing owl sightings would have been mapped on an aerial photograph and recorded with a GPS unit or iPad.

SURVEY RESULTS

Suitable habitat for burrowing owl is present on the Project site within field croplands and disturbed areas. Vegetation in these areas was low in stature at the time of the surveys. These areas supported scattered California ground squirrel burrows; however, no burrowing owls, occupied owl burrows, or other evidence of owl presence (e.g., cast pellets, white-wash, feathers, or prey remains) were observed during the focused surveys. Survey times and weather conditions are summarized in Table 1 below.

A complete list of all wildlife species observed during the surveys is provided in Appendix B of this report.



D:\Projects\4RAM_BaseFiles\Chacon_Farms\PRO\Chacon_Farms_Project\Chacon_Farms_Project.aprx\ex_Burrow

Potential Burrow Locations

Exhibit 4

Chacon Farms Property

N
W E
S

400 200 0 400

Feet

PSOMAS

(Rev: 8-22-2023 JMC) R:\Projects\4RAM\020100\Graphics\BUOW\ex_Burrow.pdf

TABLE 1
SUMMARY OF BURROWING OWL SURVEYS

Survey Number	Date	Time (Start/End)	Surveyor	Weather Conditions			Results
				Temperature (°F) (Start/End)	Wind (mph) (Start/End)	Cloud Cover (%) (Start/End)	
Burrow Survey/ Crepuscular Survey 1	4/13/2023	6:31 AM/ 8:26 AM	Aguayo, Bristle	50/54	5/7	100	Suitable burrows observed. No burrowing owl observed.
Crepuscular Survey 2	5/10/2023	6:32 AM/ 9:00 AM	Aguayo	49/53	5	100	No burrowing owl observed.
Crepuscular Survey 3	6/19/2023	6:02 AM/ 8:30 AM	Aguayo	55/61	2/3	100	No burrowing owl observed.
Crepuscular Survey 4	7/12/2023	5:41 AM/ 8:46 AM	Aguayo	67/80	2	40/20	No burrowing owl observed.

°F: degrees Fahrenheit; mph: miles per hour; % percent.

RECOMMENDATIONS

Because burrowing owls move around from season to season, the County of Riverside requires pre-construction surveys prior to any ground disturbance for development regardless of the results of focused surveys. Pre-construction surveys are required year-round within 30 days prior to any ground disturbance to avoid direct take of burrowing owl (County of Riverside 2006).

If an active burrow is observed outside the breeding season (i.e., September 1–February 28) and the burrow would be impacted by the Project, a qualified Biologist shall monitor the active burrow. When the owl is away from the burrow, the Biologist shall exclude the owl from the burrow following approved CDFW (2012) guidelines, and then will remove the burrow so the burrowing owl cannot return to the burrow.

If an active burrow is present during the breeding season (i.e., March 1–August 31), the active nest site shall be protected until nesting activity has ended to ensure compliance with Section 3503.5 of the California Fish and Game Code. To protect the active burrow, a protective buffer shall be established following approved CDFW (2012) guidelines. No vegetation clearing, access, or surveying will be allowed within the protective buffer for any active burrow, unless otherwise determined by a qualified Biologist. Encroachment into the protective buffer will only be allowed if the Biologist determines that the proposed activity will not disturb the nest occupants. Construction can proceed when the qualified Biologist has determined that fledglings have left the nest and the burrow is no longer active.

REFERENCES

California Department of Fish and Game (CDFG). 2012 (March). Staff Report on Burrowing Owl Mitigation. Sacramento, CA: CDFG, Natural Heritage Division.

California Department of Fish and Wildlife (CDFW). 2023 (August). California Natural Diversity Database. Records of Occurrence for Burrowing Owl in Riverside County. Sacramento, CA: CDFW, Natural Heritage Division.

Center for Biological Diversity, Defenders of Wildlife, California State Park Rangers Association, Santa Clara Valley Audubon Society, San Bernardino Valley Audubon Society, and Tri-county Conservation League (CBD et al.). 2003. *Petition to the State of California Fish and Game Commission and Supporting Information for Listing the California Population of the Western Burrowing Owl (Athene cunicularia hypugaea) as an Endangered or Threatened Species under the California Endangered Species Act*. Oakland, CA: CBD et al. http://www.biologicaldiversity.org/swcbd/species/b-owl/petition.pdf.

Dechant, J.A., M.L. Sondreal, D.H. Johnson, L.D. Igl, C.M. Goldade, P.A. Rabie, and B.R. Euliss. 2003. Effects of Management Practices on Grassland Birds: Burrowing Owl. Jamestown, ND: Northern Prairie Wildlife Research Center. http://www.npwrc.usgs.gov/resource/literatr/grasbird/buow/buow.htm.

Desmond, M.J. and J.A. Savidge. 1998. Burrowing Owl Conservation in the Great Plains (page 9). Abstracts of the Second International Burrowing Owl Symposium, Ogden, Utah.

Haug, E.A., B.A. Milsap, and M.S. Martell. 1993. Burrowing Owl (Speotyto cunicularia). The Birds of North America, No. 61 (A. Poole and F. Gill, Eds.). Philadelphia, PA and Washington, D.C.: The Academy of Natural Sciences and the American Ornithologists' Union.

James, T.R. and R.W. Seabloom. 1968. Notes on the Burrow Ecology and Food Habits of the Burrowing Owl in Southwestern North Dakota. Blue Jay 26:83–84.

Riverside, County of. 2006 (as amended). *Burrowing Owl Survey Instructions for the Western Riverside Multiple Species Habitat Conservation Plan Area.* Riverside, CA: the County. http://www.tlma.co.riverside.ca.us/epd/documents/Burrowing_Owl_Survey_Instructions.pdf.

APPENDIX A

SITE PHOTOGRAPHS



View of the project site, facing northeast from the southwest corner.



View of the project site, facing southwest from the northeast portion.

D:\Projects\4RAM_BaseFiles\Chacon_Farms\Graphics\AppA_SP1.ai

Site Photographs

Appendix A-1

Chacon Farms Property

PSOMAS

(08/10/2023 PLO) R:\Projects\4RAM\020100\Graphics\BUOW\AppA_SP1.pdf



View of a burrow in the northwestern portion of the project site. No owl sign was observed at the burrow.



View of a burrow along eastern boundary of the project site. No owl sign was observed at the burrow.

D:\Projects\4RAM_BaseFiles\Chacon_Farms\Graphics\AppA_SP2.ai

Site Photographs

Appendix A-2

Chacon Farms Property

PSOMAS

APPENDIX B

WILDLIFE COMPENDIUM

WILDLIFE SPECIES OBSERVED DURING THE SURVEY

Species	
Scientific Name	**Common Name**
BIRDS	
ANATIDAE – SWAN, GOOSE, AND DUCK FAMILY	
Mareca americana	American wigeon
Anas platyrhynchos	mallard
Oxyura jamaicensis	ruddy duck
COLUMBIDAE – PIGEONS AND DOVES	
*Columba livia**	rock pigeon
Zenaida macroura	mourning dove
RALLIDAE – RAIL AND COOT FAMILY	
Fulica americana	American coot
RECURVIROSTRIDAE – STILT AND AVOCET FAMILY	
Himantopus mexicanus	black-necked stilt
SCOLOPACIDAE – SANDPIPER FAMILY	
Limosa fedoa	marbled godwit
Calidris minutilla	least sandpiper
LARIDAE – GULL AND TERN FAMILY	
Larus delawarensis	ring-billed gull
ACCIPITRIDAE – HAWK FAMILY	
Buteo jamaicensis	red-tailed hawk
TYRANNIDAE – TYRANT FLYCATCHERS	
Sayornis nigricans	black phoebe
Sayornis saya	Say's phoebe
Tyrannus verticalis	western kingbird
CORVIDAE – JAY AND CROW FAMILY	
Corvus brachyrhynchos	American crow
Corvus corax	common raven
ALAUDIDAE – LARK FAMILY	
Eremophila alpestris	horned lark
HIRUNDINIDAE – SWALLOW FAMILY	
Petrochelidon pyrrhonota	cliff swallow
MIMIDAE – THRASHERS	
Mimus polyglottos	northern mockingbird
STURNIDAE – STARLINGS	
*Sturnus vulgaris**	European starling
PASSERIDAE – OLD WORLD SPARROW FAMILY	
*Passer domesticus**	house sparrow
FRINGILLIDAE – FINCHES	
Haemorhous mexicanus	house finch
Spinus psaltria	lesser goldfinch
ICTERIDAE – BLACKBIRDS AND ORIOLES	
Sturnella neglecta	western meadowlark
Molothrus ater	brown-headed cowbird
Euphagus cyanocephalus	Brewer's blackbird
* Non-native Species	

APPENDIX E

CONSTRUCTION MINIMIZATION MEASURES

- Plans for water pollution and erosion control will be prepared for all Discretionary Projects involving the movement of earth in excess of 50 cubic yards. The plans will describe sediment and hazardous materials control, dewatering or diversion structures, fueling and equipment management practices, use of plant material for erosion control. Plans will be reviewed and approved by the County of Riverside and participating jurisdiction prior to construction.
- Timing of construction activities will consider seasonal requirements for breeding birds and migratory non-resident species. Habitat clearing will be avoided during species active breeding season defined as March 1 to June 30.
- Sediment and erosion control measures will be implemented until such time soils are determined to be successfully stabilized.
- Short-term stream diversions will be accomplished by use of sand bags or other methods that will result in minimal in-stream impacts. Short-term diversions will consider effects on wildlife.
- Silt fencing or other sediment trapping materials will be installed at the downstream end of construction activities to minimize the transport of sediments off-site.
- Settling ponds where sediment is collected will be cleaned in a manner that prevents sediment from re-entering the stream or damaging/disturbing adjacent areas. Sediment from settling ponds will be removed to a location where sediment cannot re-enter the stream or surrounding drainage area. Care will be exercised during removal of silt fencing to minimize release of debris or sediment into streams.
- No erodible materials will be deposited into water courses. Brush, loose soils, or other debris material will not be stockpiled within stream channels or on adjacent banks.
- The footprint of disturbance will be minimized to the maximum extent feasible. Access to sites will occur on pre-existing access routes to the greatest extent possible.
- Equipment storage, fueling and staging areas will be sited on non-sensitive upland habitat types with minimal risk of direct discharge into riparian areas or other sensitive habitat types.
- The limits of disturbance, including the upstream, downstream and lateral extents, will be clearly defined and marked in the field. Monitoring personnel will review the limits of disturbance prior to initiation of construction activities.
- During construction, the placement of equipment within the stream or on adjacent banks or adjacent upland habitats occupied by Covered Species that are outside of the project footprint will be avoided.
- Exotic species removed during construction will be properly handled to prevent sprouting or regrowth.
- Training of construction personnel will be provided.
- Ongoing monitoring and reporting will occur for the duration of the construction activity to ensure implementation of best management practices.
- When work is conducted during the fire season (as identified by the Riverside County Fire Department) adjacent to coastal sage scrub or chaparral vegetation, appropriate fire-fighting equipment (e.g., extinguishers, shovels, water tankers) shall be available on the site during all phases of project construction to help minimize the chance of human-caused wildfires. Shields, protective mats, and/or other fire preventative methods shall be used during grinding, welding, and other spark-inducing activities. Personnel

trained in fire hazards, preventative actions, and responses to fires shall advise contractors regarding fire risk from all construction-related activities.

- Active construction areas shall be watered regularly to control dust and minimize impacts to adjacent vegetation.
- All equipment maintenance, staging, and dispensing of fuel, oil, coolant, or any other toxic substances shall occur only in designated areas within the proposed grading limits of the project site. These designated areas shall be clearly marked and located in such a manner as to contain run-off.
- Waste, dirt, rubble, or trash shall not be deposited in the Conservation Area or on native habitat.

APPENDIX F

TREE SURVEY

April 28, 2023

Richard Michael
Ramon Dairy, LLC
2452 Ramona Expressway
San Jacinto, California 92582

VIA EMAIL
richard@homealaska.net

Subject: Tree Inventory Report for the Chacon Farms Property, City of San Jacinto, California

Dear Mr. Michael:

Psomas is pleased to provide this Tree Inventory Report for the Chacon Farms Property (hereinafter referred to as the "Project") located in the City of San Jacinto in Riverside County, California. The Project site is located north of Esplanade Avenue, west of Cawston Avenue North, South of 7th Street, and east of an unimproved road through agricultural land (Odell Avenue) (Exhibit 1).

SITE DESCRIPTION

The Project site includes approximately 75.6-acres consisting of Assessor Parcel Numbers (APNs) 432-260-009, 432-260-026, and 432-260-027 and is located on the U.S. Geological Survey's (USGS') Lakeview 7.5-minute quadrangle of the San Bernardino Meridian at Township 4 South, Range 1 West, Section 31 and 32. Topography on the Project site is relatively flat with an elevation of approximately 1,500 to 1,510 feet above mean sea level. Surrounding land uses include dairies, agricultural, residential, and rural residential. Active construction was occurring on the property to the west at the time of the field survey.

The Project proposes to build residential housing; it is assumed that the entire Project site would be impacted.

REGULATORY AUTHORITY

The City of San Jacinto Municipal Code prohibits removal of trees from public streets or parkways; authorization must be obtained from the City Council (Section 12.20). Any trees removed for the convenience of construction require replacement at the expense of the entity requesting their removal. The replacement tree must be approved by the parks and recreation commission.

There is no restriction on the removal of trees located on private property; however, tentative tract maps must show the location of all trees having a diameter of 9.5 inches or greater. Oak trees of having a diameter of 4 inches or greater are also required to be shown.

METHODS

Psomas' Certified Arborist Trevor Bristle (International Society of Arboriculture Certificate No. WE-10233A) visited the Project site on March 22, 2023, to document the type, quantity, and condition of existing trees on the Project site. Each tree was assigned an individual identifier (i.e., number), and the trunk, branches, and foliage were carefully examined. During the site visit, the following data were recorded: tree species, number of trunks, trunk diameter at breast height (dbh), tree height, canopy diameter, and qualitative assessment ratings on aesthetics and health. Tree locations were recorded on an aerial image of the Project site.

RESULTS

A total of 22 trees were identified that are subject to the above referenced regulatory requirements (Exhibit 2). These include one tree of heaven (*Ailanthus altissima*), one lemon tree (*Citrus limon*), two Mondell pine (*Pinus eldarica*), one peach tree (*Prunus persica*), four Peruvian pepper trees (*Schinus molle*), four California fan palms (*Washingtonia filifera*), and nine Mexican fan palms (*Washingtonia robusta*).

The majority of the trees on the Project site are located in the northeast corner of the Project site surrounding existing structures. The trees' conditions are generally good with few defects (e.g., minor necrotic foliage, small dead branches, wilting). Most trees showed no conspicuous signs of stress or decay (e.g., trunk cavities, bleeding sap, signs of defoliation, or general lack of vigor); however, Tree No. 16 and 17 exhibited severe defects and appear to be in decline.

One Peruvian pepper tree is located along the southwest boundary (Tree No. 22). This tree is rooted outside of the Project boundary, but it has a canopy extending into the Project site. Therefore, this tree was included in this report.

Please contact Trevor Bristle at Trevor.Bristle@psomas.com or 626.351.2000 with any questions related to this report.

Sincerely,
PSOMAS

Amber O. Heredia
Senior Project Manager, Resource Management

Trevor Bristle
Certified Arborist
International Society of Arboriculture
Certificate No. WE-10233A

Attachments: Exhibits 1 and 2
A – Tree Data Summary



D:\Projects\4RAM\020100\MXD\Trees\ex_Project_Location_20230406.mxd

Project Location

Exhibit 1

Chacon Farms

N
W E
S

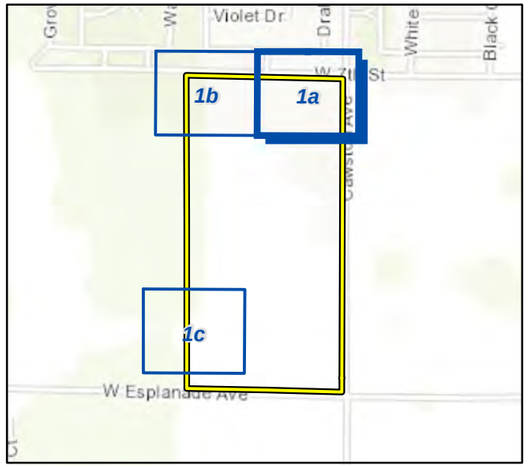
1,000 500 0 1,000

Feet

PSOMAS

(Rev: 04/06/2023 JMC) R:\Projects\4RAM\020100\Graphics\Trees\ex_Project_Location.pdf





Project Boundary

Tree Types

- California fan palm *(Washingtonia filifera)*
- Lemon *(Citrus limon)*
- Mexican fan palm *(Washingtonia robusta)*
- Mondell pine *(Pinus eldarica)*
- Peach *(Prunus persica)*
- Peruvian peppertree *(Schinus molle)*
- Tree of heaven *(Ailanthus altissima)*

N
W E
S

70 35 0 70
Feet

Aerial Source: Nearmap, 2023

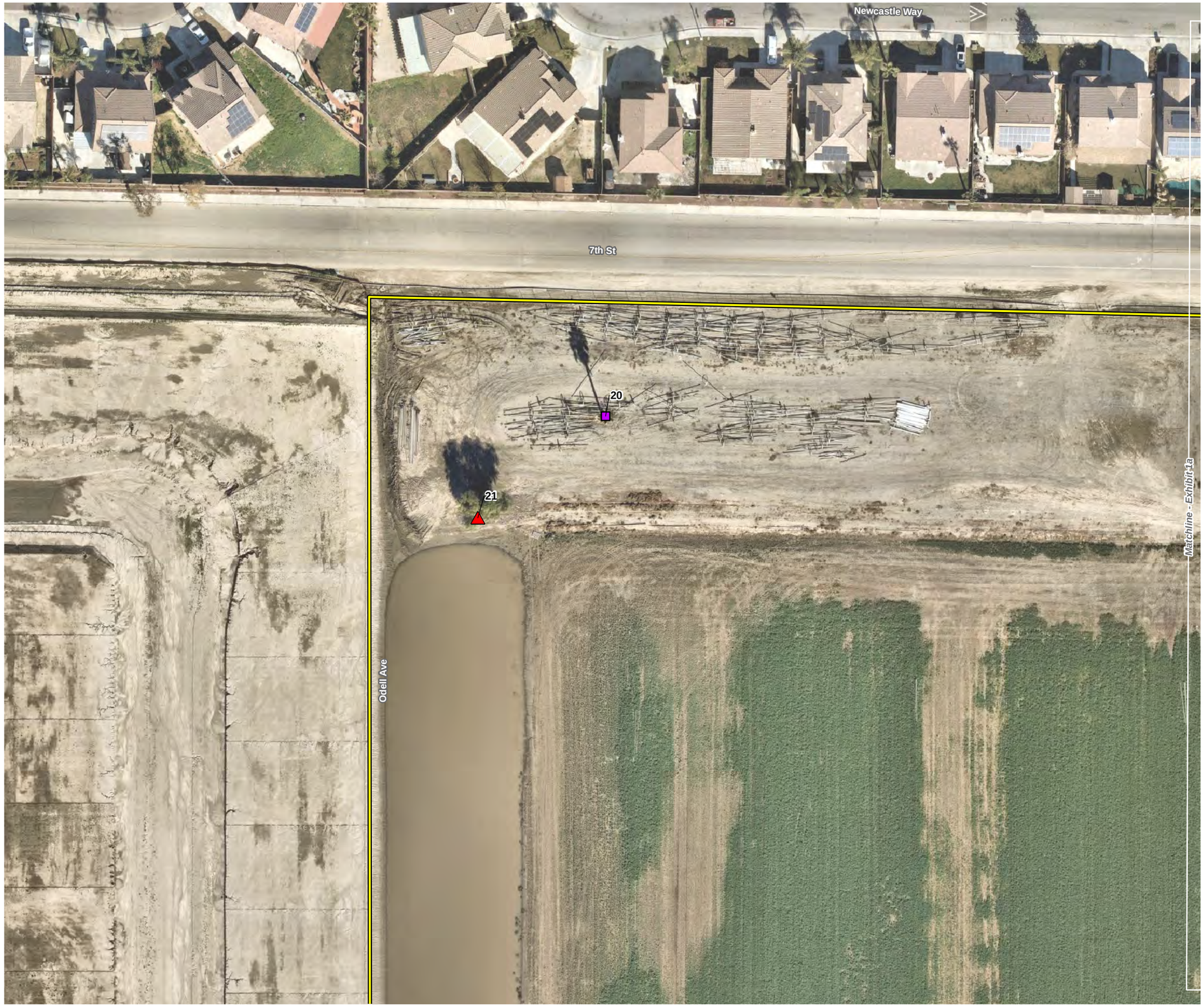
Tree Locations — Exhibit 2a

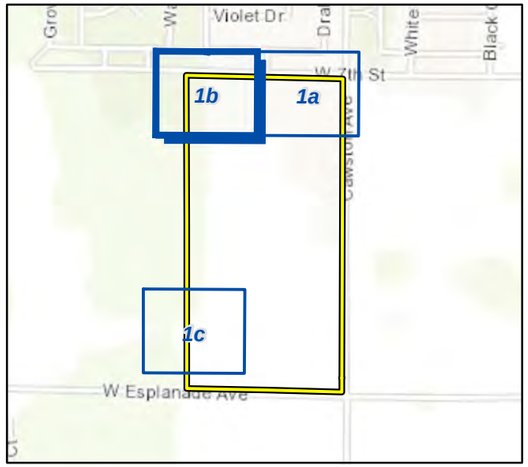
Chacon Farms

PSOMAS

(Rev: 04/13/2023 JMc) R:\Projects\4RAM\020100\Graphics\Trees\ex2_Trees_20230413.pdf

D:\Projects\4RAM\020100\MXD\Trees\ex_Trees_20230413.mxd





Project Boundary

Tree Types

- Mexican fan palm *(Washingtonia robusta)*
- Peruvian peppertree *(Schinus molle)*

N
W E
S

70 35 0 70
Feet

Aerial Source: Nearmap, 2023

Tree Locations — Exhibit 2b

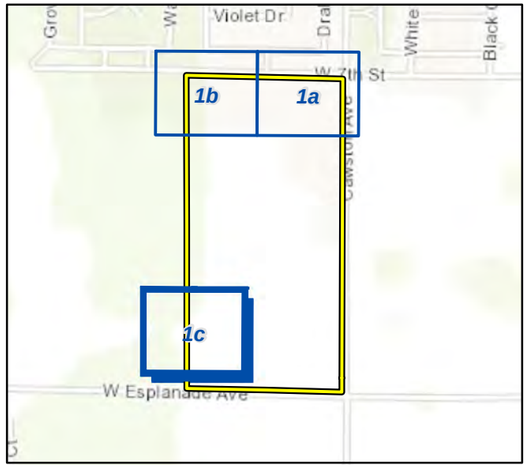
Chacon Farms

PSOMAS

(Rev: 04/13/2023 JMc) R:\Projects\4RAM\020100\Graphics\Trees\ex2_Trees_20230413.pdf

D:\Projects\4RAM\020100\MXD\Trees\ex_ Trees_20230413.mxd





Project Boundary

Tree Types

Peruvian peppertree *(Schinus molle)*

N
W E
S

70 35 0 70
Feet

Aerial Source: Nearmap, 2023

Tree Locations

Exhibit 2c

Chacon Farms

PSOMAS

(Rev: 04/13/2023 JMc) R:\Projects\4RAM\020100\Graphics\Trees\ex2_Trees_20230413.pdf

D:\Projects\4RAM\020100\MXD\Trees\ex_Trees_20230413.mxd

ATTACHMENT A

TREE DATA SUMMARY

TREE DATA SUMMARY

Tree Tag #	Common Name	Species	# Main Trunks	dbh (in)	Total DBH	Height (ft)	Canopy Diameter (ft)	Health Rating	Aesthetic Rating
1	Mondell pine	*Pinus eldarica*	1	11.9	11.9	25	20	4	4
2	California fan palm	*Washingtonia filifera*	1	34.1	34.1	35	10	4	4
3	California fan palm	*Washingtonia filifera*	1	34.1	34.1	35	10	4	4
4	California fan palm	*Washingtonia filifera*	1	31.5	31.5	35	8	4	4
5	California fan palm	*Washingtonia filifera*	1	33.5	33.5	35	10	4	4
6	Mexican fan palm	*Washingtonia robusta*	1	18.5	18.5	50	8	4	4
7	Mexican fan palm	*Washingtonia robusta*	1	19.0	19.0	35	8	4	4
8	lemon	*Citrus limon*	3	4.0, 3.5, 2.0	9.5	10	10	4	3
9	Peruvian peppertree	*Schinus molle*	2	7.0, 6.8	13.8	30	25	4	4
10	Mexican fan palm	*Washingtonia robusta*	1	18.3	18.3	55	10	4	4
11	Mexican fan palm	*Washingtonia robusta*	2	13.8, 13.5	27.3	50	20	4	4
12	Mexican fan palm	*Washingtonia robusta*	1	14.3	14.3	50	8	4	4
13	Mexican fan palm	*Washingtonia robusta*	1	18.7	18.7	55	10	4	4
14	peach	*Prunus persica*	1	9.5	9.5	12	6	4	3
15	Mexican fan palm	*Washingtonia robusta*	3	13.0, 13.0, 12.0	38.0	50	25	4	4
16	Peruvian peppertree	*Schinus molle*	1	12.0	12.0	25	15	2	2
17	Mondell pine	*Pinus eldarica*	1	18.6	18.6	40	45	1	1
18	tree of heaven	*Ailanthus altissima*	1	16.4	16.4	30	20	4	3
19	Mexican fan palm	*Washingtonia robusta*	1	15.0	15.0	25	10	4	4
20	Mexican fan palm	*Washingtonia robusta*	1	19.0	19.0	35	10	4	4
21	Peruvian peppertree	*Schinus molle*	1	19.6	19.6	30	35	4	3
22	Peruvian peppertree	*Schinus molle*	1	22.6	22.6	35	30	4	3

dbh: diameter at breast height; ft: feet

Aesthetics/Health Rating: 1=Very Poor, 2=Poor, 3=Fair, 4=Good, and 5=Excellent