Appendix E:

Biological Resources Supporting Information

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E.1 - Vollmar Biological Assessment

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Vista Ranch Project

Wilson Premier Homes

Fresno County, California

Biological Assessment For Endangered Species Act Section 7 Consultation

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Revised October 2025
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October 16, 2025

Cody Barnes
Regulatory Project Manager
Regulatory Division CA South Section
U.S. Army Corps of Engineers, Sacramento District
1325 J Street
Sacramento, CA 95814-2922

Dear Mr. Barnes,

I am writing to provide the enclosed document on behalf of Wilson Premier Homes. In October 2023, we provided a draft Biological Assessment (BA) for your use in analyzing Wilson Premier Homes' request for coverage under a Clean Water Act Section 404 wetland fill permit for activities required as part of the Vista Ranch Project. We provided additional information for consultation in July 2024. The enclosed BA updates those prior documents to be current with the latest version of the Project Description for the Vista Ranch Project, as presented in other official documents. Since July 2024,

- Construction of a bridge over the Big Dry Creek Outlet Channel has been removed from the Proposed Action;
- Construction of wet utilities in existing public rights-of-way has been added to the Proposed Action; and
- Additional improvements to existing public roadways have been added to the Proposed Action.

None of the revisions made since the July 2024 memorandum result in any change to the level of impacts to listed species or their habitats; the effects analysis is unchanged.

I hereby authorize the Army Corps of Engineers to use or modify the enclosed document as it sees fit for the purposes of Endangered Species Act consultation for the Vista Ranch Project.

Please do not hesitate to contact me with any questions about the enclosed. I hope that it is helpful to you in ensuring speedy processing of the project permits.

Sincerely,



Eric Smith
Senior Ecologist,
Vollmar Natural Lands Consulting

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Acronyms and Abbreviations

BA	Biological Assessment
BMPs	Best Management Practices
CDFW	California Department of Fish and Wildlife
CEQA	California Environmental Quality Act
CESA	California Endangered Species Act
CNDDB	California Natural Diversity Database
CRPR	California Rare Plant Rank
CWA	Clean Water Act
EIS	Environmental Impact Statement
EPA	US Environmental Protection Agency
ESA	Endangered Species Act
FMFCD	Fresno Metropolitan Flood Control District
IPaC	Information for Planning and Consultation
ILF	In-Lieu Fee
NEPA	National Environmental Policy Act
NFWF	National Fish and Wildlife Foundation
NMFS	National Marine Fisheries Service
NOAA	National Oceanic and Atmospheric Administration
OHWM	Ordinary High-Water Mark
PCE	Primary Constituent Elements
SWPPP	Stormwater Pollution Prevention Plan
SWRCB	State Water Resources Control Board
US	United States
USACE	US Army Corps of Engineers
USFWS	US Fish and Wildlife Service
VNLC	Vollmar Natural Lands Consulting

Executive Summary

The proposed Project is the development of the Vista Ranch Project, a mixed-use development which will create approximately 2,718 residential units on an approximately 368-acre site in Fresno County, California. The Proposed Action is the issuance by the Army Corps of Engineers of a verified authorization under Nationwide Permit 29, authorizing fill of potentially-jurisdictional wetlands and waters of the US required for the Project. The Action may affect, and is likely to adversely affect, California tiger salamander and vernal pool fairy shrimp, which are listed as Threatened under the Endangered Species Act. The Proposed Action also may affect, and is likely to adversely affect, western spadefoot and northwestern pond turtle, which are Proposed for listing as Threatened under the Endangered Species Act. However, the Project includes appropriate compensatory mitigation for these species in the form of the establishment of an approximately 857-acre permittee-responsible mitigation preserve on the Jamison Ranch Property in Madera County. The Jamison Ranch Property has excellent biological resource values, and contributes to a growing preserve network in a region threatened by rapid urban development. The Project and the Action therefore contribute to the survival and recovery of these species. The Army Corps of Engineers requests the US Fish and Wildlife Service initiate formal consultation on the Proposed Action under Section 7 of the Endangered Species Act.

1.0 Introduction

The purpose of this Biological Assessment (BA) is to review the proposed Vista Ranch Project in sufficient detail to determine to what extent the Proposed Action may affect any of the threatened, endangered, proposed, candidate, or sensitive species and designated or proposed critical habitats listed below. In addition, the following information is provided to comply with statutory requirements to use the best scientific and commercial information available when assessing the risks posed to listed and/or proposed species and designated and/or proposed critical habitat by proposed federal actions. This initiation package is prepared in accordance with legal requirements set forth under regulations implementing Section 7 of the Endangered Species Act ("ESA", 50 CFR 402; 16 U.S.C. 1536 (c)). This BA addresses species that fall under the jurisdiction of the United States Fish and Wildlife Service (USFWS).

Wilson Premier Homes, Inc (Applicant) is seeking Department of the Army authorization under Section 404 of the Clean Water Act (CWA) via Nationwide Permit 29 (Residential Developments) for the discharge of dredged or fill material associated with the construction of the proposed project.

1.1 ESA Listed Species

An "Official Species List" was obtained via the U.S. Fish and Wildlife Service (USFWS) Information for Planning and Consultation (IPaC) tool on August 15, 2023. The Official Species List (provided in **Appendix A)** lists 14 Threatened, Endangered, Proposed Threatened, Proposed Endangered, or Candidate species (collectively "ESA Listed Species") which may be affected by the project, based on known species ranges and life histories.

In addition to the Official Species List, a search of the California Natural Diversity Database (CNDDB) was conducted (CDFW 2023a). The CNDDB search included all processed and unprocessed records for the USGS 7.5-minute quadrangles containing the Action Area, and all adjacent quadrangles ("Twelve-Quad Search"). The Twelve-Quad Search of CNDDB produced 77 other taxa known from the vicinity of the project, including eight additional ESA-Listed Species. This document assumes that these eight species also may be affected by the Proposed Action. The 22 species which the Proposed Action **may affect** are summarized in **Table 1**, below.

1.1.1 NOAA-NMFS Species

The Action Area addressed within this document is not within Essential Fish Habitat or Habitat Areas of Particular Concern (NOAA-NMFS 2023a). No Threatened, Endangered, Proposed Threatened, Proposed Endangered, or Candidate fish species are documented within the USGS 7.5-minute quadrangle containing the Action Area, nor any of the adjacent quadrangles ("Twelve Quad Search", CDFW 2023a). Therefore, the Proposed Action will have no effect on ESA Listed Species under the jurisdiction of the National Oceanic and Atmospheric Administration (NOAA) National Marine Fisheries Service (NMFS).

Table 1. ESA Threatened, Endangered, Proposed Threatened, Proposed Endangered, or Candidate Species that the Vista Ranch Project May Affect

Common Name	Scientific Name	ESA Status	CESA Status
Mammals			
Fresno Kangaroo Rat	*Dipodomys nitratoides exilis*	E	E
San Joaquin Kit Fox	*Vulpes macrotis mutica*	E	T
Birds			
California Condor	*Gymnogyps californianus*	E	E
Least Bell's Vireo[1]	*Vireo belli pusillus*	E	E
Yellow-billed Cuckoo	*Coccyzus americanus*	T	E
Reptiles			
Blunt-nosed Leopard Lizard	*Gambelia sila* [*Gambelia silus*]	E	E
Giant Garter Snake[1]	*Thamnophis gigas*	T	T
Northwestern Pond Turtle	*Actinemys marmorata*	PT[3]	none
Amphibians			
California Tiger Salamander	*Ambystoma californiense*	T	T
California Red-legged Frog[1]	*Rana draytonii*	T	none
Foothill Yellow-legged Frog	*Rana boylii*	E[2]	E
Western Spadefoot	*Spea hammondii*	PT[3]	none
Insects			
Monarch Butterfly	*Danaus plexippus*	C	none
Valley Elderberry Longhorn Beetle[1]	*Desmocerus dimorphus californicus*	T	none
Crustaceans			
Conservancy Fairy Shrimp	*Branchinecta conservatio*	E	none
Vernal Pool Fairy Shrimp	*Branchinecta lynchi*	T	none
Vernal Pool Tadpole Shrimp[1]	*Lepidurus packardi*	E	none
Flowering Plants			
California Jewelflower[1]	*Caulanthus californicus*	E	E
Succulent [Fleshy] Owl's-clover	*Castilleja campestris* ssp. *succulenta*	T	E
Greene's Tuctoria	*Tuctoria greenei*	E	R
Hairy Orcutt Grass[1]	*Orcuttia pilosa*	E	E
Hartweg's Golden Sunburst	*Pseudobahia bahiifolia*	E	E
San Joaquin Adobe Sunburst[1]	*Pseudobahia peirsonii*	T	E
San Joaquin Valley Orcutt Grass	*Orcuttia inaequalis*	T	E

[1]Species appeared in CNDDB Twelve-Quad Search, but not in IPaC Official Species List.

[2]USFWS announced Endangered status for this species after issuance of Official Species List.

[3]USFWS announced Proposed Threatened status for this species after issuance of Official Species List.

Abbreviations:
CESA = California Endangered Species Act, ESA = Endangered Species Act,
E = Endangered, T = Threatened, C = Candidate, PT = Proposed Threatened

1.2 CESA-Listed Species, Sensitive Species, and Species of Concern

In addition to the species named above, the Twelve Quad Search of CNDDB produced 69 other taxa known from the vicinity of the project. These species are not ESA listed, but may be listed under the California Endangered Species Act (CESA), or be listed as sensitive by other authorities. These species are listed in **Table 2**, below. The Proposed Action **may affect** these species. Such effects would be addressed via California Environmental Quality Act (CEQA) mitigation and/or application for CESA Section 2081 incidental take permit, as appropriate.

Table 2. CESA-Listed Species, Sensitive Species, and Species of Concern

Common Name	Scientific Name	Status
Mammals		
American Badger	*Taxidea taxus*	SSC
Hoary Bat	*Lasiurus cinereus*	-
North American Porcupine	*Erethizon dorsatum*	-
Northern California Ringtail	*Bassariscus astutus raptor*	FP
Pallid Bat	*Antrozous pallidus*	SSC
San Joaquin Long-Tailed Weasel	*Mustela frenata xanthogenys*	-
San Joaquin Pocket Mouse	*Perognathus inornatus*	-
Spotted Bat	*Euderma maculatum*	SSC
Townsends Big-Eared Bat	*Corynorhinus townsendii*	SSC
Western Mastiff Bat	*Eumops perotis californicus*	SSC
Western Red Bat	*Lasiurus frantzii*	SSC
Yuma Myotis	*Myotis yumanensis*	-
Birds		
Bald Eagle	*Haliaeetus leucocephalus*	CESA E, FP
Black-Crowned Night Heron	*Nycticorax nycticorax*	-
Burrowing Owl	*Athene cunicularia*	SSC
California Horned Lark	*Eremophila alpestris actia*	WL
Cooper's Hawk	*Accipiter cooperii*	WL
Double-Crested Cormorant	*Nannopterum auritum*	WL
Ferruginous Hawk	*Buteo regalis*	-
Golden Eagle	*Aquila chrysaetos*	FP, WL
Great Blue Heron	*Ardea herodias*	-
Great Egret	*Ardea alba*	-
Loggerhead Shrike	*Lanius ludovicianus*	SSC
Osprey	*Pandion haliaetus*	WL
Prairie Falcon	*Falco mexicanus*	WL
Snowy Egret	*Egretta thula*	-
Swainson's Hawk	*Buteo swainsoni*	-
Tricolored Blackbird	*Agelaius tricolor*	SSC
Yellow Warbler	*Setophaga petechia*	SSC
Yellow-Headed Blackbird	*Xanthocephalus xanthocephalus*	SSC
Fish		
Hardhead	*Mylopharodon conocephalus*	SSC

Common Name	Scientific Name	Status
Sacramento Hitch	*Lavinia exilicauda exilicauda*	SSC
Reptiles		
California Glossy Snake	*Arizona elegans occidentalis*	SSC
Coast Horned Lizard	*Phrynosoma blainvillii*	SSC
Northern California Legless Lizard	*Anniella pulchra*	SSC
Arachnids		
Table Mountain Harvestman	*Calicina mesaensis*	-
Insects		
American Bumble Bee	*Bombus pensylvanicus*	-
Antioch Efferian Robberfly	*Efferia antiochi*	-
Crotch Bumble Bee	*Bombus crotchii*	CESA CE
Hurd's Metapogon Robberfly	*Metapogon hurdi*	-
Molestan Blister Beetle	*Lytta molesta*	-
Crustaceans		
California Linderiella	*Linderiella occidentalis*	-
Midvalley Fairy Shrimp	*Branchinecta mesovallensis*	-
Mollusks		
Western Pearlshell	*Margaritifera falcata*	-
Western Ridged Mussel	*Gonidea angulata*	-
Bryophytes		
Brassy Bryum	*Bryum chryseum*	CRPR 4.3
Wine-Colored Tufa Moss	*Plagiobryoides vinosula*	CRPR 4.2
Flowering Plants		
Adobe Navarretia	*Navarretia nigelliformis* ssp. *nigelliformis*	CRPR 4.2
Arizona Pholistoma	*Pholistoma auritum* var. *arizonicum*	CRPR 2B.3
Boggs Lake Hedge-Hyssop	*Gratiola heterosepala*	CESA E, CRPR 1B.2
Bristly Sedge	*Carex comosa*	CRPR 2B.1
California Satintail	*Imperata brevifolia*	CRPR 2B.1
Dwarf Downingia	*Downingia pusilla*	CRPR 2B.2
Ewans Larkspur	*Delphinium hansenii* ssp. *ewanianum*	CRPR 4.2
Forked Hare-Leaf	*Lagophylla dichotoma*	CRPR 1B.1
Halls Wyethia	*Wyethia elata*	CRPR 4.3
Hoary Navarretia	*Navarretia eriocephala*	CRPR 4.3
Hogwallow Starfish	*Hesperevax caulescens*	CRPR 4.2
Hoovers Calycadenia	*Calycadenia hooveri*	CRPR 1B.3
Hoovers Cryptantha	*Cryptantha hooveri*	CRPR 1A
Kings River Monkeyflower	*Erythranthe acutidens*	CRPR 3
Madera Leptosiphon	*Leptosiphon serrulatus*	CRPR 1B.2
Orange Lupine	*Lupinus citrinus* var. *citrinus*	CRPR 1B.2
Pincushion Navarretia	*Navarretia myersii* ssp. *myersii*	CRPR 1B.1

Common Name	Scientific Name	Status
Sanfords Arrowhead	*Sagittaria sanfordii*	CRPR 1B.2
Sierra Nevada Monkeyflower	*Erythranthe sierrae*	CRPR 4.2
Small-Flowered Monkeyflower	*Erythranthe inconspicua*	CRPR 4.3
Spiny-Sepaled Button-Celery	*Eryngium spinosepalum*	CRPR 1B.2
Streambank Spring Beauty	*Claytonia parviflora* ssp. *grandiflora*	CRPR 4.2
Tree-Anemone	*Carpenteria californica*	CESA T, CRPR 1B.2

Abbreviations:
CESA = California Endangered Species Act, CRPR = California Rare Plant Rank, E = Endangered, CE = Candidate Endangered, FP = Fully Protected, SSC = CDFW Species of Special Concern, WL = CDFW Watch List

CRPR Ranks:
1A = Plants presumed extinct in California and rare/extinct elsewhere.
1B = Plants rare, threatened, or endangered in California and elsewhere.
2A = Plants presumed extirpated in California, but more common elsewhere.
2B = Plants rare, threatened, or endangered in California, but more common elsewhere.
3 = Plants about which we need more information.
4 = Plants of limited distribution.
CRPR Subranks:
.1 = seriously threatened in California
.2 = fairly threatened in California
.3 = not very threatened in California

1.3 Critical Habitat

Per the Official Species List (**Appendix A**) and the "National NMFS ESA Critical Habitat Mapper" (NOAA-NMFS 2023b), the Action addressed within this document does not occur within designated Critical Habitat for any species.

2.0 Consultation to Date

This document is a revised and updated version of an earlier BA, dated October 17, 2023.

The Applicant informally consulted with Kathy Norton of USACE (contact information provided below) by phone and email on August 24th, 25th, 28th, 29th, and 30th, 2023. The purpose of this consultation was to discuss potential USACE jurisdiction, possible federal permitting pathways, and National Environmental Policy Act (NEPA) implications of the Project and the Action. Based on these discussions, the Applicant revised the planned Project to reduce impacts to potential jurisdictional wetlands and waters of the US, including listed species habitat. Specific changes made in response to the consultation include avoidance of the agricultural tailwater pond (described later in this document). Following these meetings, the Applicant provided the October 2023 version of this BA to USACE.

USACE requested formal consultation with USFWS on the proposed Action on November 14 2023 under USACE file #SPK-2023-00511.

On April 26, 2024, USACE and USFWS removed San Joaquin kit fox from the consultation.

On May 2, 2024, USFWS indicated that their consultation with USACE would include western spadefoot and northwestern pond turtle and requested a Biological Assessment evaluating the Project's effects on these species. The Applicant provided a memorandum dated July 11, 2024 addressing these species. The information included in that memorandum has been incorporated into this updated version of the BA.

This document, dated October 2025, was prepared in order to update the BA to be current with the latest revisions to the Project Description. A revised Project Description is provided in **Section 3.2**, below. Since the 2024 memorandum,

- Construction of a bridge over the Big Dry Creek Outlet Channel has been removed from the Proposed Action;
- Construction of wet utilities in existing public rights-of-way has been added to the Proposed Action; and
- Additional improvements to existing public roadways have been added to the Proposed Action.

In addition, the Project Description has been expanded to include additional information about project access and staging locations, phasing of project build-out, and about the City of Clovis urban planning context.

None of the revisions made since the July 2024 memorandum result in any change to the level of impacts to listed species or their habitats; the effects analysis is unchanged.

3.0 Description of the Proposed Action

The Proposed Action consists of the issuance by the United States Army Corps of Engineers (USACE) of a verified authorization under Nationwide Permit 29, authorizing permanent fill of 0.495 acre of potentially-jurisdictional wetlands of the US required for the Project. This action has several interrelated and interdependent activities, namely:

- The development of the entire Project Site;
- The development of off-site improvements required by the Project;
- The implementation of various avoidance and minimization measures for sensitive species and habitats within the Action Area;
- The conservation and management of the Mitigation Site; and
- For any aquatic resources impacts not considered fully offset by the proposed permittee-responsible mitigation, the purchase of aquatic habitat credits from an approved mitigation bank or in-lieu fee program with service area and credits appropriate to the Project's impact.

The regional locations of these actions are depicted in **Figure 1**, presented in **Appendix B**. The individual actions, and the areas where they will occur, are described and depicted in more detail below.

3.1 Federal Action

USACE is the Action Agency. USACE has joint jurisdiction with the United States Environmental Protection Agency (EPA) over Waters of the United States. USACE is undertaking the Action under the authority granted to it under Section 404 of the CWA (33 U.S. Code § 1344 - Permits for dredged or fill material). The Action will be carried out by the USACE Sacramento District. The Action Agency contact is:

Cody Barnes
Regulatory Project Manager
Regulatory Division CA South Section
U.S. Army Corps of Engineers, Sacramento District
1325 J Street
Sacramento, CA 95814-2922
cody.l.barnes@usace.army.mil

Wilson Premier Homes, Inc. is the Applicant. The Applicant has applied for coverage for the Project under Nationwide Permit 29. The direct effects of the Action (permanent fill of 0.495 acre of potentially-jurisdictional Waters of the U.S.) will take place within the Project Site, described in **Section 3.3**, below. The entire Project is planned to take place over a ten-year period. However, the work directly authorized by the USACE permit will be performed over a five-year period, anticipated to begin in 2026 and end in 2031. The majority of the effects will be permanent. The direct effects of the Action will be carried out by the Applicant; USACE's role is restricted to issuance of the verified authorization letter. The Applicant's contact is:

James Crandall
Director of Community Development
Wilson Premier Homes, Inc.
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The purpose of the Action is to allow development of the Project. Activities associated with development of the Project are therefore interrelated and interdependent actions.

3.2 Interrelated and Interdependent Actions

The Project Description for the Interrelated and Interdependent Actions are described herein.

3.2.1.1 Development of the Project

This section provides a brief overview of Wilson Premier Homes' proposed Vista Ranch mixed-use development project, located immediately outside current City of Clovis (City) limits in Fresno County (**Figure 2**). It contains the following information:

- Background on the project and its planning context;
- An overview of the proposed development plan, including project objectives, project elements, avoidance of jurisdictional wetlands and other waters, and City entitlements required to implement the project;
- A brief discussion of project construction, including phasing, means and methods, and construction access and staging; and
- A brief discussion of City entitlements required to implement the Project. City entitlements are included because they bear on the project's (and hence the Action's) indirect long-term effects and its contribution to cumulative effects over the long term)

The Vista Ranch Tentative Tract Map is provided in **Appendix C**.

3.2.1.1.1 Background & Planning Context

The Vista Ranch project represents part of a larger City of Clovis (City) planning undertaking (**Figure 3**) that comprises:

- expansion of the City's Sphere of Influence (SOI) to include an approximately 952-acre area outside the current SOI boundary;
- adoption of a comprehensive Master Plan to guide development within approximately 507 acres of the SOI Expansion Area, including pre-zoning and annexation of the Master Plan Area; and
- approval and implementation of the Vista Ranch project, which would develop some 368 acres of the Master Plan Area.

Like other California jurisdictions, the City conducts land use planning, makes land use decisions, and provides services at several scales (**Figure 4**). City limits define the extent of the incorporated City as recognized under state law. Extending beyond City limits into unincorporated lands, the SOI represents the City's larger area of service responsibility. More extensive still is the Planning Area, which encompasses lands that are outside both City limits and the SOI but where the City nonetheless takes an active interest in forward planning to ensure managed, logical, and orderly growth for the benefit of the community. To that end, the City's General Plan provides a blueprint to guide land use planning decisions for the whole of the Planning Area. Both the SOI and the remainder of the Planning Area outside the SOI thus encompass lands that are contemplated for potential annexation into the incorporated City over the long-term future.

The Land Use Element of the City's current General Plan (City of Clovis 2014) emphasizes maintaining "Clovis' tradition of responsible planning and well-managed growth" in order to:

- "preserve the quality of life in existing neighborhoods and ensure the development of new neighborhoods with an equally high quality of life";
- "foster more compact development patterns that can reduce the number, length, and duration of auto trips"; and
- "balance residential growth with economic and employment growth".

Land Use Element Goal 3 prescribes "[o]rderly and sustainable outward growth into three urban centers with neighborhoods that provide a balanced mix of land uses and development types to support a community lifestyle and small town character" (City of Clovis 2014). The three urban centers—referred to as the Loma Vista Urban Center, the Northwest Urban Center (later renamed Heritage Grove), and the Northeast Urban Center—are shown on **Figure 5**. Note that they are all adjacent to dense existing development within the incorporated City and thus are logical loci for "next steps" in managed City growth.

To ensure that growth within the Urban Centers is planned, managed, and consistent with General Plan goals and policies, the General Plan further requires that a comprehensive design document, such as a master plan, specific plan, or design guidelines, be in place before new development is authorized. Additional requirements for Urban Centers may be established via designation in the General Plan as a "Focus Area" for planning. When an individual project is proposed in an Urban Center, a conceptual master plan—representing a "step-down" plan from the comprehensive design document—must be developed, to show how that project would relate to other existing and potential future development in the area and to ensure consistency with the comprehensive design document, the General Plan, and any additional Focus Area–specific requirements (City of Clovis 2014).

Development in the Loma Vista Urban Center southeast of the City's old-town core is governed by the Loma Vista Specific Plan (City of Clovis 2003), adopted more than 20 years ago and amended as growth has progressed. As the Urban Center farthest ahead in the development process, Loma Vista remains the City's priority for development, although growth is allowed to proceed elsewhere (City of Clovis 2014).[1]

The City adopted Design Guidelines for Heritage Grove 9 years ago (City of Clovis 2016). As the comprehensive design document required by the General Plan, the Design Guidelines provide the standards to direct future development and improvements in Heritage Grove. As of 2025, about 20% of the Heritage Grove Urban Center is in various stages of development, with most of the remainder in agricultural production, as shown on the air photo base of **Figure 5**. The primary landowner is currently processing a step-down Specific Plan that would guide development of an additional 40% of Heritage Grove, and several large commercial projects have also been proposed.

[1] Note that much of the Loma Vista Urban Center is now within City limits, as shown on Figure 5. This reflects progressive annexation of areas developed under the Loma Vista Specific Plan; the entirety of the Urban Center was originally outside City limits.

By contrast, the Northeast Urban Center (hereafter, the NEUC) remains largely undeveloped. This renders it the logical next focus of expansion to meet local and regional housing demand. As **Figure 4** shows, the southwest edge of the NEUC abuts existing development within Clovis City limits and already supports scattered semirural and agricultural uses. Lands immediately north and east of City limits have been cultivated in the past (northwest edge of the NEUC) or are still in agricultural uses (south end of NEUC). Farther to the northeast are open lands transitioning to the Sierra Nevada foothills; this area has not been subject to extensive agriculture due to rocky, inhospitable soils, and is overall in a more natural condition than other parts of the NEUC (see air photo base of **Figure 4**). The portion of the NEUC southeast of State Route (SR) 168 supports citrus, nut, and olive cultivation, grazing, and some remaining vacant lands, as well as about 160 acres of created ponds fed by Pup Creek.

As identified above, the General Plan prioritizes establishment of compact development to reduce automobile usage (City of Clovis 2014). From this perspective, the ideal location for new growth is immediately north of East Shepherd Avenue, adjacent to dense existing development (**Figure 2**, **Figure 5**). This location would also provide straightforward access to utilities such as water, sanitary sewer, and electrical service, in contrast to the south and northeast portions of the NEUC which are currently unserved.

At this time, development of open lands farther to the northeast in the NEUC would create an island of suburbia and render commute trips by car a default, counter to General Plan requirements. To a lesser extent, this is also true of the south, and particularly the southeast, portions of the NEUC. Extension of utilities service into these areas would also be substantially more challenging and costly, and because of the need to cross undeveloped lands—especially in the northeast—would be more environmentally impactive overall. Moreover, some of the lands in the northeast portion of the NEUC are planning establishment of a conservation/mitigation bank, and others are under consideration for alternative energy development easements. Not only would these efforts represent a better use of open, undeveloped land than the "greenfield" development that would be required here, they would further complicate development planning and implementation.

In summary, substantial barriers would be associated with large-scale development in the northeast portion of the NEUC as of 2024 – 2025 conditions, and the same deficits apply to a lesser degree to the southern NEUC, south of SR 168. The westernmost portion of the NEUC was therefore selected as the logical choice for the next steps in City growth.

The proposed SOI Expansion Area abuts existing City limits to the west and south (**Figure 3**), connecting with Heritage Grove to the west and extending the City's area of responsibility northeast to the Big Dry Creek Dam, which is effectively the boundary (and presents a substantial barrier) between existing developed uses and remaining undeveloped lands. Within the SOI Expansion area, the west portion is largely occupied by existing suburban and semi-rural development. The central and eastern portions by contrast are primarily former agricultural and grazing land that is currently vacant but is unsuitable for large-scale agricultural production, and were therefore identified as the most appropriate location for new master-planned development.

Within this framework, the City's currently proposed planning changes represent the first step in General Plan–mandated comprehensive planning for the NEUC. The Vista Ranch Master Development Plan would serve as the comprehensive design document for the portion of the NEUC that is most suitable for shorter-term future development, and the Vista Ranch Project (the subject of this document) would implement the first steps in that development.

As noted above, proposed Vista Ranch project site represents a 368-acre portion of the Vista Ranch Master Plan area—the majority but not the entirety (**Figure 3**). Development of the remaining 139 acres of the Vista Ranch Master Plan area would be the purview of a separate future project or projects that are not currently being contemplated and may be undertaken by other parties. It is assumed that separate application(s) will be submitted for future development if warranted, potentially by other parties; this document covers only the initial 368-acre Vista Ranch project.

3.2.1.1.2 Project Objectives

The Vista Ranch project is proposed to satisfy the following specific objectives:

- Development of a new master-planned community offering
    - up to 2,718 residential units;
    - up to 121,000 square feet of "Gateway" neighborhood commercial and community recreation facilities;
    - approximately 43 acres of parks, trails, and open space;
    - new public and private roadways providing vehicular, bicycle, and pedestrian access throughout the Development Site and connecting to surrounding community areas; and
    - other associated improvements, including water supply, storm drainage, sewer infrastructure, and electrical and telecommunications facilities to serve the community.

The project will be developed in consistency with the goals and objectives of the Vista Ranch Master Development Plan, SOI expansion, and related City entitlements.

3.2.1.1.3 Project Overview

The Project would construct a mixed-use development anticipated to provide up to 2,718 residential units, including both single- and multi-family units at varying densities (**Figure 6**). Development has been configured to avoid impacts on aquatic resources to the extent feasible. As shown in **Figure 6**, this includes the following:

- Leaving a belt of open space along the northeast project boundary undeveloped, protecting a chain of depressional wetlands within remnant floodplain swales in this area;
- Protecting additional wetlands in smaller open space areas throughout the development;
- Avoiding and protecting an existing agricultural tailwater pond in the central portion of the project site;

- Discharging stormwater from within the new development to protected wetlands and the tailwater pond to maintain them as aquatic features once they are surrounded by development and no longer receive overland or tailwater input. Stormwater would be routed via appropriate low-impact development (LID) treatment features to manage discharge water quality; and
- Establishing a protected open space corridor along the Outlet Channel where it bisects the Project Site. The "Outlet Channel corridor" boundaries would coincide with FMFCD's existing easement limits where an easement is in place. In the southwest portion of the project area, where no easement is currently in place, a new 100-foot-wide easement would be established to protect the Outlet Channel and maintain FMFCD access for operations and maintenance.

Additional information on the wetlands and waters to be protected is provided in the project *Delineation of Potential Jurisdictional Aquatic Resources* (Vollmar Natural Lands Consulting 2023a, **Appendix E**), which was submitted to USACE for verification on August 18, 2023, and verified in a Preliminary Jurisdictional Determination Letter from USACE dated November 9, 2023. The separately attached *Conceptual Mitigation Plan* (RCEC 2023, **Appendix I**) provides more detail on avoidance and reduction of wetland impacts.

Vista Ranch is planned to center on a mixed-use "village core" area surrounded by higher-density residential development, with lower residential densities toward the edges of the development, transitioning to surrounding rural/agricultural uses (**Figure 6**). Higher housing densities would also cluster along major circulation corridors and local amenities. Residential areas would offer a variety of housing types and lot sizes to accommodate a range of housing objectives and buyer needs with a goal to ensure housing for a range of families and lifestyles. The village core would provide a Gateway neighborhood commercial center designed to offer local-serving retail and service uses as well as employment opportunities. A private community recreation center and park would also be provided (Wilson Premier Homes 2023, Lewis pers. comm.).

Within the development, new public and private roadways would provide access and circulation (**Figure 6**). Public roadways would include sidewalks per City standards, with bike lanes along the major roadways. The project is also expected to provide for offsite roadway and/or utilities improvements along principal access corridors, potentially including East Behymer Avenue, Fowler Avenue, Perrin Avenue, Locan Avenue, Armstrong Avenue, East Shepherd Avenue, and North Temperance Avenue (Wilson Premier Homes 2023, Lewis pers. comm.).[2] Transit nodes would be located in the village core and adjacent to the community recreation center (Wilson Premier Homes 2023, Lewis pers. comm.).

[2] Note that offsite roadway improvements are not included within the project boundary as shown in the figures because the extent of potential City requirements is not yet certain; however, the likely maximum extent of offsite roadway work was included in the area surveyed for potential jurisdictional waters, and was found not to support jurisdictional resources (Vollmar Natural Lands Consulting 2023b).

To provide an internal connection between the east and west segments of the development, the applicant hopes to construct a new crossing over the FMFCD Outlet Channel downstream of the Big Dry Creek Dam spillway (see **Figure 6**). **Figure 7** shows one concept for the crossing, a clear-span bridge. An alternate possibility would be a City-standard box culvert crossing similar to the existing crossing at the intersection of East Shepherd Avenue and North Fowler Avenue. Design of the crossing is being coordinated with FMFCD as the Outlet Channel's owner/operator and with the City Building Official/City Engineer as the local floodplain manager, to ensure that the crossing conforms to FMFCD's operational needs and is consistent with applicable Federal Emergency Management Agency (FEMA) and City requirements for flood protection. Discussion is also ongoing with the Corps; the Big Dry Creek Dam complex was constructed by the Corps and thus qualifies as federal project works, so the crossing will be subject to Corps review under 33 United States Code, Section 408 ("Section 408 review").

Although it is highly desirable for convenience and efficient circulation, the crossing is not essential to the function of the new community, and in any case, would not be needed until Phases 4 and 6 are developed. Moreover, the crossing concept is still in development, as noted above. As a result, the crossing is not included in the Action as analyzed in this document. In the event it moves forward in the future, a separate application or applications will be submitted for all permits needed to authorize construction, which will be analyzed as separate actions.

Planning also includes an extensive trail system to provide neighborhood connectivity as well as safe and convenient access from residential areas to community amenities and commercial uses. Multiple public parks and trails totaling approximately 20 acres would be dispersed throughout the development (**Figure 6**). Private parks would also be provided, including mini-parks and/or community pools in medium high– and very high– density gated neighborhoods (Wilson Premier Homes 2023).

Utility service to Vista Ranch is summarized in **Table 3**. Wet utilities (water, wastewater, and storm drainage facilities) would be located within dedicated streets and public utilities easements and would be sized to enable future development of the remainder of the Master Plan Area under separate future projects. Private regulated utilities such as electrical and cable/internet service would also be located within dedicated public utility easements along street frontages.

Water and wastewater infrastructure will be compliant with applicable City plans and standards. Storm drainage infrastructure will conform to applicable City regulations, standards, and specifications as well as those of the State Water Resources Control Board (SWRCB) and the FMFCD, and will incorporate Best Management Practices (BMPs) to control volume, rate, and pollutant loading of storm water runoff delivered to the system.

Private regulated utilities such as electrical and cable/internet service would also be located within dedicated public utility easements along street frontages (Wilson Premier Homes 2023).

Table 3. Vista Ranch Utility Service

Utility	Overview
Water system	• Served by new connections to City's existing potable and recycled water infrastructure • City will own, operate, and maintain completed facilities • City potable supply relies on a combination of groundwater from the Kings Sub-Basin and surface water delivered by the Fresno Irrigation District (FID) from the Kings River and the Central Valley Project • Recycled water (tertiary treated effluent) is provided by the City Water Reuse Facility
Wastewater system	• Connected to existing City sanitary sewer mains • City will own, operate, and maintain completed facilities • Wastewater treatment needs served by existing facilities (Fresno-Clovis Regional Wastewater Treatment Plant, located in Fresno; City Water Reuse Facility) • City of Clovis will manage service to optimize the use of available capacity at treatment facilities
Storm drainage	• Connected to existing FMFCD infrastructure except where used to support protected wetlands/waters • FMFCD will own, operate, and maintain completed facilities
Regulated public utilities	• Electrical service provided by Pacific Gas & Electric company (PG&E); the project is not planned for natural gas service • Landline telephone provided by AT&T • Cable and internet provided by Comcast; internet service to be extended to all portions of the new development from existing facilities located along East Shepherd Avenue and in adjacent residential development

Source: Wilson Premier Homes 2023

3.2.1.1.4 Required City Entitlements

Implementation of the Vista Ranch project would require multiple entitlements and approvals from the City, listed below. City entitlements are not directly germane to regulatory jurisdiction, but the Vista Ranch project cannot be implemented without them and these approvals can thus be considered as indirectly enabling project impacts on jurisdictional resources and special-status species. Note that the City entitlements are broader in focus than the Vista Ranch project; City approvals reflect the scope of the larger City planning process discussed above but nonetheless represent "upstream" approvals necessary for the Vista Ranch project to proceed:

- Expansion of City SOI to include 952-acre site;

- Adoption of the Vista Ranch Master Development Plan for 507 acres of the SOI Expansion Area and amendments to City General Plan (City of Clovis 2014) to accommodate the Master Plan, including "focus area" modifications to the Land Use Element, modifications to the Circulation Element, and modifications to the Open Space and Conservation Element.
- Pre-zoning. Because the Master Plan Area (including but not limited to the 368-acre Project Site) is currently outside Clovis City limits, it is not currently under City zoning designations. The proponent will therefore be requesting pre-zoning of the Master Plan area to appropriate City of Clovis zone districts consistent with the proposed development plan;
- Annexation of the Master Plan Area to the City of Clovis;
- Adoption of Master Plan Overlay District and Master Development Plan; and
- Approval of vesting Tentative Tract Map for Vista Ranch project area.

3.2.1.1.5 Project Construction

3.2.1.1.5.1 Project Phasing and Specifics by Phase

Construction of the Vista Ranch project is expected to be phased over about 10 years (**Figure 8**). The south-central portion of the project (Phases 1 – 3, adjacent to East Shepherd Avenue/North Temperance Avenue) would be constructed first due to proximity to existing development, roadways, and utilities within the City; these Phases would be completed in the first five years. Construction of Phase 4 is expected to begin in Year 5, and the remainder of the western phases and the eastern portion of Phase 6 would be built out in Years 5 – 10. The crossing connecting the east and west portions of the Vista Ranch project is conceptualized as a separate Phase 4a, to be constructed along with Phase 4, since bridge/crossing construction would not begin until (1) the east-west connection becomes necessary, and (2) all necessary permit approvals have been issued. **Table 4** provides additional development details by phase.

The first step within each Phase would be to construct the backbone facilities: major street access to all lots within the Phase, looped water mains, wastewater infrastructure, and storm drainage infrastructure. Residential lots would then be developed in subphases, with the intent of developing about 200 lots per subphase, at a rate of approximately 22 units/month, subject to market demand. This portion of the process is expected to take on the order of 8 – 12 months per subphase, again dependent on market demand.

Table 4. Vista Ranch Development Details by Phase

Phase	Residential Uses	Commercial Uses	Other Uses
1	• ~448 single-family homes on ~57 acres • Demolition and clearing of future R-4 apartment site	• Demolition and rough grading of ~4.4 acre commercial site (construction of commercial uses to follow once homes are occupied)	• 1-acre neighborhood park/trailhead • Trails and trailheads within Phase 1 limits
2	• ~448 single-family homes on ~58 acres	—	• Community Recreation Center on 2.52-acre site; includes office, event space and event gathering areas, pool, and shade structures • 2.7-acre private park • Pocket parks • Trails and trailheads within Phase 2 limits
3	• ~244 single-family homes on ~31 acres	• 4.4-acre commercial site (up to 85,000 square feet) • Exact timing of commercial development will be market-driven	• Pocket parks and green space
4	• ~453 single-family homes on ~51 acres • ~208 units in an ~7-acre multi-family development adjacent to E. Shepherd Avenue	—	• O.53-acre storage and maintenance yard for Homeowners' Association • Pocket parks, trails, and green space • Bridge across Outlet Channel (Phase 4a, not included in this application)
5	• ~470 single-family homes on ~60 acres	—	• ~3.32-acre public area park
6	• ~108 single-family homes on ~58 acres • ~264 multi-family units on ~8.8 acres	—	• 1.0-acre area park • Trails

Within Phase 1, where commercial uses would be located, residential uses would be constructed first, followed by the accompanying commercial uses. This is because the commercial area is proposed for C-1 (Neighborhood Commercial) zoning (see **Figure 6**), which provides for local-serving businesses providing convenient, accessible services to nearby residents. Commercial centers of this type—unlike regional "destination shopping" and "big-box" commercial uses—typically do not draw customers from a wide area; rather, they rely on adjacent residential communities for their customer base and thus would not be viable until residential uses are occupied.

Similarly, apartment development would lag behind development of single-family homes, since development and sale of single-family properties for ownership provides the funding to enable construction of apartments for rental/lease.

Because of this phasing, some habitat impacts would not occur until up to 10 years following Project initiation, but all mitigation will be provided prior to Project initiation, so there will be no temporal loss of habitat.

3.2.1.1.5.2 Construction Means and Methods

Project construction would rely on standard land development and construction techniques as practiced in the San Joaquin Valley/Fresno County region. Initial ground disturbance would require equipment such as: survey gear, mowers, discers, bulldozers, self-loading scrapers, excavators, loaders, skid steers, tractors, backhoes, trenchers, dump trucks, water trucks, semi-trucks, pickup trucks, and other heavy equipment. Site development may also include the use of equipment such as motor graders, rollers, compactors, road paving machines, and similar equipment. Construction within developed lots would also be conducted with standard equipment and techniques such as: trucks, cranes, forklifts, concrete pumps, and other standard means and methods as determined by the builders.

3.2.1.1.5.3 Access and Staging

Figure 9 shows planned construction access and staging. Construction traffic to the project would follow existing roadways, and construction entry to the site would be via North Temperance Avenue as the principal arterial accessing the site. Equipment would not access the project site until any required preconstruction clearance surveys have been completed and any needed exclusion barriers have been installed to protect special-status species and sensitive resources "to remain".

All staging for development construction would be restricted to the project site, although additional minor staging for roadway improvements outside the project area boundary shown on **Figure 9** may be located within existing City roadway rights-of-way. Onsite staging areas would be 0.75 acre – 1 acre in extent, sufficient to accommodate all needed construction vehicles, equipment, materials laydown/storage, and job office trailers.

The staging area for construction of Phases 1 – 3 would be located in an area planned for R-4 Very High Density Residential (apartment) development; this maximizes efficiency because construction of the apartments would be the last step in the buildout of Phases 1 – 3. Once the apartments are constructed—anticipated in late Phase 3 or early Phase 4—staging would be relocated to the Phase 4 – 6 staging areas, which are planned for R-4 and R-1-MD development and thus would be the last portions of the Phase 6 areas to be developed.

3.2.1.2 Off-Site Improvements

In order to develop the Project, the Applicant will likely need to construct certain off-site improvements (**Figure 10**). These improvements will be listed as conditions of approval by the City of Clovis. These conditions are not yet known, but may include:

-
- Expanding an approximately 7,360-ft segment of E. Behymer Ave. to accommodate two 16-foot traffic lanes and installing buried water lines in the roadway;
- Expanding an approximately 2,640-ft segment of Perrin Rd. to accommodate two 16-foot traffic lanes and installing 12" sewer main in the roadway;
- Expanding an approximately one-mile segment of N. Fowler Ave. to accommodate a center turn lane and installing 12" sewer main in the roadway;
- Re-paving an approximately two-mile segment of E. Shepherd Ave. within its existing right-of-way and installing force main and recycled water lines in the roadway;
- Extending N. Locan Ave. approximately 1,440 feet north from its existing terminus at E. Shepherd Avenue, replacing the existing 20-foot wide private drive in that location with a 40-foot wide public road;
- Installing approximately 600 feet of 12" sewer main in Armstrong Ave. south of Shepherd Ave.

This work will not include any modification to the existing bridge over Dry Creek at the intersection of N. Fowler Ave. and E. Shepherd Ave.

If additional off-site work is required, the Applicant will notify USACE. USACE will determine whether the new work may adversely affect listed species and, if so, will re-initiate consultation with USFWS with revised/updated project information included.

3.2.1.3 Conservation Measures

The Project incorporates on-site avoidance and minimization measures, as well as off-site compensatory mitigation, described below.

3.2.1.3.1 Avoidance and Minimization Measures

In order to avoid and/or minimize negative effects to sensitive species, various avoidance and minimization measures will be implemented.

3.2.1.3.1.1 General Avoidance and Minimization Measures

The State Water Resources Control Board (SWRCB) will require that the project develop and implement a Stormwater Pollution Prevention Plan (SWPPP), since more than 1 acre would be disturbed for project construction. The SWPPP will be developed and implemented for the Project by appropriately qualified professionals (California-certified Qualified SWPPP Practitioner and/or Qualified SWPPP Developer QSD). During all construction, Best Management Practices (BMPs) will be used to minimize erosion and impacts to water quality to protect water quality in downstream areas.

Orange plastic mesh fencing at least 4 ft. in height shall be erected around the portion of any avoidance areas where disturbance is unnecessary in order to avoid unintentional disturbance to such areas during development. Where these areas overlap with the CTS exclusion barrier (described below), only the exclusion barrier shall be required. Fencing shall only be used in proximity to active construction phases.

The Applicant will submit a Dust Control Plan to the San Joaquin Valley Air Pollution Control District and comply with Regulation VIII measures to reduce fugitive dust emissions. Water or other soil stabilizers will be used to control dust. Water or other soil stabilizers will only be applied in areas where applicable take avoidance measures have already been conducted to ensure that dust control measures do not result in take of listed species.

The Applicant will work with the City of Clovis to prepare a CEQA document for the project, which will include other avoidance, minimization, and mitigation measures as are deemed to be appropriate. These may include, but are not restricted to: special-status species surveys, nesting bird/raptor surveys, pre-construction clearance surveys, and species salvage and relocation.

General Worker Awareness Training

The applicant will require all construction personnel to undergo Worker Awareness Training that provides information on

- the sensitive habitats on the project site;
- special-status species known and potentially present on the site, including their
  - listing status and causes of decline,
  - habitat preferences,
  - distinguishing physical characteristics; and
- the measures (AMMs, permit conditions, and CEQA mitigation) required to protect sensitive habitats and special-status species, including avoidance of delineated exclusion areas, and next steps and notifications in the event of a special-status species sighting.

The training will include a hard copy handout that summarizes the information presented and includes photographs of habitat resources and species to facilitate identification in the field by

construction personnel. A readily available copy of the AMMs, permit conditions, and CEQA mitigation will be maintained by the construction foreman on the construction site for reference.

The applicant will ensure that all construction personnel undergo Worker Awareness Training before beginning work on the site. Training will be delivered by a qualified biologist experienced in the Fresno County/San Joaquin Valley area, and will be provided bilingually in English and Spanish if appropriate. Upon completion of training, employees will sign a form stating that they attended the training and understand all of the required CEQA mitigation and permit conditions. Signed forms will be submitted to CDFW and USFWS.

Preconstruction Surveys

Prior to construction in each of the phases, the applicant will retain a qualified biologist/ecologist with experience in the Fresno County area to conduct comprehensive preconstruction surveys for special-status wildlife. Surveys will be timed to allow follow-up such as relocation of individuals and/or consultation with resource agency staff if warranted. Surveys will be designed and implemented in consideration of the particular species with potential to be present; survey methods will be consistent with prevailing best practices by species and consistent with current applicable agency guidance, including but not necessarily limited to the following, currently available at https://wildlife.ca.gov/Conservation/Survey- Protocols (or updated versions thereof).

- Survey Considerations for California Endangered Species Act Candidate Bumble Bee Species (CDFW 2023)
- Staff Guidance Regarding Avoidance of Impacts to Tricolored Blackbird Breeding Colonies on Agricultural Fields in 2015 (CDFW 2015)
- Staff Report on Burrowing Owl Mitigation (CDFG 2012)
- Recommended Timing and Methodology for Swainson's Hawk Nesting Surveys in California's Central Valley (Swainson's Hawk Technical Advisory Committee 2000)
- Standardized Recommendations for Protection of the San Joaquin Kit Fox Prior to or during Ground Disturbance (USFWS 2011)

If no special-status wildlife or sign thereof is observed during the surveys, no further action is required.

If listed or candidate species or sign(s) thereof are observed onsite, the applicant will consult with CDFW and/or USFWS (depending on the species' listing status), and will proceed in accordance with agency direction.

If non-listed species that qualify for another form of special status in California, or sign(s) thereof, are observed onsite, the applicant will consult with CDFW and proceed in accordance with CDFW direction.

Follow-up actions for common (non-listed/non-special-status) species will be consistent with the biologist's professional judgment and current prevailing conservation best practices.

Avoided Wetland Protection/Enhancement

- Discharging stormwater from within the new development to protected wetlands and the tailwater pond to maintain them as aquatic features once they are surrounded by development and no longer receive overland or tailwater input. Stormwater would be routed via appropriate low-impact treatment features to manage discharge water quality
- In the southwest portion of the project area, where no easement is currently in place, a new 100-foot-wide easement would be established to protect the Outlet Channel and maintain [Fresno Municipal Flood Control District] access for operations and maintenance
- Open space protecting wetlands and waters to be avoided and preserved in place would be placed under conservation easement and would be managed over the long term by the Vista Ranch Homeowners' association or another entity approved by the resource agencies. A long-term management plan to maintain water quality and habitat value in these areas will be developed and provided for resource agency review and approval.

3.2.1.3.1.2 Take Avoidance Measures for CTS

The applicant will complete the state ITP and Clean Water Act Section 404 permitting processes and will obtain the necessary permits from CDFW and the Corps. The applicant will then be responsible for implementing all permit conditions relative to CTS, including AMMs and habitat compensation. Purchase of the mitigation property, establishment of the necessary conservation easement, and finalization of agreements for long-term maintenance and management responsibilities will be completed prior to project ground-breaking.

The following measures will be required. If, via the state ITP process or the federal interagency consultation process, CDFW and/or USFWS issue alternate requirements that would be equally or more protective, those will be substituted.

- The applicant will develop a CTS Relocation Plan, prepared by a qualified biologist and subject to approval by CDFW and USFWS. The Relocation Plan will include specific areas to which the designated qualified biologist may relocate individual CTS that are at risk from project-related activities. It will also include provisions for the biologist to monitor the translocated animal until it is determined that it is not at risk from predators or other factors. CTS will be relocated to appropriate habitat for their stage in the life cycle; for example, CTS found in burrows will be relocated to burrows and not to aquatic habitat.

- If a known or potential CTS individual is encountered during any project-related activity, the following requirements will apply.

    – All work that could result in direct injury or disturbance of the individual animal will cease immediately

    – The foreman and on-call biologist will be notified immediately

- The biologist will take appropriate action to secure the individual (relocation per the Relocation Plan, and/or veterinary care if appropriate), and will then notify CDFW, USFWS, and the applicant via telephone or email

The applicant will appoint a representative to act as the contact for the biologist, to receive notifications of CTS encounters. The representative will be identified during the Worker Awareness Training program, and their name and contact information will be provided to CDFW and USFWS

- An Herbicide Use Plan will be drawn up prior to the onset of development activities, and will be subject to CDFW and USFWS approval before work on each phase begins. The plan will allow no more than two applications of herbicide per year during development activities. Herbicides will be used only in a manner that avoids primary or secondary poisoning of CTS and the prey populations on which they depend within the phase footprint. All uses of such compounds will comply with label and other restrictions mandated by the U.S. Environmental Protection Agency, California Department of Food and Agriculture, and other appropriate state and federal regulations, as well as any other additional project-specific restrictions required by CDFW and/or USFWS
- Prior to ground disturbance for each phase or sub-phase (defined as major earthwork associated with rough grading, lot leveling, infrastructure construction, and street improvements; not including construction of individual homes on previously graded pads), the disturbance areas will be subject to the following measures to protect California tiger salamander (CTS). These measures will be in force for the duration of ground-disturbing activities, under the oversight of a qualified biologist. After the completion of initial ground-disturbing activities for each phase or sub-phase, the qualified biologist will continue to be available by phone and will be on call to visit the project site as needed throughout phase construction. The biologist's contact information will be provided to CDFW and USFWS

    - First, individual sub-phases or disturbance areas will be identified within each project phase (see Figure 3.4-4). Sub-phases will be defined with the input of a qualified biologist such that no undisturbed areas of potential CTS habitat are surrounded or cut off from other CTS habitat as a result of ground disturbance and/or implementation of other AMMs such as wetland exclusion areas. Instead, sub-phases will be developed such that the most direct route from any given patch of potential CTS habitat onsite to the nearest accessible offsite CTS habitat remains open until the onsite patch has been subject to relocation measures, described below. Multiple, or even all, sub-phases may be active concurrently, but no portion of the project or phase site will be disturbed until after CTS relocation and other AMMs have been undertaken on it.

    - Following survey and relocation of individuals, exclusion barrier will be installed at the limits of grading for the phase or sub-phase to prevent CTS from reentering the disturbance area. The materials and installation methods for the exclusion barrier will be subject to approval by CDFW and USFWS, and the barrier will be installed under

biologist oversight. The exclusion barrier will be inspected weekly and maintained and repaired as necessary to ensure that it is functional and not a hazard to any CTS on the outside of the barrier. The barrier will remain in place until the completion of major ground-disturbing activities within the phase or sub-phase it encompasses.

- Once visual surveys, relocation, and exclusion barrier installation have been completed, the disturbance area may be subject to initial ground-disturbing activities (vegetation clearing, grubbing, scraping, grading, trenching, and other activities that will convert potential CTS upland habitat to non-habitat through the disruption of onsite rodent burrows).

- A qualified biologist will be onsite to monitor vegetation clearing, grubbing, and rough grading, until or unless the biologist determines that monitoring is no longer necessary. The biologist(s) will have authority to stop any work that may result in the take of CTS, and to ensure the adherence to all required AMMs. CDFW, USFWS, and the Corps will be notified of any "stop-work" orders issued by the biologist(s).

- The following requirements will apply in areas that have <u>not</u> been "cleared" for CTS and enclosed in exclusion barrier:

  - A qualified biologist will be onsite to monitor all work. The biologist(s) will have authority to stop any work that may result in the take of CTS, and to ensure the adherence to all required AMMs. CDFW, USFWS, and the Corps will be notified of any "stop-work" orders issued by the biologist(s).

  - Work will be prohibited when the National Weather Service 72-hour forecast predicts a 70% or greater chance of rainfall; work may resume 24 hours following the cessation of rainfall, if 0% chance of rain is predicted in the next 72 hours.

  - Because CTS may take refuge in cavity-like and den-like structures such as pipes and may enter stored pipes and become trapped, all pipes, culverts, and similar structures that are stored at the project site for one or more overnight periods will either be securely capped prior to storage or will thoroughly inspected by the authorized on-call biologist and/or the construction foreman/manager for CTS before the pipe moved, capped, buried, or otherwise used or moved in any way.

  - To prevent inadvertent entrapment of CTS during development, the on-call biologist and/or construction foreman/manager will ensure that all steep- walled excavations and trenches more than 1 foot deep are completely covered at the close of each working day by plywood or similar materials or are provided with one or more escape ramps constructed of earth fill or wooden planks and inspected by the on-call biologist. Before excavations or trenches are filled, they will be thoroughly inspected for trapped animals by the on-call biologist and/or construction foreman/manager.

- The following requirements will apply on all parts of the project site (within and outside CTS exclusion barrier):
    - Project-related vehicles will observe a 15 mile-per-hour offroad speed limit.
    - Erosion control measures will employ tightly woven fiber netting or similar material to reduce the potential for CTS entrapment. This limitation will be communicated to all contractors through the use of Special Provisions included in the bid solicitation package. No plastic monofilament netting (erosion control matting) or similar materials will be used.
    - No insecticides or rodenticides will be used in construction or development areas as part of the project development process.

To reduce the potential that predators of CTS will be attracted to the site, all food-related trash items such as wrappers, cans, bottles, and food scraps will be disposed of in solid, closed containers (trash cans) and removed at the end of each working day from the construction site.

3.2.1.3.1.3 Take Avoidance Measures for Western Spadefoot

The applicant will complete the Clean Water Act Section 404 permitting process and will obtain the necessary permit from USACE. The applicant will then be responsible for implementing all permit conditions and USFWS Biological Opinion (BO) conditions relative to western spadefoot, including AMMs and habitat compensation. Purchase of the mitigation property, establishment of the necessary conservation easement, and finalization of agreements for long-term maintenance and management responsibilities will be completed prior to project ground-breaking.

At a minimum, all AMMs identified for CTS [above] will also be required for western spadefoot. Surveys, relocation efforts, and activities related to exclusion barriers will be combined where feasible to increase efficiency and effectiveness. If, via the federal interagency consultation process, USFWS issues alternate requirements that would be equally or more protective, those will be substituted.

If western spadefoot does not become listed under the federal Endangered Species Act and the federal BO and Clean Water Act Section 404 permit do not prescribe other requirements, the requirements of Mitigation Measure 3.4-9 [preconstruction surveys, reproduced below] may be substituted. In this case, surveys and, if warranted, relocation of individuals, will be conducted consistent with agency guidance current at the time of survey, and with prevailing best conservation practices.

3.2.1.3.1.4 Take Avoidance Measures for Northwestern Pond Turtle

The applicant will complete the Clean Water Act Section 404 permitting process and will obtain the necessary permit from USACE. The applicant will then be responsible for implementing all permit conditions and USFWS BO conditions relative to northwestern pond turtle, including AMMs and habitat compensation. Purchase of any mitigation property, establishment of any

necessary conservation easement, and finalization of any agreements for long-term maintenance and management responsibilities will be completed prior to project ground-breaking.

If northwestern pond turtle does not become listed under the federal Endangered Species Act and the federal BO and Clean Water Act Section 404 permit do not prescribe other requirements, the requirements of Mitigation Measure 3.4-9 [preconstruction surveys, reproduced above] may be substituted. In this case the applicable guidance will be Draft USGS Western Pond Turtle (Emys marmorata) Visual Survey Protocol for the Southcoast Ecoregion (U.S. Geological Survey 2006)

3.2.1.3.1.5 Take Avoidance Measures for Vernal Pool Fairy Shrimp

Twenty-three features within the Impact Area provide potential habitat for vernal pool fairy shrimp (VPFS). (These features are discussed in greater detail in **Section 3.3.1.1.1.4.2**). As of the writing of this document, surveys for VPFS and other large vernal pool branchiopods have not been conducted on the Project Site. VPFS are assumed to be present in the 23 features which provide potential habitat. Two of these features will be filled as part of the Project, and 21 will be avoided, but will be subject to adverse impacts due to indirect effects from the Project. These effects are presented in **Section 6.1.2**.

The avoided VPFS habitat will be subject to Avoidance and Minimization measures. Humans and vehicles in the Project Site will be excluded from this area by fences.

During Project development, no Project construction equipment or earth-moving will be allowed within the protected pools. Worker and vehicle exclusion fencing and worker training will be used to keep workers and vehicles from entering the pools (as described above in the description of Avoidance and Minimization measures for CTS). These pools, like all avoided potentially-jurisdictional waters within the Action Area, will be subject to a SWPPP requiring erosion control materials and other methods be used to protect these pools from erosion and runoff. Only wildlife-safe erosion control materials will be used, as described above in the avoidance and minimization measures for CTS.

Qualified biologists will be authorized to stop any work which may threaten to damage the pools in question, but no translocation of fairy shrimp will be undertaken.

3.2.1.3.2 Mitigation Site

As compensatory mitigation for impacts to VPFS and CTS caused by the proposed Project, the Applicant will place approximately 857 acres of the Jamison Ranch under conservation easement, and fund an endowment to manage it in perpetuity (see **Figures 18**, **19**, **20**, **21**, **23**, and **25** discussed later in this document). This area is referred to as the Mitigation Site. The Mitigation Site supports 14 documented CTS breeding pools (totaling approximately 3.2 acres), approximately 851.2 acres of CTS upland habitat, and approximately 59 acres of documented and potential VPFS habitat. The Mitigation Site also provides documented and potential habitat for other special-status species, including Swainson's Hawk (*Buteo swainsoni*), Golden Eagle (*Aquila chrysaetos*), Ferruginous Hawk (*Buteo regalis*), American badger (*Taxidea taxus*), western spadefoot (WSF, *Spea*

hammondii), midvalley fairy shrimp (*Branchinecta mesovallensis*), California linderiella (*Linderiella occidentalis*), succulent owl's-clover (*Castilleja campestris* ssp. *succulenta*), and San Joaquin Valley Orcutt grass (*Orcuttia inaequalis*).

The region containing the Mitigation Site has been confirmed as a conservation priority in multiple regional plans. On a regional level, the property is located within the Madera Core Recovery Area designated in the Vernal Pool Recovery Plan published by the U.S. Fish and Wildlife Service (USFWS 2005). This core area extends from eastern Merced to Madera County with most existing conservation in the area in Merced County (**Figure 11**). The entire property is also within Designated Critical Habitat for VPFS (USFWS 2023a). The preserve is within an area of Madera County known as the Four Corners. This area, surrounding Highway 145 near its intersection with Highway 41, is under intensive development pressure from numerous proposed and approved development and crop conversion projects. However, the Four Corners area also includes an approximately 33,000-acre contiguous block of vernal pool habitat in the heart of the southern Madera Core Recovery Area. Only about 4,200 acres of this block are currently conserved. As such, conservation of the property makes a significant contribution to conservation of vernal pool habitat and associated rare species in this area.

Preservation of the Mitigation Site will entail development of a Conservation Easement Deed, Long-Term Management Plan, and Endowment Calculation. These documents will be subject to review and approval by regulatory agencies prior to easement recording. The attached *Conceptual Mitigation Plan* (RCEC 2023, **Appendix I**) provides additional detail.

3.2.1.3.3 Aquatic Resource Mitigation Credit Purchase

In addition to the establishment of the preserve on the Jamison Ranch Property, the Project may purchase aquatic resource credits from a USACE-approved mitigation bank or in-lieu fee (ILF) program with credits and service area appropriate to the area of impacts. The amount of credits to be purchased will be determined by USACE during the 404 permit approval process. Additional detail on the credit purchase rationale is presented in **Appendix I**. The combination of the establishment of the preserve on the Jamison Ranch Property and the purchase of these credits will fully mitigate for fill of potential jurisdictional Waters of the U.S. associated with the Project. Credits will be purchased prior to the discharge of dredge or fill material into potential jurisdictional wetlands of the US.

3.3 Action Area

The Action Area includes all areas to be directly or indirectly affected by the Proposed Action, together with the effects of other activities that are interrelated or interdependent with that action. The area directly related to the Proposed Action is that area where dredge or fill material will be discharged into wetlands or waters of the US. That area represents 0.495 acre, which is entirely within the Project Site (**Figure 12**).

The Federal Action has, as interrelated and interdependent activities, the development of the Project Site (approximately 368 acres inclusive of the 0.498 acre of direct effects to wetlands and

waters); indirect impacts which may occur as a result of development of the Project Site (including approximately 2.7 acres of off-site wetlands which may be indirectly affected by Project development), construction of off-site improvements required by the Project (approximately 50 acres), conservation of the Mitigation Site (approximately 857 acres), and, potentially, purchase of aquatic resource mitigation credits. The total acreage of the Action Area is therefore approximately 1,277.7 acres (plus any areas where aquatic resource mitigation credits are purchased, not yet quantified).

3.3.1 Interrelated and Interdependent Areas

The areas where interrelated and interdependent actions will occur are also analyzed as part of the Action Area. These areas are described below.

3.3.1.1 Project Site and Vicinity

The Proposed Action would result in direct or indirect effects to species and habitats within the entire approximately 368-acre Project Site. Development of the Project Site also requires construction of off-site improvements in an area totaling approximately 50 acres. In addition, construction of the Project may have indirect effects to aquatic habitats for listed species within 250 feet of these development/construction areas—these aquatic habitats total approximately 2.7 acres, and are depicted in **Figure 13**. Direct and indirect effects in the immediate Project vicinity may therefore occur in an area of approximately 420.7 acres, depicted on **Figure 14**. This portion of the Action Area is collectively referred to as the Impact Area, to differentiate it from the portions of the Action Area where only compensatory mitigation activities will occur.

3.3.1.1.1 Project Site

The information in this section is based on the Biological Resources Assessment for the Triangle Property Project, presented in **Appendix D** (ECORP 2023), along with an aquatic resources delineation (VNLC 2023a, **Appendix E**), CTS and vernal pool branchiopod survey (VNLC, 2023b, **Appendix F**), and floristic inventory (VNLC 2023c, **Appendix G**).

3.3.1.1.1.1 Location

The Project Site is generally located north of East Shepherd Avenue, west of Big Dry Creek Reservoir, east of North Fowler Avenue, and south of East Behymer Avenue, and is just north of the city of Clovis in unincorporated Fresno County, California (**Figure 14**). The Project Site corresponds to Sections 21 through 23; Township 12 South, Range 21 East (Mount Diablo Base and Meridian) of the "Clovis, California" and "Friant, California" 7.5-minute quadrangles (USGS 1964a, 1964b, photorevised 1981). The approximate center of the Study Area is located at 36.872799° North and -119.670887° West within the Upper Dry Creek Watershed (Hydrologic Unit Code #18030009; NRCS et al. 2016).

3.3.1.1.1.2 Site Characteristics and Land Use

The Project Site is located within flat to gently sloping terrain situated at an elevational range of approximately 390 to 416 feet above mean sea level in the San Joaquin Valley Area Subregion of the Central Western floristic region of California (Jepson eFlora 2022). The Project Site is primarily undeveloped and consists of annual grassland, fallow farmland, pasture, and developed or disturbed areas that consist of a rural residence, farm buildings, abandoned poultry pens, and nursery operations (**Figure 15**).

3.3.1.1.1.3 Soils and Topography

According to the Web Soil Survey (NRCS 2022a), 28 map units are delineated within the Impact Area (**Figure 16**). **Table 5** summarizes the soil units present

Table 5. Soil Units in Vista Ranch Impact Area

Soil Map Unit	Soil Map Unit Name	Acres in Impact Area	Percent of Impact Area
An	Alamo clay	1.3	0.31%
AoA	Atwater loamy sand, 0 to 3 percent slopes	1.5	0.35%
AoB	Atwater loamy sand, 3 to 9 percent slopes	21.5	5.12%
ArA	Atwater sandy loam, 0 to 3 percent slopes	73.2	17.41%
ArB	Atwater sandy loam, 3 to 9 percent slopes	8.4	1.99%
AtA	Atwater sandy loam, moderately deep, 0 to 3 percent slopes	11.0	2.61%
BcC	Blasingame loam, 3 to 15 percent slopes	35.5	8.45%
CzcB	Cometa-San Joaquin sandy loams, 3 to 9 percent slopes	1.5	0.35%
DhB	Delhi loamy sand, 3 to 9 percent slopes	2.6	0.62%
Dn	Dello sandy loam	3.7	0.88%
Fn	Foster loam	34.6	8.23%
Gf	Grangeville fine sandy loam	26.6	6.33%
Gn	Grangeville fine sandy loam, hard substratum	7.2	1.72%
GtA	Greenfield sandy loam, 0 to 3 percent slopes	8.0	1.91%
Hu	Hildreth clay	3.3	0.79%
MoD	Millerton rocky fine sandy loam, 3 to 30 percent slopes	1.0	0.25%
Ra	Ramona loam	4.1	0.98%
Rb	Ramona loam, hard substratum	28.3	6.72%
Rc	Ramona sandy loam	0.8	0.20%
Re	Ramona sandy loam, hard substratum	17.8	4.24%
Rh	Riverwash	106.2	25.24%
ScA	San Joaquin loam, 0 to 3 percent slopes	2.7	0.65%
SeA	San Joaquin loam, shallow, 0 to 3 percent slopes	16.3	3.89%
TzbA	Tujunga loamy sand, 0 to 3 percent slopes	1.3	0.31%
VaA	Visalia sandy loam, 0 to 3 percent slopes	1.5	0.35%
Total		**420.7**	

3.3.1.1.1.4 Land Cover Types and Vegetation Communities

There are 13 land cover types or vegetation communities found within the Impact Area. **Figure 17** displays the locations of these, and **Table 6** summarizes their areas. The individual land cover types and vegetation communities are described below.

Table 6. Land Cover Types/Vegetation Communities, Vista Ranch Impact Area

Land Cover Type	Area (acres)			
	Project Site[1]	Off-Site Improvements Areas[2]	Indirect Effects Areas[3]	Total
Upland Habitats				
Annual Grassland	206.043	1.179	-	207.222
Disturbed/Remnant/Ruderal Grassland	103.311	5.139	-	108.449
Developed/Roads	10.079	40.736	-	50.815
Low-Density Residential	7.099	1.879	-	8.977
Farm Headquarters	17.673	0.091	-	17.764
Intensive Agriculture	5.683	0.783	-	6.466
Abandoned Dry Creek Channel	15.171	-	-	15.171
Subtotal	**365.06**	**49.81**	**-**	**414.86**
Aquatic and Riparian Habitats				
Agricultural Tailwater Pond	1.129	-	-	1.129
Canal (Wetland Channel & Fringing Margin)	0.553	-	2.113	2.666
Depressional Wetland Basin	0.570	-	0.236	0.806
Stockpond	0.545	-	-	0.545
Canal (Non-Wetland Channel)	0.210	-	0.296	0.507
Culvert	-	0.136	0.021	0.157
Subtotal	**3.01**	**0.14**	**2.67**	**5.81**
Total	**368.07**	**49.94**	**2.67**	**420.67**

[1]The area owned or controlled by Wilson Premier Homes, which will be developed into a mixed-use subdivision.
[2]Areas of Armstrong Avenue, East Behymer Avenue, Fowler Avenue, Perrin Avenue, Locan Avenue, and East Shepherd Avenue outside the Wilson Premier Homes properties, but where Project work may be conducted.
[3]Aquatic habitats within 250 feet of project-related work areas.

3.3.1.1.1.4.1 Upland Habitats

3.3.1.1.1.4.1.1 Annual Grassland

A majority of the Project Site and overall Impact Area is made up of annual grassland. This habitat type occurs primarily on the center and northern portions of the Project Site. Predominant species

include wild oats (*Avena* sp.), foxtail barley (*Hordeum murinum*), shortpod mustard (*Hirschfeldia incana*), ripgut brome (*Bromus diandrus*), soft chess brome (*Bromus hordeaceus*), and red brome (*Bromus rubens*).

The annual grassland most resembles the *Avena* spp. – *Bromus* spp. Herbaceous Semi-Natural Alliance as characterized by *A Manual of California Vegetation Online* (CNPS 2022). Seminatural alliances are strongly dominated by nonnative plants that have become naturalized in the state, do not have state rarity rankings, and are not considered sensitive natural communities by CDFW.

The annual grassland in the Impact Area provides occupied upland habitat for CTS and WSF. It also provides potential habitat for Ewan's larkspur (*Delphinium hansenii* ssp. *ewanianum*), forked hare-leaf (*Lagophylla dichotoma*), Golden Eagle, Cooper's Hawk (*Accipiter cooperii*), Swainson's Hawk (*Buteo swainsoni*), Burrowing Owl (*Athene cunicularia*), Loggerhead Shrike (*Lanius ludovicianus*), California Horned Lark (*Eremophila alpestris actia*), Tricolored Blackbird (*Agelaius tricolor*), California Condor (*Gymnogyps californianus*), Molestan blister beetle (*Lytta molesta*), American badger (*Taxidea taxus*), and coast horned lizard (*Phrynosoma blainvillii*).

3.3.1.1.1.4.1.2 Disturbed/Remnant/Ruderal Grassland

Large portions of the grassland habitat in the Impact Area have been subject to significant disturbance, and/or have been fragmented into small patches that are isolated from other natural habitat by suburban development. Disturbances include regular mowing/discing, long-term overgrazing, and farming followed by years of fallowing. This disturbance and isolation significantly reduce its ability to support special-status species and provide other natural functions of grassland.

This habitat type occurs in several portions of the Impact Area, including the low-density residential development west of the Project Site, former farm fields around the farm headquarters at the south-center of the Project Site, leveled former irrigated pasture at the center of the Project Site, animal paddocks and large-lot residences on the south edge of the Project Site (inside and outside the Project Site), and the face of Big Dry Creek Dam.

Vegetation of this habitat type is similar to that found in the Annual Grassland, but includes a higher proportion of ruderal species such as shortpod mustard, ripgut brome, and red brome. CTS and WSF may use this habitat type, but it has significantly reduced habitat values for those species. Soil disturbance and vegetation control reduce the populations of burrowing mammals on whose burrows CTS and WSF depend for upland habitat, and fragmentation makes it difficult for CTS and WSF to reach these habitat patches, or return from them to breeding habitat. This habitat type also provides potential habitat for Cooper's Hawk, Swainson's Hawk, Burrowing Owl, Loggerhead Shrike, and American bumble bee.

3.3.1.1.1.4.1.3 Developed/Roads

This land cover type consists of low to medium-density residential development, paved roads, a construction yard, and similar high-intensity land uses. It is mapped primarily in the off-site

improvement areas, and areas of potential indirect effects surrounding those areas. Small areas of paved roads and a construction yard are also present within the Project Site. This land cover does not provide habitat values for special-status species.

3.3.1.1.1.4.1.4 Low-Density Residential

This land cover type consists of residences on particularly large lots. It is mapped primarily in the areas of potential indirect effects near the Project Site and off-site improvements areas. It is also mapped around three individual residences in the southern portion of the Project Site. This land cover type has similarities to both Developed/Roads and Disturbed/Remnant/Ruderal Grassland.

Wildlife likely uses this habitat type, but the combination of habitat modification and frequent visitation by humans and domesticated animals make it unsuitable for use by special-status species.

3.3.1.1.1.4.1.5 Farm Headquarters

An area on the southern edge of the Project Site was used as a farm through 2021. This area includes disused barns and recently-fallowed fields. Livestock are excluded from grazing it, and its vegetation is characterized by ruderal species.

Wildlife likely uses this habitat type, but the severe disturbance of farming makes it unsuitable for use by special-status species. For the purpose of this analysis, a conservative estimate has been made, and it has been treated as having low suitability for CTS, rather than being entirely unsuitable. The disused barns in this area may also be used for roosting by pallid bat (*Antrozous pallidus*).

3.3.1.1.1.4.1.6 Intensive Agriculture

Active orchards and vineyards are present in areas of potential indirect effects near the Project Site and off-site improvements areas. These areas are subject to standard farming practices. Wildlife may use these areas, but they are unsuitable for use by special-status species.

3.3.1.1.1.4.1.7 Abandoned Dry Creek Channel

The former channel of Dry Creek crosses through the Project Site. This channel has been abandoned since the construction of Big Dry Creek Dam in 1948, and presents no aquatic or riparian habitat values. It lacks wetland vegetation, wetland soils, and wetland hydrology. This area still possesses the geomorphology of an ephemeral desert wash, with a wide, flat, sandy bottom, and very low (approximately 1-2 foot high) banks. The former channel bottom is lightly vegetated. Dominant species include slender buckwheat (*Eriogonum gracile*), whitestem filaree (*Erodium moschatum*), rattail sixweeks grass (*Festuca myuros*), foxtail brome (*Bromus madritensis,* and western lupine (*Lupinus formosus*).

This habitat has little in the way of mammal burrows, and provides low-suitability upland habitat for CTS. It may also be used by Golden Eagle, Cooper's Hawk, Swainson's Hawk, California Condor, and coast horned lizard.

3.3.1.1.1.4.2 Aquatic and Riparian Habitats

A total of approximately 3.1 acres of aquatic resources have been mapped on the Project Site. **Table 7**, taken from the aquatic resources delineation (VNLC 2023a, **Appendix E**), presents those features which were deemed to potentially be jurisdictional Waters of the US. In addition to the features in **Table 7**, an approximately 1.129-acre agricultural tailwater pond (described below) was mapped. This feature was deemed in the Aquatic Resources Delineation to not be a potentially-jurisdictional Water of the US (VNLC 2023a). However, it may be a jurisdictional Water of the State of California. Regardless, the tailwater pond will be completely avoided by the Project, so the question of CWA jurisdiction is moot. Indirect effects on listed species which may use the tailwater pond are analyzed in **Section 6**.

Table 7. Potentially-Jurisdictional Aquatic Resources, Vista Ranch Project Site

Feature ID	Classification and Location of Delineated Features			Acreage	Associated Delin. Data Points
	NWI Code	Latitude	Longitude		
Other Waters					
Canal/Culvert (Non-Wetland Channel)					
NWC-1	R4	36.869438	-119.67422	0.210	P18 (OW)
NWC-2	R4	36.866554	-119.68399	0.068	
Total Canal/Culvert (Non-Wetland Channel)				**0.278**	
Wetlands					
Canal (Wetland Channel & Fringing Margin)					
C-1-A	R4	36.874423	-119.669766	0.417	
C-1-B	R4	36.871462	-119.672261	0.004	
C-1-C	R4	36.869635	-119.67398	0.117	P31 (W); P30 (U)
C-1-D	R4	36.869425	-119.674238	0.003	
C-1-E	R4	36.869629	-119.67403	0.001	
Total Canal (Wetland Channel & Fringing Margin)				**0.542**	
Depressional Wetland Basin					
DWB-1	PEM2	36.8794	-119.678908	0.027	P29 (W); P28 (U)
DWB-2	PEM2	36.87593	-119.669705	0.060	P20 (W); P19 (U)
DWB-3	PEM2	36.873887	-119.66604	0.022	P14 (W); P13 (U)
DWB-4	PEM2	36.873014	-119.665824	0.018	
DWB-5	PEM2	36.873197	-119.665526	0.015	
DWB-6	PEM2	36.87354	-119.664022	0.050	
DWB-7	PEM2	36.873383	-119.663196	0.005	
DWB-8	PEM2	36.87335	-119.662709	0.045	P10 (W); P09 (U)
DWB-9	PEM2	36.873136	-119.662499	0.003	
DWB-10	PEM2	36.873092	-119.662369	0.012	
DWB-11	PEM2	36.872948	-119.662154	0.012	
DWB-12	PEM2	36.872587	-119.661504	0.042	
DWB-13	PEM2	36.872429	-119.660853	0.023	P04 (W); P01-03 (U)
DWB-14	PEM2	36.872512	-119.66020	0.023	
DWB-15	PEM2	36.872488	-119.660075	0.001	

Feature ID	Classification and Location of Delineated Features			Acreage	Associated Delin. Data Points
	NWI Code	Latitude	Longitude		
DWB-16	PEM2	36.872437	-119.660113	0.005	
DWB-17	PEM2	36.871805	-119.659027	0.001	
DWB-18	PEM2	36.871748	-119.658791	0.014	P08 (W); P07 (U)
DWB-19	PEM2	36.87128	-119.658567	0.070	P06 (W); P05 (U)
DWB-20	PEM2	36.871193	-119.658211	0.050	
DWB-21	PEM2	36.875991	-119.674751	0.016	P33 (W); P32 (U)
DWB-22	PEM2	36.876146	-119.673879	0.045	P35 (W); P34 (U)
Total Depressional Wetland Basin				**0.559**	
Stockpond					
S-1	PEM2	36.879188	-119.679239	0.111	P26 (W); P25 (U)
S-2	PEM2	36.879948	-119.678203	0.390	P24 (W); P23 (U)
S-3	PEM2	36.879661	-119.677304	0.044	
Total Stockpond				**0.545**	
Total Wetlands				**1.646**	

3.3.1.1.1.4.2.1 Agricultural Tailwater Pond

An agricultural pond was constructed to receive flood-irrigation tailwater from irrigated pastures on the Project Site in the 1950s. It is located in the southwest of the field adjacent to the outer toe of the berm bordering the Big Dry Creek Reservoir Outlet Channel. Flood irrigation is no longer conducted on the Project Site, but the remnant standpipes, flood berms, and pond remain. There is a culvert at the north end of the pond that appears to have been installed to allow excess water in the pond to drain into the adjacent Outlet Channel. This culvert may allow communication between the tailwater pond and the Outlet Channel. The pond likely still receives sheet flow from the graded field via the remnant tailwater ditch during storms. Based on a review of historical aerial imagery, the hydrology of the pond is extremely erratic. In 2023, the pond was fully inundated in spring, and remained ponded at least four feet deep at the time of the June survey. This prolonged ponding caused the establishment of a narrow band (average three-feet wide) of habitat with wetland vegetation and soils around the upper rim of the pond. The 2023 vegetation in the upland rim was characterized by northern water plantain (*Alisma triviale*), burhead (*Echinodorus berteroi*), pale spikerush (*Eleocharis macrostachya*), and hyssop loosestrife (*Lythrum hyssopifolia*).

While fluctuations in hydrology are expected in California wetland systems, this pond's variability is outside the expected range. The pond provides habitat for wildlife, including breeding amphibians, aquatic reptiles, waterfowl, and mammals. CTS were not detected in this pond during surveys conducted in 2023. These surveys do not represent a complete protocol to establish absence, but CTS were notably present in several other features on site during the same surveys. While this pond does provide sufficient hydroperiod for CTS to breed in some years, the variability in its hydrology greatly reduces its habitat value compared to other ponds. In addition to providing low-potential breeding habitat for CTS, it provides potential habitat for Great Blue Heron (*Ardea herodias*), California linderiella (*Linderiella californica*), and northwestern pond turtle.

3.3.1.1.1.4.2.2 Canal (Wetland Channel & Fringing Margin)

The artificial channel that conveys water from the Big Dry Creek Reservoir spillway during release runs through the Project Site. This feature represents the relocated channel of Dry Creek. However, its hydrology is entirely controlled by releases from Big Dry Creek Reservoir. These releases do not correspond with the stream's natural flow regime, which would have been a seasonal wash that had short, intense flows immediately following large storm events. It instead acts as an intermittent stream that has steady flows as and when required by the reservoir operators. The vegetation in the channel was dominated by wetland plants including burhead, rough cocklebur (*Xanthium strumarium*), tall flatsedge (*Cyperus eragrostris*) and pale spikerush.

This area provides minor habitat values. The hydroperiod of this channel is restricted almost entirely to the period of dam releases, preventing the establishment of fish. The presence of some vegetation on the channel bottom provides some moisture retention, allowing this area to provide some sheltering habitat for invertebrates and amphibians. Birds or mammals may also forage here, though watering opportunities are still very limited. This feature does not provide potential habitat for CTS or WSF, as its relatively rapid flows and lack of in-channel pools would preclude breeding by these pond-breeding amphibians. This area provides potential habitat for Great Blue Heron.

3.3.1.1.1.4.2.3 Depressional Wetland Basin

Depressional wetlands occupying natural basins and topographic lows are scattered throughout the portions of the site that have not experienced significant grading, with concentrations along the northeast site margin and in the northwest. Some appear to occupy remnant floodplain swales. No wetlands are present in the central portion of the site where there is more history of past grading and agricultural disturbance.

Common dominant vegetation within the delineated depressional wetland basins includes common lippia (*Phyla nodiflora*), swamp pricklegrass (*Crypsis schoenoides*), and saltgrass (*Distichlis spicata*). Common subdominant species include Mediterranean barley (*Hordeum marinum* ssp. *gussoneanum*), stipitate popcornflower (*Plagiobothrys stipitatus* var. *micranthus*), Great Valley button celery (*Eryngium castrense*), hyssop loosestrife, and Italian rye grass (*Festuca perennis*). The wetland delineation team observed that as the basins dried following the heavy winter rains of 2023, many showed reduced vegetation cover and were colonized by upland species such as pigweed amaranth (*Amaranthus albus*), common sunflower (*Helianthus annuus*), seaside heliotrope (*Heliotropium curassavicum*), lamb's quarter's (*Chenopodium album*), alkali mallow (*Malvella leprosa*), and puncture vine (*Tribulus terrestris*) (VNLC 2023).

These pools mostly occur on Foster Loam, Ramona Loam/Ramona Sandy Loam, and Grangeville fine sandy loam. These are relatively pervious soils that lack hardpans. They are not typical vernal-pool forming soils. The hydrology of these depressional wetlands appears to be enhanced by groundwater from the Big Dry Creek Dam, an unlined earthen reservoir (VNLC 2023a). Vernal pool vegetation communities are strongly related to soil and geologic surface (Holland and Jain 1981, Barbour et al 2005). Perhaps due to the lack of standard vernal pool soils and/or the unusual

source of hydrology, these basins do not meet the criteria to be considered vernal pools of having "vegetation characterized by vernal pool specialists" (CWMW 2013).

The rare vernal pool plants listed in **Section 1.1** are strongly associated with vernal pools having typical vernal pool flora. (Different rare species have different associates, but all are associated with other vernal pool plants). For this reason, these non-vernal depressional wetland basins generally do not provide potential habitat for rare vernal pool plants. Spiny-sepaled button celery (*Eryngium spinosepalum*) is somewhat more generalist than, e.g. the Orcutt grasses, and has potential to occur in this habitat type.

Rare vernal pool fauna is less closely tied to vernal pool vegetation. The depressional wetland basins do provide potential habitat for listed vernal pool wildlife, including VPFS. Most of these pools are too shallow for CTS breeding, but the two of the deepest of them do provide documented CTS breeding habitat. WSF have been documented breeding in most of these pools, and all of them are considered to provide potential habitat for WSF, as well as for non-listed wildlife including California linderiella, midvalley fairy shrimp, and Great Blue Heron. The Project Site is significantly outside the range of Conservancy fairy shrimp (*Branchinecta conservation*); they are not expected to occur in these wetlands. Similarly, vernal pool tadpole shrimp (*Lepidurus packardi*) are not known from the vicinity of the Action Area, and are deemed to have a low probability of occurrence.

3.3.1.1.1.4.2.4 Stockpond

Three stockponds are located in the northwest portion of the Project Site, where they cluster with naturally formed depressional wetlands. They are dominated by a mixture of obligate and facultative wetland plant species, including pale spikerush, burhead, and curly dock (*Rumex crispus*). The upper rim of one of the ponds also supports some additional wetland plant species such as Great Valley button celery, hyssop loosestrife, and Mediterranean barley.

Two of these ponds provide documented CTS breeding habitat, and a third provides potential CTS breeding habitat. They all provide potential WSF habitat, and potential habitat for generalist wildlife including other amphibians, birds, mammals, reptiles, and invertebrates. This could include special-status species such as northwestern pond turtle, California linderiella, and Great Blue Heron. These ponds are created ponds rather than natural vernal pools; their hydrology and soils are not conducive to development of vernal pool vegetation communities or vernal pool specialist invertebrates.

3.3.1.1.1.4.2.5 Canal (Non-Wetland Channel)

The southern portion of Big Dry Creek Reservoir Outlet Channel in the Project Site has been delineated as a non-wetland channel. At the time the potentially-jurisdictional habitat delineation was conducted for the project (late spring – early summer 2023), it showed a conspicuous lack of vegetation, and its steeply eroded banks suggested that any vegetation previously present may have been washed out in the previous winter's heavy rains.

This area provides minimal habitat values. The sandy soils and lack of vegetation in this area cause moisture to rapidly infiltrate or evaporate whenever water is not being actively released from the dam spillway. The channel's very temporary nature prevents the establishment of any fish species, as well as most aquatic invertebrates. During dam releases, high water flows likely flush any fish or invertebrates that might otherwise attempt to use this habitat. Birds and mammals may gain some use from the availability of drinking water during dam releases. This area provides potential habitat for Great Blue Heron.

3.3.1.1.1.4.2.6 Culvert

Dry Creek passes through a culvert at the intersection of N Fowler Ave. and E Shepherd Ave, in the area of off-site improvements. This location is approximately ½ stream mile downstream of the southwestern corner of the Project Site. Dry Creek in this location still consists of an intermittent, channelized, urban stream with hydrology controlled almost entirely by dam releases. The feature itself is a concrete box culvert. It lacks vegetation or other habitat values. This feature does not provide potential habitat for special-status species. The culvert does provide connectivity for aquatic species movement; however, no fully-aquatic special-status species are expected to use the stream above or below the culvert.

3.3.1.1.1.4.2.7 Riparian

There are no riparian habitats present in the Impact Area. A strip of the Project Site next to the Big Dry Creek Reservoir Outlet Channel falls within the top of bank of the canal, and may therefore fall within CDFW jurisdiction as defined in Fish and Game Code Sec. 1600 et seq. However, the top of bank is defined by artificial levees, and not natural fluvial action. The channel's hydrology is insufficient to develop riparian conditions outside of its OHWM. Instead, these habitats are best characterized as annual grassland, as described above.

3.3.1.1.1.4.3 Sensitive Natural Communities

Five sensitive natural communities were identified as having potential to occur within the Project Site based on the literature review (CDFW 2022a). These include Great Valley Mixed Riparian Forest, Sycamore Alluvial Mixed Riparian Forest, Northern Basalt Flow Vernal Pool, Northern Claypan Vernal Pool, and Northern Hardpan Vernal Pool. Based on the results of the site surveys, no sensitive natural communities or riparian habitats are present within the Project Site (**Appendix D**, **Appendix E**, **Appendix G**).

3.3.1.1.1.5 Wildlife Movement/Corridors and Nursery Sites

The Project Site does not fall within an Essential Habitat Connectivity area mapped by the CDFW, but an expanse of undeveloped land, a portion of which is considered an Essential Habitat Connectivity area, exists east of the Study Area across Big Dry Creek Reservoir (CDFW 2022b). The Project Site is not expected to provide significant wildlife movement corridors due to it bordering developed areas to the west and south and due to Big Dry Creek Reservoir separating

the Project Site from undeveloped land to the east. However, the open space within the Project Site may provide some migratory opportunities for wildlife.

For the purposes of this analysis, nursery sites include but are not limited to concentrations of nest or den sites such as heron rookeries or bat maternity roosts. These data are available through CDFW's Biogeographic Information and Observation System database (CDFW 2022b) or as occurrence records in the CNDDB and are supplemented with the results of the field reconnaissance. No nursery sites have been documented within the Project Site (CDFW 2022a) and none were observed during the site surveys.

3.3.1.1.1.6 Conservation Planning

The majority of the Project Site falls within the Fresno Core Recovery Area designated in the Vernal Pool Recovery Plan published by the U.S. Fish and Wildlife Service (FWS 2005). This core area follows the northeastern edge of the Fresno metropolitan area, from the southern shores of Millerton Lake in the north to Shaw Avenue in the south. The Project Site forms a salient that projects out of this strip of land (**Figure 11**). However, the Project Site lacks vernal pools. Most of the soils in the Project Site lack even a hardpan or other subsurface water-restricting layer necessary for vernal pool development.

Per the Official Species List (**Appendix A**), no Designated Critical Habitat exists within the Impact Area. The Impact Area is not part of any regional Habitat Conservation Plan/Natural Community Conservation Plan (CDFW 2023b).

3.3.1.1.2 Off-Site Improvements

The Project will include construction of off-site improvements as described in **Section 3.2.1.2**, above. The locations and habitat conditions of each of these off-site improvements is described here, and depicted in **Figure 10** and **Figure 17**.

3.3.1.1.2.1 E. Behymer Ave.

The Project may improve approximately 7,360 feet of E. Behymer Avenue. The western 1,320 linear feet to be improved presently consist of a two-lane road, approximately 20 feet wide, lying between an orchard and very-low-density (approximately 2.5-5 acre lots) residential strip. The next most western 750 linear feet lie between the same orchard and a large vacant parcel. The next 2,890 linear feet to be improved presently consist of a two-lane road, approximately 20 feet wide, through a low-density (approximately 1-acre lots) residential neighborhood. The following section is approximately 1,280 linear feet in length. This section is presently a lower-traffic paved road, approximately 18 feet wide, which serves an area of low-density residential development, as well as a small orchard. The eastern section to be improved (approximately 1,030 linear feet) is presently a gated paved private road, approximately 17 feet wide, which serves two residences on large lots, and passes between grasslands on the Project Site and disturbed/remnant grasslands north of the Project Site. This area has no appreciable habitat values, and does not provide suitable habitat for listed species. However, the vacant parcel near the western end of the improvement

area may provide some potential habitat values for listed species. This area has not been studied in depth, but appears to contain ruderal grassland and possibly seasonal wetland habitat.

3.3.1.1.2.2 Perrin Rd.

The Project may improve approximately 2,640 feet of Perrin Road. The western section of the road is approximately 1,280 linear feet long. This section is presently a low-traffic, paved road, approximately 20 feet wide, which serves an area of low-density residential development. The eastern segment to be improved (approximately 1,360 linear feet) is a low-traffic paved road, approximately 14 feet wide. This segment serves a single residence on a large lot, and stubs out on the Project Site. It passes between grasslands on the Project Site to the north, and disturbed/remnant grasslands to the south. In addition to improving this road, the Project may install wet utility pipes in Perrin Rd. This may include approximately one-half mile of 12" sewer main in the same portion of the road described above. This road provides no habitat values.

3.3.1.1.2.3 N. Fowler Ave.

The Project may improve approximately one mile (5,280 linear feet) of N. Fowler Avenue. N. Fowler Avenue is presently a paved two-lane road, approximately 20 feet wide. The northern 700 linear feet of this road passes between a small orchard, and low-density residential development. For approximately 600 linear feet south of that, the road adjoins disturbed/remnant grassland to the east, and low-density residential development to the west. The remainder of the road passes through low-density residential development on each side. In addition to improving this road, the Project may install wet utility pipes in N. Fowler Ave. This may include approximately one-half mile of 12" sewer main in the southern portion, between Perrin Rd. and N. E. Shepherd Ave.

This road provides no habitat values for listed species. At the southern end of the segment of N. Fowler Ave. to be improved, it intersects E. Shepherd Ave. Dry Creek flows through a concrete box culvert beneath this intersection (described in **Section 3.3.1.1.1.4.2.6**, above).

3.3.1.1.2.4 E. Shepherd Ave.

The segment of E. Shepherd Avenue which may be improved by the Project begins at the above-mentioned intersection with N. Fowler Ave, and runs east approximately two miles. This road is approximately 60 feet wide, with three to four lanes and a center island. The westernmost half-mile of this road passes between low-density residential development to the north, and medium-density residential development to the south. For the next approximately one-quarter mile, the road passes disturbed/remnant grassland on the Project Site to the north, and medium-density residential development to the south. For one-quarter mile after that, the road passes a mix of rural residences, the old farm headquarters, and a construction yard to the north, and medium-density residential development to the south. For the eastern half-mile of the area to be improved, the south side of the road remains medium-density residential development, while the area to the north is a mixture of low-density uses including a residence on a large lot surrounded by disturbed/remnant grassland, an area of disturbed/remnant grassland presently being developed into a storage facility,

irrigated horse paddocks, and a small vineyard. In addition to improving this road, the Project may install wet utility pipes in E. Shepherd Ave. This may include approximately one mile of 8" and 16" force main in the westernmost portion, between N. Fowler Ave. and N. Temperance Ave. and approximately 1,320 linear feet of 6" recycled water line in the portion between N. Temperance Avenue to west of N. Locan Ave.

As with the other roads described above, this road provides no habitat values for listed species.

3.3.1.1.2.5 N. Locan Ave.

The Project may improve approximately 1,440 linear feet of N. Locan Avenue. This segment of N. Locan Ave. is currently a gated private gravel road, approximately 16 feet wide. It is bordered on the west by the disturbed/remnant grassland being developed into a storage facility, and on the east by the irrigated horse paddocks. This road provides no habitat values for listed species.

3.3.1.1.2.6 Armstrong Ave.

The Project may install approximately 600 linear feet of 12" sewer main in Armstrong Ave. immediately south of Shepherd Ave. Armstrong Ave. is entirely within developed residential neighborhood in this location. This area has no appreciable habitat values, and does not provide suitable habitat for listed species.

3.3.1.1.3 Area of Indirect Effects from Project Development

Development of the Project and its associated off-site improvements may result in indirect effects to off-site habitats in the Project vicinity. USFWS has, as a matter of long-standing policy, stated that vernal pool habitat within 250 feet of development activities should be treated as being indirectly impacted for the purpose of ESA permitting analysis and mitigation (USFWS 2011a, USFWS 2019).

The area outside of the Wilson Premier Homes owned-properties (and associated off-site improvements), but within 250 ft. of Project-related activities primarily consists of roads urban or suburban development, and intensive agriculture. It also contains wetland and non-wetland channels (portions of the Big Dry Creek Dam Outlet Channel, as described above), patches of annual grassland, disturbed/remnant/ruderal grassland, and two depressional wetland basins. One of the two depressional wetland basins occurs within an undeveloped inholding surrounded by the Project Site. The other basin occurs partly within the Project Site, and extends off of the Project Site to the northeast. The portion of this basin within the Project Site will be avoided. CTS larvae have been documented in both basins. The aquatic habitats in this area are depicted in **Figure 13**, and summarized in **Table 6.**

In the absence of appropriate avoidance measures and project features, the Proposed Action could result in erosion and sedimentation into Dry Creek and other minor drainages on and bordering the proposed work areas. The Big Dry Creek Reservoir Outlet Channel—an occasional tributary of Tulare Lake and of the San Joaquin River via the Herndon Canal—passes through the Project

Site. As described in **Section 3.2.1.3.1.1**, a SWPPP will be developed for the Project, and BMPs will be implemented to protect water quality during and after construction. As these measures would be implemented as part of the Proposed Action, off-site waters would not be affected by the Proposed Action and are not included in the Action Area.

3.3.1.2 Compensatory Mitigation Areas

The Proposed Action will have effects on areas outside of the immediate vicinity of the Project, by participating in the conservation of those areas as compensatory mitigation for impacts caused by Project development. All such effects are expected to be beneficial.

3.3.1.2.1 Jamison Ranch

The information in this section is taken from the Madera Terrace Conservation Bank Draft Prospectus, presented in **Appendix H** (VNLC 2021).

The Mitigation Site will be established on the approximately 1,920-acre Jamison Ranch (**Figure 18, Figure 19**). As described above, the Jamison Ranch is situated in a high-priority conservation area, and adjoins other existing and planned preserves. The property provides natural topographical diversity and supports a range of types of vernal pools and other wetlands and waters. This is evident based on the diversity of special-status plant and wildlife species known to be present, each of which typically has a unique niche. Several pools on the property are deeper and support CTS and WSF breeding, even during low rain years, and there are also numerous shallow to moderately deep pools supporting a diversity of special-status invertebrate and plant species.

The approximately 857-acre Mitigation Site occupies the southern portion of the Jamison Ranch property, extending from Avenue 15 in the south to cover most of North Fork Little Dry Creek in the center of the Ranch (**Figure 20**). The habitat types and areas proposed for preservation in the Mitigation Area are presented in **Table 8**. Habitat acreages are estimated based on remote mapping and field surveys conducted by VNLC in 2017-2021. Precise, accurate acreages will be developed through additional remote mapping and field surveys prior to completion of the preserve documents and recording of the Conservation Easement Deed.

Table 8. Habitat Types on the Jamison Ranch

Habitat Type	Overall Ranch Area (acres)	Proposed Preserve Area (acres)
Annual Grassland	1787.3	795.4
Documented CTS Breeding Pool (documented or presumed VPFS habitat)	3.9	3.2
Other Vernal Pool or Swale (documented or presumed VPFS habitat)[1]	122.5	55.8
North Fork Little Dry Creek[2]	2.7	1.3
Other Ephemeral Drainage	3.6	1.3
Total CTS Habitat	1917.3	854.4
Total VPFS Habitat	124.3	59
Total Area	**1920**	**857**

[1]Comprehensive wetland mapping has not been conducted. Area of vernal pools and swales is estimated via a scaled estimate based on 20% of the ranch which has been mapped. All documented CTS habitat has been accurately mapped.
[2]CTS larvae have been repeatedly documented in North Fork Little Dry Creek. However, based on discussions with CDFW, this habitat is not treated as CTS breeding habitat for the purpose of this analysis.
Linear footage of North Fork Little Cry Creek is 12,166ft total, 11,442ft in Proposed Preserve.

3.3.1.2.1.1 Overall Condition and Site History

Both wetland and upland habitats within the Mitigation Site are in good condition. The property appeared to be appropriately grazed by cattle in a consistent manner across all areas visited during surveys conducted during winter, spring, and summer of 2017, 2019, 2021, and 2023. This is consistent with the historical land use of the property. Aside from low-to-moderate-intensity cattle grazing, it has not seen any form of ground disturbance or development. Moderate cattle grazing is considered beneficial for the management of vernal pool grasslands, as grazing reduces thatch and controls invasive weeds, thus maintaining vernal pool hydrology and facilitating the establishment and persistence of native forbs (Marty 2005). Vegetation cover observed within the vernal pools and other wetlands on the property are indicative of healthy conditions, featuring a moderate cover of predominantly native forbs and grasses. Like most San Joaquin Valley grassland habitats, the uplands are dominated by introduced annual grasses. Invasive weeds were generally found to be absent during the property visits.

3.3.1.2.1.2 Habitats

The Mitigation Site is dominated by California annual grassland with a moderate to high density of interspersed vernal pools and swales. The terrain consists of level to gently rolling hills. Several types of wetlands exist in this terrain, including ephemeral drainages, vernal swales, vernal pools, and intermittent stream (**Figure 19**). The Mitigation Site supports an estimated total of 59 acres of vernal pools and swales (approximately 6.8% overall cover).

3.3.1.2.1.2.1 Vernal Pools

Vernal pools are common throughout the Mitigation Site, somewhat evenly distributed within level to rolling topography. The vernal pools have a dominance of vernal pool indicator plant species such as coyote thistle, Fremont's goldfields (*Lasthenia fremontii*), stipitate popcornflower, and annual hairgrass (*Deschampsia danthonioides*). The vernal pools also support generalist wetland species such as Mediterranean barley and Italian rye grass.

The vernal pools support special-status vernal pool species including CTS, WSF, VPFS, midvalley fairy shrimp, California linderiella, and succulent owl's-clover. They also provide habitat for a suite of other more common invertebrates, amphibians, reptiles, birds, and mammals.

CTS in particular breed only in the deepest and longest-ponding vernal pools. This includes 11 natural vernal pools on the Mitigation Site, as well as five vernal pools which were previously excavated to provide enhanced livestock watering. In total, these 16 features provide 3.2 acres of aquatic habitat in which CTS larvae have been observed.

WSF, VPFS, midvalley fairy shrimp, and California linderiella are widespread in the vernal pools on the Mitigation Site. Succulent owl's-clover has been documented in nine pools on the Mitigation Site.

3.3.1.2.1.2.2 Vernal Swales

Vernal swales can be differentiated from ephemeral drainages based on a lack of a clearly defined bed and bank and associated OHWM. These features generally support at least 20 percent cover of vernal pool indicator species associated with shallow ponding such as meadowfoam (*Limnanthes* spp.) along with lower cover of generalist wetland species such as Mediterranean barley and Italian ryegrass. Vernal swales often hydrologically interconnect vernal pools and are thus fundamental to the overall ecological function of vernal pool complexes.

Vernal swales sometimes contain low areas with extended ponding, which provide potential habitat for special-status vernal pool species including WSF, VPFS, midvalley fairy shrimp, and California linderiella. Like vernal pools, they provide habitat for a more common invertebrates, amphibians, reptiles, birds, and mammals. Vegetated swales provide water quality services to downstream aquatic habitats.

3.3.1.2.1.2.3 Ephemeral Drainages

Ephemeral drainages are small channels with some bed and bank development that convey rain run-off for a few weeks following storm events and often retain isolated ponded areas throughout the rainy season. These features typically support a mix of vernal pool indicator plants and more generalist seasonal wetland plants. They display characteristics of an ordinary high-water mark (OHWM) and are considered potentially-jurisdictional waters of the United States. They are differentiated from seasonal streams by having flow only 1-2 weeks after heavy rains and more limited evident channel development.

The ephemeral drainages provide limited habitat for vernal pool and generalist species; their habitat values for special-status species may be more similar to those of annual grasslands, described below. Vegetated ephemeral drainages provide water quality services to downstream aquatic habitats.

3.3.1.2.1.2.4 Intermittent Stream

North Fork Little Dry Creek is a tributary of Little Dry Creek (unrelated to the Dry Creek on the Project Site). The downstream reaches of Little Dry Creek have been significantly channelized and are largely managed as agricultural ditches, but it is a minor tributary of the San Joaquin River, via the Chowchilla Canal.

North Fork Little Dry Creek within the ranch is a meandering channel cut tens of feet below the dominant geological surface. Much of the stream channel is lightly vegetated, and sandy-bottomed. However, relatively deep and long-lasting pools occur in many of the meanders. Most of the stream dries relatively early in the spring, but these pools may hold water until early summer. The pools have significant aquatic vegetation such as white water crows-foot (*Ranunculus aquatilis*).

CTS breed in the stream, particularly in the deeper pools. The stream also provides habitat for small fish which may migrate in from downstream, as well as for other amphibians, birds, mammals, reptiles, and invertebrates. The steep sides of the stream valley provide vertical walls which are used by Western Burrowing Owl and other wildlife for nesting.

3.3.1.2.1.2.5 Grasslands

The grasslands on the Mitigation Site have undulating topography, allowing the development of a mosaic of different vegetation according to minor differences in soil moisture. Typical spring vegetation consists of Mediterranean barley, Italian ryegrass, soft chess brome, and slender wild oats (*Avena barbata*), with a mix of associated grasses and forbs. Summer vegetation includes late-season natives such as turkey mullein (*Croton setiger*) and narrow tarplant (*Holocarpha virgata*).

The grasslands provide documented habitat for multiple special-status species, including CTS, Swainson's Hawk, Golden Eagle, Ferruginous Hawk, Western Burrowing Owl, American badger, and WSF. In addition, many more common wildlife species depend on the grassland. Many predators depend on large, uninterrupted grasslands such as the region containing the Jamison ranch.

3.3.1.2.1.3 Hydrology

The mean annual precipitation at the Mitigation Site is approximately 13.4 inches (PRISM 2021), with the majority of precipitation falling as rain during the winter months from December to March. Pools generally begin to fill with the onset of heavy rains in the late fall and winter and dry down during the spring. The pools vary in size and depth; the larger and deeper pools typically have a longer hydroperiods while the smaller and shallower pools typically have a shorter

hydroperiods. There is also high hydrologic connectivity between pools, either via surface swales or subsurface flow.

North Fork Little Dry Creek originates just a few miles northeast of the property, and joins the main stem of Little Dry Creek about three miles southwest of the Property. It flows in winter and early spring, and pools typically remain inundated through late spring or into early summer, depending on weather conditions.

3.3.1.2.1.4 Soils

According to the Web Soil Survey (NRCS 2017), soils on the Mitigation Site are predominantly loamy alluvium in the Cometa soil series (**Figure 21**). The soils are generally underlain by a restrictive hardpan at a depth of 20-30 inches, contributing to a seasonally perched water table that is conducive to wetland establishment and persistence. Additionally, deposition of alluvium has created variable soil conditions. In many locations, soil textures are loam or finer and hydric soil conditions are present. These conditions are present as inclusions within the listed soil mapping units, and are typically too small in scale to be displayed in the area's soil mapping layers.

3.3.1.2.2 Aquatic Resource Mitigation Site

The Applicant is proposing to provide all aquatic resource mitigation through the conservation of the Mitigation Site. Any impacts which USACE determines are not fully offset by this conservation will be mitigated through purchase of additional aquatic resource credits through an approved source with appropriate service area and credit availability. The location of the site where such aquatic resources mitigation activities would be performed is not known as of the writing of this document. The National Fish and Wildlife Foundation's (NFWF) Sacramento District is currently operating an ILF mitigation program for aquatic resources that has been authorized to provide mitigation credits in the Project area by the USACE Sacramento District, the EPA, NMFS, the SWRCB, and the Central Valley Regional Water Quality Control Board. Credits purchased from the ILF program are used to fund future habitat restoration on sites selected by NFWF and approved by the signatory agency. Therefore, the location of the action funded by credits purchased through this program cannot be definitively stated. However, it can be stated that this action (if required) would likely place in the San Joaquin River basin, as this feature defines the relevant service area in the ILF program. At present, there are no approved mitigation banks with aquatic resource credits available and service areas which cover the Project Site (USACE 2023). However, if banks with appropriate credits are approved before Project impacts occur, they could be used as alternative sources of credits.

4.0 Status of the Species and Critical Habitat in the Action Area

Two ESA-listed species (CTS and VPFS), and two other special-status species are considered present in the Impact Area. Three ESA-listed species (CTS, VPFS, and succulent owl's-clover), and 11 other special-status species are known to occur in the Mitigation Site.

In addition to the species considered present in the Impact Area, one ESA-listed species and 19 other special-status species are considered to have potential to occur in the Impact Area, while four ESA-listed species and 13 other special-status species are considered to have potential to occur in the Mitigation Site. Nearly all those species with potential to occur in the Impact Area either are known to occur in the Mitigation Site, or have potential to occur in the Mitigation Site. **Table 9** summarizes the presence or potential of ESA-listed species in the Impact Area and Mitigation Site, while **Table 10** summarizes the presence or potential of other special-status species.

Table 9. Summary Matrix of Documented and Potential ESA-Listed Species Occurrence/Potential in Action Area

Species	Impact Area	Mitigation Site
Succulent owl's-clover (*Castilleja campestris* ssp. *succulenta*)		**Present**
San Joaquin Valley Orcutt grass (*Orcuttia inaequalis*)		Potential
Hairy Orcutt grass (*Orcuttia pilosa*)		Potential
Greene's tuctoria (*Tuctoria greenei*)		Potential
California tiger salamander (*Ambystoma californiense*)	**Present**	**Present**
California Condor (*Gymnogyps californianus*)	Potential	Potential
Vernal pool fairy shrimp (*Branchinecta lynchi*)	**Assumed Present**	**Present**
Western spadefoot (*Spea hammondii*)	**Present**	**Present**
Northwestern pond turtle (*Actinemys marmorata*)	Potential	Potential
Subtotal Present	3	4
Subtotal Potential	2	5
Total Present or Potential	5	9

A list of all special-status plant species appearing in the IPaC letter or CNDDB search is provided in **Table 11**. This table includes a brief habitat description for each species, and a determination on the potential to occur. **Table 12** presents the same information for animal species.

Following the table is a brief description of each species with potential to occur. Of the species in **Table 11** and **Table 12**, seven ESA-listed species and 14 other special-status species were determined to have only low potential to occur in the Action Area. In addition, eight ESA-listed species and 37 other special-status species have no reasonable expectation of occurrence in the Action Area. The species which are not expected to occur are not discussed in greater detail in this document, because the Proposed Action would have no effect on them. **Figure 22** presents a map of CNDDB occurrences in the vicinity of the Project, and **Figure 23** presents CNDDB occurrences in the vicinity of the Jamison Ranch. **Figure 24** presents documented special-status species occurrences on the Project Site, and **Figure 25** presents documented special-status species occurrences on the Jamison Ranch.

Table 10. Summary Matrix of Other Documented and Potential Special-Status Species Occurrence/Potential in Action Area

Species	Impact Area	Mitigation Site
Ewan's larkspur (*Delphinium hansenii* ssp. *ewanianum*)	Potential	Potential
Dwarf downingia (*Downingia pusilla*)		Potential
Spiny-sepaled button-celery (*Eryngium spinosepalum*)	Potential	Potential
Boggs Lake hedge-hyssop (*Gratiola heterosepala*)		Potential
Forked hare-leaf (*Lagophylla dichotoma*)	Potential	Potential
Sanford's arrowhead (*Sagittaria sanfordii*)		Potential
Hogwallow starfish (*Hesperevax caulescens*)		**Present**
Adobe navarretia (*Navarretia nigelliformis ssp. nigelliformis*)		**Present**
Golden Eagle (*Aquila chrysaetos*)	Potential	**Present**
Cooper's Hawk (*Accipiter cooperii*)	**Present**	
Swainson's Hawk (*Buteo swainsoni*)	Potential	**Present**
Burrowing Owl (*Athene cunicularia*)	Potential	**Present**
Prairie Falcon (*Falco mexicanus*)		Potential
Loggerhead Shrike (*Lanius ludovicianus*)	Potential	Potential
California Horned Lark (*Eremophila alpestris actia*)	Potential	**Present**
Tricolored Blackbird (*Agelaius tricolor*)	Potential	Potential
Great Blue Heron (*Ardea herodias*)	Potential	Potential
Snowy Egret (*Egretta thula*)		
Ferruginous Hawk (*Buteo regalis*)		**Present**
Antioch efferian robber fly (*Efferia antiochi*)	Potential	
Crotch bumble bee (*Bombus crotchii*)	Potential	Potential
Molestan blister beetle (*Lytta molesta*)	Potential	Potential
California linderiella (*Linderiella occidentalis*)	Potential	**Present**
Midvalley fairy shrimp (*Branchinecta mesovallensis*)	Potential	**Present**
Pallid bat (*Antrozous pallidus*)	Potential	
American badger (*Taxidea taxus*)	Potential	**Present**
Coast horned lizard (*Phrynosoma blainvillii*)	Potential	
Subtotal Present	1	10
Subtotal Potential	18	12
Total Present or Potential	19	22

Table 11. Special-Status Plant Species that May Occur in the Action Area

Common Name	Scientific Name	Listing Status State/Federal/CRPR	Habitat, Elevation and Blooming Period (Duration)	Potential to Occur in Impact Area	Potential to Occur in Mitigation Site
Brassy bryum	*Bryum chryseum*	--/--/4.3	Oak woodlands, grasslands, chamise chapparal (165'-1970').	**Low potential**. The grassland within the Impact Area may provide suitable habitat for this species. Occurrences are not available in CNDDB.	**Low potential**. The grassland within the Mitigation Site may provide suitable habitat for this species. Occurrences are not available in CNDDB.
Hoover's calycadenia	*Calycadenia hooveri*	--/--/1B.3	Foothill woodland, valley grassland, rocky exposed places, oak savanna (328'-1312'). July-Sept	**Low potential**. The Impact Area does not include suitable rocky habitat for this species. Nearest documented occurrence is 9.8 miles away, and seen in 2007.	**Low potential**. The Mitigation Site does not include suitable rocky habitat for this species. Nearest documented occurrence is 5.4 miles away, and seen in 2007.
Bristly sedge	*Carex comosa*	--/--/2B.1	Lake margins and edges, freshwater wetlands, wetland-riparian (<1312'). May-Sept	**Low potential**. There are few occurrences in the vicinity, however, the mesic areas within the Impact Area may provide suitable habitat for this species. Nearest documented occurrence is 32.4 miles away and seen in 1989.	**Low potential**. There are few occurrences in the vicinity, however, the mesic areas within the Mitigation Site may provide suitable habitat for this species. Nearest documented occurrence is 18.5 miles away and seen in 1989.
Tree-Anemone	*Carpenteria californica*	CT/--/1B.2	Foothill woodland, chapparal, streambanks, oak woodlands (1115'-4396'). May-July	**Not Expected**. The Impact Area is significantly outside of the known elevational range for this species and does not include suitable habitat. Nearest documented occurrence is 17.8 miles away.	**Not Expected**. The Mitigation Site is significantly outside of the known elevational range for this species and does not include suitable habitat. Nearest documented occurrence is 22.4 miles away.
Hoover's Cryptantha	*Cryptantha hooveri*	--/--/1A	Inland dunes, valley, and foothill grassland (sandy) (30'-490'). April-May.	**Not expected**. Species is considered extinct, last seen in 1939. Suitable habitat is lacking within the Impact Area.	**Not expected**. Species is considered extinct, last seen in 1939. Suitable habitat is lacking within the Mitigation Site.
Succulent owl's-clover	*Castilleja campestris* ssp. *succulenta*	CE/FT/1B.1	Vernal pools, freshwater wetlands, foothill woodland, valley grassland, wetland-riparian (<2460'). Apr-May	**Low potential**. The seasonal wetlands within the Impact Area may provide marginal habitat for this species. However, the species typically occurs in large vernal pools with high native richness and diversity, which are lacking from this site. Nearest documented occurrence is 3.1 miles away and seen in 2008.	**Present**. Species has been observed in nine pools in the Mitigation Site, and other vernal pools provide potential habitat.
California Jewelflower	*Caulanthus californicus*	CE/FE/1B.1	Shadescale scrub, valley grassland, pinyon-juniper woodland, flats, slopes, non-alkaline grasslands (230'-3281'). Feb-May	**Low potential**. The only documented species occurrence in the vicinity is 8.2 miles from the Impact Area, documented in the late 1890's or early 1900's. No habitat remains in the vicinity (CDFW 2023). Valley and foothill grasslands and sandy microhabitats occur within the Study Area.	**Not Expected**. The Mitigation Site is outside of the known geographic range for this species.
Streambank spring beauty	*Claytonia parviflora ssp. grandiflora*	--/--/4.2	Rocky cismontane woodland (492'-3937'). Feb-Apr	**Not Expected**. The Impact Area is outside of the elevation range of this species. There are no documented occurrences within 10 miles of the Study Area, and rocky microhabitats are extremely limited within the Study Area.	**Not Expected**. The Mitigation Site is outside of the elevation range of this species. There are no documented occurrences within 10 miles of the Study Area, and rocky microhabitats are extremely limited within the Mitigation Site.
Ewan's larkspur	*Delphinium hansenii* ssp. *ewanianum*	--/--/4.2	Foothill woodland, valley grassland, oak woodland (197'-1969'). Mar-May	**Potential to occur**. The grassland within the Impact Area may provide suitable habitat for this species.	**Potential to occur**. The grassland within the Mitigation Site may provide suitable habitat for this species.
Dwarf downingia	*Downingia pusilla*	--/--/2B.2	Vernal pools, freshwater wetlands, foothill woodland, valley grassland, wetland-riparian, roadside ditches (< 490'). Mar-May	**Low potential**. The Impact Area is just outside of the known geographic range for this species, but the seasonal wetlands and other mesic areas within the Project Site may provide marginal habitat. Nearest documented occurrence is 4.2 miles away and seen in 1979.	**Potential to occur**. Vernal pools on the Mitigation Site provide potential habitat. Nearest documented occurrence is 10.1 miles away and seen in 1979.

Common Name	Scientific Name	Listing Status State/Federal/CRPR	Habitat, Elevation and Blooming Period (Duration)	Potential to Occur in Impact Area	Potential to Occur in Mitigation Site
Spiny-sepaled button-celery	*Eryngium spinosepalum*	--/--/1B.2	Vernal pools, freshwater wetlands, valley grassland, wetland-riparian, swales, roadside ditches (<4167'). Apr-May	**Potential to occur**. The aquatic features within the Impact Area may provide suitable habitat for this species. Nearest documented occurrence is 8.5 miles away and seen in 2010.	**Potential to occur**. The vernal pools within the Mitigation Site provide suitable habitat for this species. Nearest documented occurrence is 3.2 miles away and seen in 2000
King's River monkeyflower	*Erythranthe acutidens*	--/--/4.3	Yellow pine forest, foothill woodland, near hillside streams, seeps, in partial shade (656'-6562'). Apr-July	**Not Expected**. The Impact Area is significantly outside of the known elevational range and does not include suitable habitat for this species.	**Not Expected**. The Mitigation Site is significantly outside of the known elevational range and does not include suitable habitat for this species.
Small-flowered monkeyflower	*Erythranthe inconspicua*	--/--/4.3	Yellow pine forest, red fir forest, lodgepole forest, foothill woodland, chapparal (900'-2495'). May-June	**Not Expected**. The Impact Area is significantly outside of the known elevational range and does not include suitable habitat for this species.	**Not Expected**. The Mitigation Site is significantly outside of the known elevational range and does not include suitable habitat for this species.
Sierra Nevada monkeyflower	*Erythranthe sierrae*	--/--/4.2	Granitic soils in vernally wet depressions, edges of creeks (656'-6890'). Mar-July	**Not Expected**. The Impact Area does not include suitable habitat for this species.	**Not Expected**. The Mitigation Site does not include suitable habitat for this species.
Boggs Lake hedge-hyssop	*Gratiola heterosepala*	CE/--/1B.2	Lake margins, vernal pools, edges, freshwater wetlands, wetland-riparian, shallow water (<5249). Apr-Aug	**Low potential**. The aquatic features within the Impact Area may provide marginally suitable habitat for this species. Nearest documented occurrence is 13.6 miles away and seen in 1994.	**Potential to occur**. The vernal pools within the Mitigation Site provide suitable habitat for this species. Nearest documented occurrence is 17.0 miles away and seen in 1994
California Satintail	*Imperata brevifolia*	--/--/2B.1	Coastal sage scrub, creosote bush scrub, chaparral, wetland-riparian, wet springs, meadows, streambanks, floodplains (<1640'). Sept-May	**Not Expected**. The Impact Area does not include suitable habitat for this species.	**Not Expected**. The Mitigation Site does not include suitable habitat for this species.
Forked hare-leaf	*Lagophylla dichotoma*	--/--/1B.1	Foothill woodland, valley grassland, openings in woodlands (50'-1312'). Apr-June	**Potential to occur**. The grassland within the Impact Area may provide suitable habitat for this species. Nearest documented occurrence is 10.8 miles away and seen in 2010	**Potential to occur**. The grassland within the Mitigation Site may provide suitable habitat for this species. Nearest documented occurrence is 26.7 miles away and seen in 2010
Madera leptosiphon	*Leptosiphon serrulatus*	--/--/1B.2	Yellow pine forest, foothill woodland, chapparal (984'-4265'). Apr-May	**Not Expected**. The Impact Area is significantly outside of the known elevational range and does not include suitable habitat for this species.	**Not Expected**. The Mitigation Site is significantly outside of the known elevational range and does not include suitable habitat for this species.
Orange lupine	*Lupinus citrinus var. citrinus*	--/--/1B.2	Yellow pine forest, foothill woodland, chapparal, granitic soils (1969'-5577'). Apr-July	**Not Expected**. The Impact Area is significantly outside of the known elevational range and does not include suitable habitat for this species	**Not Expected**. The Mitigation Site is significantly outside of the known elevational range and does not include suitable habitat for this species.
Hoary navarretia	*Navarretia eriocephala*	--/--/4.3	Foothill woodland, valley grassland, wetland-riparian, heavy soil of seasonally wet flats (<1312'). May-June	**Low potential**. The Impact Area is just outside of the known geographic range for this species, but the seasonal wetlands and other mesic areas within the Project Site may provide suitable habitat.	**Low potential**. The Mitigation Site is just outside of the known geographic range for this species, but the vernal pools may provide suitable habitat.
Pincushion navarretia	*Navarretia myersii* ssp. *myersii*	--/--/1B.1	Vernal pools, freshwater wetlands, valley grassland, wetland-riparian (66'-295'). Apr-May	**Low potential**. The Impact Area is just outside of the known geographic range for this species, but the seasonal wetlands within the Project Site may provide suitable habitat	**Low potential**. The Mitigation Site is just outside of the known geographic range for this species, but the vernal pools may provide suitable habitat.

Common Name	Scientific Name	Listing Status State/Federal/CRPR	Habitat, Elevation and Blooming Period (Duration)	Potential to Occur in Impact Area	Potential to Occur in Mitigation Site
San Joaquin Valley Orcutt grass	*Orcuttia inaequalis*	CE/FT/1B.1	Vernal pools, freshwater wetlands, valley grassland, wetland-riparian (<1312'). Apr-Sept	**Low potential**. The seasonal wetlands within the Impact Area may provide very marginal habitat for this species. A conservative assessment was made for this species due to the listing status. Nearest documented occurrence is 1.3 miles away and seen in 1987.	**Potential to occur**. The vernal pools within the Mitigation Site provide suitable habitat for this species. This species is documented from the immediately-adjacent Fenston Ranch Preserve (seen as recently as 2023, author's observation).
Hairy Orcutt grass	*Orcuttia pilosa*	CE/FE/1B.1	Vernal pools, freshwater wetlands, valley grassland, wetland-riparian (<656'). May-Sept	**Low potential**. The seasonal wetlands within the Impact Area may provide very marginal habitat for this species. A conservative assessment was made for this species due to the listing status. Nearest documented occurrence is 9.8 miles away and seen in 2010.	**Potential to occur**. The vernal pools within the Mitigation Site provide suitable habitat for this species. Nearest documented occurrence is 3.5 miles away and seen in 2010.
Arizona pholistoma	*Pholistoma auritum* var. *arizonicum*	--/--/2B.3	Creosote bush scrub, desert scrub (984'-2297'). March	**Not Expected**. The Impact Area does not include suitable habitat for this species.	**Not Expected**. The Mitigation Site does not include suitable habitat for this species.
Wine-colored tufa moss	*Plagiobryoides vinosula*	--/--/4.2	Usually in granitic rock or granitic soil along seeps and streams, sometimes in clay (100'–5,695').	**Low potential**. The Impact Area includes some granitic-derived soils, but not along streams or seeps.	**Not Expected**. The Mitigation Site does not include suitable habitat for this species.
Hartweg's golden sunburst	*Pseudobahia bahiifolia*	CE/FE/1B.1	Foothill woodland, valley grassland, open woodland, in clay soils (328'-656'). Mar-Apr	**Low potential**. This species is strongly associated with mima-mound topography on clay or volcanic soils, which are absent from the Impact Area. A conservative assessment was made for this species due to the listing status. Nearest documented occurrence is 8.0 miles away and seen in 2009.	**Low potential**. This species is strongly associated with mima-mound topography on clay or volcanic soils, which are uncommon in the Mitigation Site. Nearest documented occurrence is 2.7 miles away
San Joaquin adobe sunburst	*Pseudobahia peirsonii*	CE/FT/1B.1	Foothill woodland, valley grassland, bare dark clay (328'-2953'). Mar-Apr	**Low potential**. This species is strongly associated with bare, dark clay soils, which are absent from the Impact Area. A conservative assessment was made for this species due to the listing status. Nearest documented occurrence is 7.1 miles away and seen in 2010.	**Low potential**. This species is strongly associated with bare, dark clay soils, which are uncommon in the Mitigation Site. Nearest documented occurrence is 22.5 miles away and seen in 2010.
Sanford's arrowhead	*Sagittaria sanfordii*	--/--/1B.2	Freshwater marsh, freshwater wetland, wetland-riparian, ponds, ditches (<984'). May-Oct	**Low potential**. The stock ponds, irrigation tailwater pond, and Outlet Channel may provide marginal habitat for this species. Nearest documented occurrence is 5.7 miles away and seen in 2018.	**Potential to Occur**. The intermittent stream may provide suitable habitat for this species. Nearest documented occurrence is miles away and seen in 2014.
Greene's tuctoria	*Tuctoria greenei*	CR/FE/1B.1	Vernal pools, freshwater wetlands, valley grassland, wetland-riparian (<3245'). May-July	**Low potential**. The seasonal wetlands within the Impact Area may provide very marginal habitat for this species. A conservative assessment was made for this species due to the listing status. Nearest documented occurrence is 1.8 miles away and seen in 1987.	**Potential to occur**. The vernal pools within the Mitigation Site provide suitable habitat for this species. Nearest documented occurrence is 11.4 miles away and seen in 1987.
Hall's wyethia	*Wyethia elata*	--/--/4.3	Yellow pine forest, foothill woodland (1640'-4593'). May-Aug	**Not Expected**. Impact Area is significantly outside of the known elevational range and does not include suitable habitat for this species	**Not Expected**. Mitigation Site is significantly outside of the known elevational range and does not include suitable habitat for this species
Hogwallow Starfish	*Hesperevax caulescens*	--/--/4.2	Occurs in wetlands, foothill woodland, valley grassland, drying shrink-swell clay of vernal pools, flats, steep slopes (<984'). Mar-June	**Low potential**. The seasonal wetlands within the Impact Area may provide very marginal habitat for this species. Nearest occurrences are those found at the Mitigation Site.	**Present**. Species has been observed in vernal pools in the Mitigation Site, and other vernal pools provide potential habitat.

Common Name	Scientific Name	Listing Status State/Federal/CRPR	Habitat, Elevation and Blooming Period (Duration)	Potential to Occur in Impact Area	Potential to Occur in Mitigation Site
Adobe Navarretia	*Navarretia nigelliformis ssp. nigelliformis*	--/--/4.2	Wetlands, occasionally non wetlands, vernal pools, clay depressions (33'-3281'). Apr-June	**Low potential**. The seasonal wetlands within the Impact Area may provide very marginal habitat for this species. Nearest occurrences are those found at the Mitigation Site.	**Present**. Species has been observed in vernal pools in the Mitigation Site, and other vernal pools provide potential habitat.

Abbreviations:
CESA = California Endangered Species Act, CRPR = California Rare Plant Rank, E = Endangered, CE = State Endangered, CR = State Rare, FP = Fully Protected, SSC = CDFW Species of Special Concern, WL = CDFW Watch List

CRPR Ranks:
1A = Plants presumed extinct in California and rare/extinct elsewhere.
1B = Plants rare, threatened, or endangered in California and elsewhere.
2A = Plants presumed extirpated in California, but more common elsewhere.
2B = Plants rare, threatened, or endangered in California, but more common elsewhere.
3 = Plants about which we need more information.
4 = Plants of limited distribution.

CRPR Subranks:
.1 = seriously threatened in California
.2 = fairly threatened in California
.3 = not very threatened in California

Table 12. Special-Status Wildlife Species that May Occur in the Action Area

Common Name	Scientific Name	Listing Status Federal/State	Habitat	Potential to Occur in Impact Area	Potential to Occur in Mitigation Area
Amphibians					
California tiger salamander	*Ambystoma californiense*	FT, CT	Grasslands, oak savanna, edges of mixed woodland, lower elevation conifer forests, vernal pools, wetlands, underground refuge (ground squirrel or gopher burrows)	**Present**. There is a documented CNDDB occurrence and suitable habitat within the Impact Area. Larvae were observed in three pools in 2023.	**Present**. CTS larvae have been observed in 14 vernal pools in the Mitigation Area, as well as in the intermittent stream channel.
Western spadefoot	*Spea hammondii*	FPT	Open areas with sandy or gravelly soils, mixed woodlands, grasslands, coastal sage scrub, chaparral, sandy washes, lowlands, river floodplains, alluvial fans, playas, alkali flats, foothills, and mountains. Rain pools which do not contain bullfrogs, fish, or crayfish are necessary for breeding.	**Present**. Larvae were observed in multiple wetlands in 2023. Wetlands and ponds provide suitable breeding habitat, and grassland provides suitable upland habitat.	**Present**. Western spadefoot tadpoles have been observed in more than 20 vernal pools in the Mitigation Area.
Foothill yellow-legged frog	*Rana boylii*	FE, CE	Rocky streams and rivers with rocky substrate and open, sunny banks, in forests, chaparral, and woodlands, isolated pools, vegetated backwaters, and deep, shaded, spring-fed pools.	**Not Expected**. There is no suitable habitat within the Impact Area.	**Not Expected**. There is no suitable habitat within the Mitigation Site.
California red-legged frog	*Rana draytonii*	FT, SSC	Ponds in humid forests, woodlands, grasslands, coastal scrub, and stream sides with plant cover. Most common in lowlands or foothills. Frequently found in woods adjacent to streams. Breeding habitat is in permanent or ephemeral water sources; lakes, ponds, reservoirs, slow streams, marshes, bogs, and swamps. Ephemeral wetland habitats require animal burrows or other moist refuges for estivation when the wetlands are dry.	**Not Expected**. Outside of known geographical range of species.	**Not Expected**. Outside of known geographical range of species.
Birds					
Yellow-billed cuckoo	*Coccyzus americanus*	FT, CE	Woodlands, thickets, orchards, streamside groves. Breeds mostly in dense deciduous stands, including forest edges, tall thickets, dense second growth, overgrown orchards, scrubby oak woods. Often in willow groves around marshes. In the west, mostly in streamside trees, including cottonwood-willow groves in arid country.	**Not Expected**. There is no suitable habitat within the Impact Area.	**Not Expected**. There is no suitable habitat within the Mitigation Site.
Double-crested cormorant	*Nannopterum auritum*	CDFW WL	Coasts, bays, lakes, rivers. Very adaptable, may be found in almost any aquatic habitat, from rocky northern coasts to mangrove swamps to large reservoirs to small inland ponds. Nests in trees near or over water, on sea cliffs, or on ground on islands.	**Not Expected**. There is no suitable habitat within the Impact Area.	**Not Expected**. There is no suitable habitat within the Mitigation Site.
Osprey	*Pandion haliaetus*	CDFW WL	Rivers, lakes, coast. Found near water, either fresh or salt, where large numbers of fish are present. May be most common around major coastal estuaries and salt marshes, but also regular around large lakes, reservoirs, rivers.	**Not Expected**. There is no suitable habitat within the Impact Area.	**Not Expected**. There is no suitable habitat within the Mitigation Site.
Golden Eagle	*Aquila chrysaetos*	FP, CDFW WL	Open mountains, foothills, plains, open country. Requires open terrain. In the north and west, found over tundra, prairie, rangeland, or desert; very wide-ranging in winter, more restricted to areas with good nest sites in summer.	**Potential to occur**. There is no suitable nesting habitat within the Impact Area, but the area supports foraging habitat. Nearest documented occurrence is 18.8 miles away and seen in 1985.	**Present**. Species has been observed foraging on the Mitigation Site, though nesting habitat is absent.
Cooper's Hawk	*Accipiter cooperii*	CDFW WL	Mature forest, open woodlands, wood edges, river groves. Nests in coniferous, deciduous, and mixed woods, typically those with tall trees and with openings or edge habitat nearby. Also found among trees along rivers through open country, and increasingly in suburbs	**Present**. An individual was observed foraging near Perrin Road. There is suitable nesting and foraging habitat within the Impact Area.	**Low potential**. Suitable habitat is generally absent from the Mitigation Site. Nearest occurrence is at the Impact Site.

Common Name	Scientific Name	Listing Status Federal/State	Habitat	Potential to Occur in Impact Area	Potential to Occur in Mitigation Area
			and cities where some tall trees exist for nest sites. In winter may be in fairly open country, especially in west.		
Bald Eagle	*Haliaeetus leucocephalus*	CE, FP	Coasts, rivers, large lakes; in migration, also mountains, open country. Typically close to water, also locally in open dry country. Occurs in a variety of waterside settings where prey is abundant. Also winters in some very dry western valleys.	**Low potential**. There is no nesting habitat, but the Impact Area supports marginal foraging habitat. The adjacent reservoir likely supports suitable foraging habitat. Nearest documented occurrence is 27.0 miles away and seen in 2000.	**Low potential**. There is no nesting habitat, but the Mitigation Area supports marginal foraging habitat. Nearest documented occurrence is 12.7 miles away and seen in 2000.
Swainson's Hawk	*Buteo swainsoni*	CT	Plains, dry grassland, farmland, ranch country. Breeds most commonly on northern Great Plains, in prairie regions with scattered groves of trees for nest sites. Less common in dry grassland farther west and in heavily farmed country. In migration, often pauses in fields where insect larvae may have been turned up by the plow.	**Potential to occur**. There is suitable nesting and foraging habitat within the Impact Area. Nearest documented occurrence is 16.3 miles away and seen in 2017.	**Present**. Species has been observed foraging over the Mitigation Site, though nesting habitat is absent.
Burrowing Owl	*Athene cunicularia*	SSC	Open grassland, prairies, farmland, airfields. Favors areas of flat open ground with very short grass or bare soil. Prairie-dog towns once furnished much ideal habitat in west, but these are now scarce, and the owls are found on airports, golf courses, vacant lots, industrial parks, other open areas.	**Potential to occur**. There is suitable burrow and foraging habitat within the Impact Area. Nearest documented occurrence is 8.2 miles away and seen in 1990.	**Present**. Species has been observed in Mitigation Site; suitable nesting and wintering habitat is abundant in grasslands.
Prairie Falcon	*Falco mexicanus*	CDFW WL	Open hills, plains, prairies, deserts. Typically found in fairly dry open country, including grassland and desert. Also, in open country above tree line in high mountains. In winter, often found in farmland and around lakes and reservoirs, and may regularly winter in some western cities. Avoids forested country, and usually scarce on the immediate coast.	**Low potential**. There is no nesting habitat onsite, but the Impact Area supports potential foraging habitat. Nearest documented occurrence is 10.9 miles away and seen in 1985.	**Potential to occur**. There is suitable foraging habitat within the Mitigation Site. Nearest documented occurrence is 15.4 miles away and seen in 1985.
Least Bell's Vireo	*Vireo bellii pusillus*	CE, FE	Willows, stream sides. Breeds in low dense growth, especially in second-growth scrub or brushy fields in Midwest, streamside thickets in Southwest, but also locally in chaparral, woodland edges, or scrub oaks. Winters in the tropics in dense low scrub, mostly near water.	**Not Expected**. There is no suitable habitat within the Impact Area.	**Not Expected**. There is no suitable habitat within the Mitigation Site.
Loggerhead Shrike	*Lanius ludovicianus*	SSC	Semi-open country with lookout posts; wires, trees, scrub. Breeds in any kind of semi-open terrain, from large clearings in wooded regions to open grassland or desert with a few scattered trees or large shrubs. In winter, may be in totally treeless country if fences or wires provide hunting perches.	**Potential to occur**. There is suitable nesting and foraging habitat within the Impact Area. Nearest documented occurrence is 71.0 miles away and seen in 1992.	**Potential to occur**. There is suitable nesting and foraging habitat within the Mitigation Site. Nearest documented occurrence is 75.5 miles away and seen in 1992.
California Horned Lark	*Eremophila alpestris actia*	CDFW WL	Prairies, fields, airports, shores, tundra. Inhabits open ground, generally avoiding areas with trees or even bushes. May occur in a wide variety of situations that are sufficiently open: short-grass prairies, extensive lawns (as on airports or golf courses), plowed fields, stubble fields, beaches, lake flats, dry tundra of far north or high mountains.	**Potential to occur**. There is suitable nesting and foraging habitat within the Impact Area. Nearest documented occurrence is 7.0 miles away and seen in 1992.	**Present**. Has been observed to be widespread on the Mitigation Site. Grasslands provide suitable nesting and foraging habitat.
Yellow-headed Blackbird	*Xanthocephalus xanthocephalus*	BCC, SSC	Fresh marshes. Forages in fields, open country. Breeds in freshwater sloughs, marshy lake borders, tall cattails growing in water up to 3-4' deep. Forages around marshes and also commonly in open pastures, plowed fields, cattle pens, feedlots.	**Not Expected**. There is no suitable habitat within the Impact Area.	**Not Expected**. There is no suitable habitat within the Mitigation Site.

Common Name	Scientific Name	Listing Status Federal/State	Habitat	Potential to Occur in Impact Area	Potential to Occur in Mitigation Area
Tricolored Blackbird	*Agelaius tricolor*	CT, BCC, SSC	Cattail or tule marshes; forages in fields, farms. Breeds in large freshwater marshes, in dense stands of cattails or bulrushes. At all seasons (including when breeding), does most of its foraging in open habitats such as farm fields, pastures, cattle pens, large lawns.	**Potential to occur**. There is no nesting habitat, but the Impact Area supports suitable foraging habitat. The adjacent reservoir likely supports suitable nesting habitat. Nearest documented occurrence is 3.4 miles away and seen in 1974.	**Potential to occur**. There is no nesting habitat, but the Mitigation Area supports foraging habitat. Nearest documented occurrence is 1.6 miles away and seen in 2014.
Yellow Warbler	*Setophaga petechia*	SSC	Bushes, swamp edges, streams, gardens. Breeds in a variety of habitats in east, including woods and thickets along edges of streams, lakes, swamps, and marshes, favoring willows, alders, and other moisture-loving plants. Also, in dryer second-growth woods, orchards, roadside thickets. In west, restricted to streamside thickets. In winter in the tropics, favors semi-open country, woodland edges, towns.	**Not Expected**. There is no suitable habitat within the Impact Area.	**Not Expected**. There is no suitable habitat within the Mitigation Site.
California Condor	*Gymnogyps californianus*	FE, CE	Wild open country, rugged hills. At one time, ranged over much of the west, from mountains and valleys to the coast. On its last stand in California, the condor foraged over open grassland and savanna, and nested in rugged mountainous terrain with forest and steep cliffs.	**Potential to occur**. There is no nesting habitat, but the Impact Area supports suitable foraging habitat. Nearest documented occurrence is 61.8 miles away and seen in 1976.	**Potential to occur**. There is no nesting habitat, but the Mitigation Site supports suitable foraging habitat. Nearest documented occurrence is 70.2 miles away and seen in 1976.
Black-crowned night heron	*Nycticorax nycticorax*	-	Marshes, shores; roosts in trees. Found in a wide variety of aquatic habitats, around both fresh and salt water, including marshes, rivers, ponds, mangrove swamps, tidal flats, canals, rice fields. Nests in groves of trees, in thickets, or on ground, usually on islands or above water, perhaps to avoid predators.	**Not Expected**. There is no suitable habitat within the Impact Area.	**Not Expected**. There is no suitable habitat within the Mitigation Site.
Great blue heron	*Ardea herodias*	-	Marshes, swamps, shores, tide flats. Very adaptable. Forages in any kind of calm fresh waters or slow-moving rivers, also in shallow coastal bays. Nests in trees or shrubs near water, sometimes on ground in areas free of predators.	**Potential to occur**. Suitable nesting habitat is absent, but this species may forage in ponds and wetlands in the Impact Area.	**Potential to occur**. Suitable nesting habitat is absent, but this species may forage in ponds and wetlands in the Mitigation Site.
Snowy Egret	*Egretta thula*	-	Marshes, swamps, ponds, shores. Widespread in many types of aquatic habitats, including fresh and salt water; in coastal areas, may seek sheltered bays. Inland, favors extensive marshes and other large wetlands. Sometimes forages in dry fields. Nests in colonies in trees, shrubs, mangroves, sometimes on or near the ground in marshes.	**Low potential**. There is no nesting habitat, but the Impact Area may support suitable foraging habitat. Nearest documented occurrence is 14.7 miles away and seen in 2012.	**Not Expected**. There is no suitable habitat within the Mitigation Site.
Ferruginous Hawk	*Buteo regalis*	-	Plains, prairies, very open dry country, dry grasslands, sagebrush plains, saltbush and greasewood flats, rangeland, desert, in the winter can be found in agricultural land	**Low potential**. There is minimal nesting habitat, but the Impact Area may support suitable foraging habitat. Nearest occurrence is the Mitigation Site.	**Present**. Has been observed foraging on the Mitigation Site.
Fish					
Hardhead	*Mylopharodon conocephalus*	SSC	Hardhead are typically found in small to large streams in a low to mid-elevation environment. Hardhead may also inhabit lakes or reservoirs.	**Not Expected**. There is no suitable habitat within the Impact Area.	**Not Expected**. There is no suitable habitat within the Mitigation Site.
Sacramento Hitch	*Lavinia exilicauda exilicauda*	SSC	Hitch are most often found in slow warm water, including lakes and quiet stretches of rivers. Hitch are sometimes found in cool and clear, low-gradient streams, hiding among aquatic vegetation in sandy runs or pools.	**Not Expected**. There is no suitable habitat within the Impact Area.	**Not Expected**. There is no suitable habitat within the Mitigation Site.

Common Name	Scientific Name	Listing Status Federal/State	Habitat	Potential to Occur in Impact Area	Potential to Occur in Mitigation Area
Insects					
Valley elderberry longhorn beetle	*Desmocerus californicus dimorphus*	FT	Research has indicated that the most likely places to find the beetle are in healthy riparian systems supporting dense clumps of elderberry. Isolated elderberries far from such locations are not necessarily hosting the beetle, due to its relatively weak flying ability and poor long-distance dispersal capability.	**Not Expected**. The Impact Area does not contain elderberry shrubs and is outside of the known geographical range for this species.	**Not Expected**. There is no suitable habitat within the Mitigation Site.
Monarch Butterfly	*Danaus plexippus*	FC	Monarch butterflies live mainly in prairies, meadows, grasslands and along roadsides, across most of North America. Monarch butterflies may be found throughout North America feeding on milkweed, their toxic host plant.	**Low potential**. Stands of milkweed were not observed in the Impact Area.	**Low potential**. Stands of milkweed were not observed in the Mitigation Site.
American bumble bee	*Bombus pensylvanicus*	-	American bumble bee prefers the habitats offered by farmlands and open fields, where they nest below the grass or underground. While some sources report this species as present in California, nearly all documented occurrences are east of the Rocky Mountains.	**Not Expected**. The Impact Area is significantly outside the species' typical distribution.	**Not Expected**. The Mitigation Site is significantly outside the species' typical distribution.
Antioch efferian robber fly	*Efferia antiochi*	-	Known only from Antioch, Fresno, and Scout Island in the San Joaquin River. There is no published information on the life history or behavior of this species, but robber flies are predaceous on other insects, and larvae usually develop in the ground or in rotting wood.	**Potential to occur**. The range of the robber fly is within the Impact Area. Nearest documented occurrence is 11.2 miles away and seen in 1935.	**Not Expected**. The Mitigation Site is outside the species' known range.
Crotch bumble bee	*Bombus crotchii*	CE	This species occurs primarily in California, including the Mediterranean region, Pacific Coast, Western Desert, Great Valley, and adjacent foothills through most of southwestern California. It has also been documented in southwest Nevada, near the California border.	**Potential to occur**. The Impact Area is within the range of the bumble bee. Nearest documented occurrence is 5.0 miles away, but nearest occurrence documented in past 20 years is 37 miles away.	**Potential to occur**. The Mitigation Site is within the range of the bumble bee. Nearest documented occurrence is 10.3 miles away. But nearest occurrence documented in past 20 years is 29 miles away.
Hurd's Metapogon Robber fly	*Metapogon hurdi*	-	Found in California around sand dunes.	**Not Expected**. No suitable habitat within the Impact Area.	**Not Expected**. There is no suitable habitat within the Mitigation Site.
Molestan blister beetle	*Lytta molesta*	-	This species is known only from the Central Valley of California from Contra Costa to Kern and Tulare Counties. Found in grassland or chaparral.	**Potential to occur**. The Impact Area is within the range of the species. Nearest documented occurrence is 12.7 miles away and seen in 1980.	**Potential to occur**. The Mitigation Site is within the range of the species. Nearest documented occurrence is 16.1 miles away and seen in 1980.
Crustaceans					
Vernal pool fairy shrimp	*Branchinecta lynchi*	FT	Found in vernal pools and wetlands	**Potential to occur**. There is suitable habitat within the Impact Area. Nearest documented occurrence is 2.6 miles away and seen in 2004.	**Present**. Species has been observed in more than 50 vernal pools in the Mitigation Site; other vernal pools and swales provide additional potential habitat.
Vernal pool tadpole shrimp	*Lepidurus packardi*	FE	Found in vernal pools and wetlands	**Low potential**. The seasonal wetlands within the Impact Area may provide marginal habitat for this species. The Impact Area is within a large gap in the species' range; the nearest documented occurrence of this species is approximately 12 miles away at McKenzie Table Mountain preserve at	**Low potential**. The vernal pools within the Mitigation Site provide potential habitat for this species. The Mitigation Site is within a large gap in the species' range; the nearest documented occurrence of this species is approximately 14 miles away at

Common Name	Scientific Name	Listing Status Federal/State	Habitat	Potential to Occur in Impact Area	Potential to Occur in Mitigation Area
				approximately 2,000 ft elevation. The nearest documented occurrence on the valley floor is approximately 30 miles away, along the Merced/Madera County line.	McKenzie Table Mountain preserve at approximately 2,000 ft elevation. The nearest documented occurrence on the valley floor is approximately 20 miles away, along the Merced/Madera County line.
Conservancy fairy shrimp	*Branchinecta conservatio*	FE	Found in vernal pools and wetlands, generally restricted to long-ponding clay playa pools.	**Not Expected**. The nearest documented occurrence is approximately 40 miles away in Merced County. The Impact Area lacks appropriate habitat for this species.	**Not Expected**. The nearest documented occurrence is approximately 29 miles away in Merced County. The Mitigation Site lacks appropriate habitat for this species.
California linderiella	*Linderiella occidentalis*	-	Vernal pools, swales, ephemeral drainages, stock ponds, reservoirs, ditches, backhoe pits, and ruts caused by vehicular activities.	**Potential to occur**. The seasonal wetlands and ponds within the Impact Area may provide habitat for this species. Nearest documented occurrence is 2.3 miles away and seen in 2004.	**Present**. Species has been observed in 15 vernal pools in the Mitigation Site; other vernal pools and swales provide additional potential habitat.
Midvalley fairy shrimp	*Branchinecta mesovallensis*	-	Lives in vernal pools, vernal swales, and other ephemeral water bodies; sometimes in roadside puddles.	**Potential to occur**. The seasonal wetlands within the Impact Area may provide habitat for this species. Nearest documented occurrence is 2.5 miles away and seen in 2002.	**Present**. Species has been observed in more than 20 vernal pools in the Mitigation Site; other vernal pools and swales provide additional potential habitat.
Arachnids					
Table Mountain harvestman	*Calicina mesaensis*	-	Under basalt rocks in oak grasslands. Sightings of the spider have only been made at Table Mountain.	**Not Expected**. No suitable habitat within the Impact Area.	**Not Expected**. No suitable habitat within the Mitigation Site.
Mollusks					
Western pearlshell	*Margaritifera falcata*	-	Perennial, cold-water streams and rivers. Must include salmonoids in the water	**Not Expected**. No suitable habitat within the Impact Area.	**Not Expected**. No suitable habitat within the Mitigation Site.
Western ridged mussel	*Gonidea angulate*	-	Found more commonly in streams than lakes and prefer constant water flow and well-oxygenated stable substrates in areas of low gradient.	**Not Expected**. No suitable habitat within the Impact Area.	**Not Expected**. No suitable habitat within the Mitigation Site.
Mammals					
Spotted Bat	*Euderma maculatum*	SSC	Arid habitats, ponderosa pine forests, marshlands. Roost in the small cracks found in cliffs and stony outcrops.	**Not Expected**. No suitable habitat within the Impact Area.	**Not Expected**. No suitable habitat within the Mitigation Site.
Pallid bat	*Antrozous pallidus*	SSC	Desert, grassland, oak forests, pine forests, scrub forest, farmland. Roost in caves, rock crevices, mines, hollow trees, and buildings	**Potential to occur**. Suitable roosting habitat is present within the Impact Area. Nearest documented occurrence is 18.0 miles away and seen in 1979.	**Not Expected**. No suitable habitat within the Mitigation Site.
Western mastiff bat	*Eumops perotis californicus*	SSC	Semi-arid to arid habitats, conifer and deciduous woodlands, coastal scrub, annual and perennial grasslands, palm oases, chaparral, desert scrub, and urban	**Low potential**. Marginal roosting habitat present within the Impact Area. Nearest documented occurrence is 11.7 miles away and seen in 1958.	**Low potential**. Mitigation Site may provide suitable foraging habitat, though roosting habitat is absent. Nearest documented occurrence is 5.4 miles away and seen in 1994.
Western red bat	*Lasiurus blossevillii*	SSC	Prefer riparian habitat near water, and roost in sycamore, cottonwood, velvet ash, and elder trees.	**Low potential**. Suitable roosting habitat within Impact Area.	**Not Expected**. No suitable habitat within the Mitigation Site.

Common Name	Scientific Name	Listing Status Federal/State	Habitat	Potential to Occur in Impact Area	Potential to Occur in Mitigation Area
Townsend's big-eared bat	*Corynorhinus townsendii*	SSC	Coniferous forests, mixed meso-phytic forests, deserts, native prairies, riparian communities, active agricultural areas, and coastal habitat types. Roost in large open rooms.	**Low Potential**. Marginal roosting habitat present within the Impact Area. Nearest documented occurrence is 24.6 miles away and seen in 1946.	**Not Expected**. No suitable habitat within the Mitigation Site.
Fresno kangaroo rat	*Dipodomys nitratoides exilis*	FE, CE	Potentially occupying only the central portion of the San Joaquin Valley, California. Occupies arid habitats. Recently they have been found only in alkali sink communities from 200 to 300 feet in elevation.	**Not Expected**. Outside elevational range for species.	**Low Potential**. Grasslands in Mitigation Site provide marginal habitat. Nearest documented occurrence is 15.6 miles away and seen in 1898.
San Joaquin kit fox	*Vulpes macrotis mutica*	FE, CT	Desert and grasslands of the San Joaquin Valley. Minimal shrubs and grasses.	**Low potential**. Marginal habitat within the Impact Area. Nearest documented occurrence is 10.2 miles away and seen in the 1990's.	**Low potential**. Marginal habitat within the Mitigation Site. Nearest documented occurrence is 9.1 miles away and seen in the 1990's.
American badger	*Taxidea taxus*	SSC	Open areas, plains, prairies, farmland, grasslands, edge of woods.	**Potential to occur**. Suitable habitat within the Impact Area. Nearest documented occurrence is 6.8 miles away and seen in 1987.	**Present**. Badger sign has been observed repeatedly in Mitigation Site. Grasslands provide suitable habitat.
Hoary bat	*Lasiurus cinereus*	-	Desert, dune, savanna, grassland, chapparal, forest, rainforest, scrub. Prefers trees at the edges of openings	**Low potential**. Marginal habitat within the Impact Area. Nearest documented occurrence is 18.1 miles away and seen in 1915.	**Low potential**. Marginal habitat within the Mitigation Site. Nearest documented occurrence is 14.6 miles away and seen in 1911.
North American porcupine	*Erethizon dorsatum*	-	Coniferous, deciduous, and mixed forests. In the west, it can be found in scrubby areas.	**Not Expected**. No suitable habitat within the Impact Area.	**Not Expected**. No suitable habitat within the Mitigation Site.
Northern California ringtail	*Bassariscus astutus raptor*	FP	Occurs in various riparian habitats, and in brush stands of most forest and shrub habitats, at low to middle elevations.	**Not Expected**. No suitable habitat within the Impact Area.	**Not Expected**. No suitable habitat within the Mitigation Site.
San Joaquin long-tailed weasel	*Mustela frenata xanthogenys*	-	Brushland, open timber, brushy field borders, and grasslands along creeks and lakes	**Low potential**. Marginal habitat within the Impact Area.	**Not Expected**. No suitable habitat within the Mitigation Site.
San Joaquin pocket mouse	*Perognathus inornatus*	-	Dry, open grasslands or scrub areas on fine-textured soils between 350 and 600 m (1100 and 2000 ft) in the Central and Salinas valleys	**Not Expected**. Outside elevational range for species.	**Not Expected**. Outside elevational range for species.
Yuma myotis	*Myotis yumanensis*	-	Juniper and riparian woodlands to desert regions near open water, rivers, streams, ponds, lakes. Roosts in caves, attics, buildings, mines, underneath bridges, and other similar structures	**Low potential**. Marginal habitat within the Impact Area. Nearest documented occurrence is 30.6 miles away and seen in 1999.	**Not Expected**. No suitable habitat within the Mitigation Site.
Reptiles					
Northwestern pond turtle	*Actinemys marmorata*	FPT	Found in ponds, lakes, rivers, streams, creeks, marshes, and irrigation ditches, with abundant vegetation, and either rocky or muddy bottoms, in woodland, forest, and grassland. In streams, prefers pools to shallower areas. Logs, rocks, cattail mats, and exposed banks are required for basking. May enter brackish water and even seawater.	**Potential to occur**. There is suitable habitat within Impact Area. Nearest documented occurrence is 0.8 miles away and seen in 2016.	**Potential to occur**. Species may occasionally move through corridors of intermittent streams. Small ponds and stream provide marginal habitat. Nearest documented occurrence is 7.0 miles away and seen in 2004.
Northern California legless lizard	*Anniella pulchra*	SSC	Occurs in moist warm loose soil with plant cover. Moisture is essential. Occurs in sparsely vegetated areas of beach dunes, chaparral, pine-oak woodlands, desert scrub, sandy washes, and stream terraces with sycamores, cottonwoods, or oaks. Leaf litter	**Low potential**. There is marginally suitable habitat within the Impact Area. Nearest documented occurrence is 43.0 miles away and seen in 2000.	**Low potential**. Marginal habitat within the Mitigation Site. Nearest documented occurrence is 34.0 miles away and seen in 2000.

Common Name	Scientific Name	Listing Status Federal/State	Habitat	Potential to Occur in Impact Area	Potential to Occur in Mitigation Area
			under trees and bushes in sunny areas and dunes stabilized with bush lupine and mock heather often indicate suitable habitat. Often can be found under surface objects such as rocks, boards, driftwood, and logs. Can also be found by gently raking leaf litter under bushes and trees.		
Coast horned lizard	*Phrynosoma blainvillii*	SSC	Inhabits open areas of sandy soil and low vegetation in valleys, foothills, and semiarid mountains. Found in grasslands, coniferous forests, woodlands, and chaparral, with open areas and patches of loose soil. Often found in lowlands along sandy washes with scattered shrubs and along dirt roads. Often found near ant hills feeding on ants.	**Potential to occur**. There is suitable habitat within the Impact Area. Nearest documented occurrence is 39.8 miles away and seen in 2011.	**Low potential**. Marginal habitat within the Mitigation Site. Nearest documented occurrence is 28.0 miles away and seen in 2011.
California glossy snake	*Arizona elegans occidentalis*	SSC	Inhabits arid scrub, rocky washes, grasslands, chaparral. Appears to prefer microhabitats of open areas and areas with soil loose enough for easy burrowing. Historical occurrences from the early 20th century are mapped in Fresno, but recent occurrences are generally restricted to the western and southern San Joaquin Valley, and southern California	**Not Expected**. Marginal habitat within the Impact Area. Historical occurrences 5.2 miles away, but nearest occurrence is last 20 years is approximately 50 miles away.	**Not Expected**. Marginal habitat within the Mitigation Site. Historical occurrences 11.1 miles away, but nearest occurrence is last 20 years is approximately 49 miles away.
Blunt-nosed leopard lizard	*Gambelia sila*	FE, CE, FP	Semiarid grasslands, alkali flats, and washes. Prefers flat areas with open space for running, avoiding densely vegetated areas. Uses large shrubs with dense canopy cover for refuge and thermoregulation. Uses mammal dens and burrows for cover and shelter. The number of available burrows will determine the size of this lizard's population in an area.	**Not Expected**. There is no suitable habitat within the Impact Area.	**Low potential**. Grasslands within the Mitigation Site provide potential habitat. Nearest documented occurrence is 17.6 miles away and seen in 1916.
Giant garter snake	*Thamnophis gigas*	FT, CT	Found primarily in marshes, sloughs, drainage canals, and irrigation ditches, especially around rice fields, and occasionally in slow-moving creeks. Prefers locations with vegetation close to the water for basking.	**Not Expected**. There is no suitable habitat within the Impact Area.	**Not Expected**. There is no suitable habitat within the Impact Area.

Abbreviations:
CESA = California Endangered Species Act, CRPR = California Rare Plant Rank, E = Endangered, CE = State Endangered, FP = Fully Protected, FPT = Federal Proposed Threatened, SSC = CDFW Species of Special Concern, WL = CDFW Watch List

4.1 Plants

4.1.1 Brassy Bryum

Brassy bryum (*Bryum chryseum*) is found predominately in oak woodlands as well as grasslands (Calflora 2023). The moss has a rare plant rank of 4.3. Brassy bryum is one of twenty-nine bryophytes that have been added to the CNPS inventory and the CNDDB. There have been five occurrences of brassy bryum that have been found, these sightings were in five different counties (Amador, Butte, Fresno, Madera, and Mendocino). Having been recently discovered, common habitat and threats to the species are not well known. However, the Action Area does provide habitat for the moss, according to what little is known of its needs, in grasslands on both the Impact Area and the proposed Mitigation Site.

4.1.2 Hoover's Calycadenia

Hoover's calycadenia (*Calycadenia hooveri*) is an annual herb in the Asteraceae family, endemic to California. The plant was discovered in the mid 1970's (Carr 1975). The plant is predominately found in the western portion of the Sierra Nevada foothills where it grows in rocky, exposed areas. The plant can also be found growing in grasslands and oak savanna. The plant blooms from July to September and is found at elevations between 328 to 1312 feet (Jepson 2023). Hoover's calycadenia has a rare plant rank of 1B.3. Both the Impact Area and Mitigation Site could provide marginal habitat for the species, even with little rocky habitat for the species. The nearest documented occurrence of the plant to the Impact Area is 9.8 miles away, while the Mitigation Site has a documented occurrence 5.4 miles away. These occurrences were seen in 2007.

4.1.3 Bristly Sedge

Bristly sedge (*Carex comosa*) is a perennial herb in the Cyperaceae family with a rare plant rank of 2B.1. The plant is found in North America, Canada, and parts of Mexico. Bristly sedge is found in wet places, like meadows and wetlands. The plant blooms from May to September (Calflora 2023). Blooming depends on when the shoots emerge. Shoots that emerge in spring, summer or early autumn will develop flower initials in winter, then flower the following year, dying in August (Bernard 1994). If the shoots emerge in late autumn, then they will not develop flower initials and flower the second autumn, giving the plant a lifespan of around 700 days (Bernard 1994). Bristly sedge is rhizomatous. The sedge is found at elevations below 1312 feet (Jepson 2023). The Action Area can possibly support bristly sedge in wetlands at both the Impact Area and the proposed Mitigation Site. The nearest documented occurrence of bristly sedge to the Impact Area is 32.4 miles away. The nearest documented occurrence of the plant to the Mitigation Site is 18.5 miles away. These occurrences were seen in 1989.

4.1.4 Succulent Owl's-clover

Succulent owl's-clover is a plant in the Orobanchaceae family. The plant is found only in California in wetlands and vernal pools. It typically occurs in medium to large vernal pools on acidic soils with high native plant diversity (Vollmar 2002). Succulent owl's-clover is hemiparasitic, gaining water

and nutrients from a host plant. The species blooms from April to May and found at elevations below 2460 feet (Jepson 203). The plant is CESA-listed endangered ESA-listed as threatened. The current threats to succulent owl's clover include urbanization and agriculture, particularly loss of vernal pools. About two thirds of occurrences of succulent owl's-clover are found in east Merced County (CDFW 2015). The Impact Area has approximately 0.795 acre of depressional wetland basins that may provide marginal habitat for the species. However, these features are not typical of the relatively large, high-diversity vernal pools in which this species typically occurs. Reconnaissance surveys on the proposed Mitigation Site have documented the species growing in nine vernal pools totaling 0.59 acre. The remaining approximately 59 acres of vernal pools and swales on the proposed Mitigation Site provide potential habitat for this species. The nearest occurrence of the plant to the Impact Area is 3.1 miles and seen in 2008.

4.1.5 California Jewelflower

California jewelflower (*Caulanthus californicus*) is an annual herb in the Brassicaceae family that is endemic to California (Calflora 2023). The plant can be found in the southern Central Valley and along the eastern slopes of the Central Coast range. The plant grows in flats, slopes, in generally non-alkaline grasslands. The species blooms from February to May and is found at elevations 230 to 3281 feet (Jepson 2023). The plant is ESA- and CESA-listed as endangered. Threats to the plant include agricultural land conversion, overgrazing, loss of pollinators and competition with non-native grasses. Of the 63 occurrences documented in the CNDDB only 33 are thought to still exist. The Impact Area provides low potential habitat for the plant, but the nearest occurrence is 8.2 miles away and documented in the late 1890's or early 1900's.

4.1.6 Ewan's Larkspur

Ewan's larkspur is a perennial herb in the Ranunculaceae family. The plant is found in foothill woodlands, and grasslands within California (Calflora 2023). The plant prefers rocky areas (CNPS 2023). The plant blooms from March to May and found at elevations between 197 to 1968 feet (Jepson 2023). Ewan's larkspur is found in the Sierra foothills of California along with being found in the San Joaquin Valley. There have been occurrences of Ewan's larkspur in Fresno County. The Action Area provides potential habitat for the species in the form of grasslands in both the Impact Area and the proposed Mitigation Site.

4.1.7 Dwarf Downingia

Dwarf downingia (*Downingia pusilla*) is an annual herb in the Campanulaceae family. The plant can be found around vernal pools along with other types of wetlands (Calflora 2023). Dwarf downingia can also be found in roadside ditches. The plant blooms between March to May and is found at elevations below around 490 feet (Jepson 2023). The plant is only found in California and Chile. Compared to other downingias this species appears to be self-pollinating (Wood 1961). The depressional wetland basins at the Impact Site are not typical of this species habitat, but may provide approximately 0.795 acre of low-potential habitat. The vernal pools at the proposed Mitigation Site provide approximately 59 acres of potential habitat for this species. However, there are minimal

sightings of dwarf downingia around Fresno (CDFW 2023a). The nearest occurrence of the plant to the Impact Area is 4.2 miles and the nearest occurrence to the Mitigation Site is 10.1 miles away. These occurrences were seen in 1979.

4.1.8 Spiny-sepaled Button-celery

Spiny-sepaled button-celery is an herb in the Apiaceae family. The plant is endemic to vernal pools, grasslands, and wetlands of California. It can also be found in roadside ditches in vernal pool grasslands (Calflora 2023). The species can be found in hardpan and claypan vernal pools. Spiny-sepaled button-celery is found in the eastern central valley and in the foothills near the sierras. The plant blooms between April to May at elevations below 4,167 feet (Jepson 2023). The depressional wetland basins at the Impact Site provide approximately 0.795 acre of potential habitat, and the vernal pools at the proposed Mitigation Site provide approximately 59 acres of potential habitat for this species. The nearest occurrence of spiny-sepaled button-celery to the Impact Area is 8.5 miles away and seen in 2010. The nearest occurrence of the plant to the Mitigation Site is 3.2 miles away and seen in 2000.

4.1.9 Boggs Lake Hedge-hyssop

Boggs Lake hedge-hyssop (*Gratiola heterosepala*) is an annual herb that can be found in California and Oregon. This plant is in the Plantaginaceae family. The plant grows exclusively in clay soils and shallow water around the edges of vernal pools and wetlands (CDFW 2013a). The plant blooms from April to August at elevations below 5,249 feet (Jepson 2023). Though Boggs Lake hedge-hyssop is predominately found at Boggs Lake, there have been some sightings of the plant in Fresno County. There are also large concentrations of occurrences of Boggs Lake hedge-hyssop in the Modoc Plateau (CDFW 2013b). The depressional wetland basins at the Impact Site may provide approximately 0.795 acre of low-potential habitat. The vernal pools at the proposed Mitigation Site provide approximately 59 acres of potential habitat for this species. The nearest occurrences of the species are 13.6 miles away from the Impact Area and 17.0 miles away from the Mitigation Site. These occurrences were seen in 1994.

4.1.10 Forked Hare-leaf

Forked hare-leaf is an annual herb that is endemic to California. This plant is in the Asteraceae family. The plant grows in openings in woodlands and in grasslands (Calflora 2023). Forked hare-leaf blooms from April to June at elevations between 50 to 1312 feet (Jepson 2023). There have been accounts of forked hare-leaf in Fresno County and the Action Area provides potential habitat for the plant in the form of grasslands in both the Impact Area and the proposed Mitigation Site. The nearest occurrences of the plant are 10.8 miles away from the Impact Area and 26.7 miles away from the Mitigation Site. These occurrences were seen in 2010.

4.1.11 Hoary Navarretia

Hoary navarretia (*Navarretia eriocephala*) is an annual herb that is endemic to California and is in the Polemoniaceae family. The plant prefers to grow in heavy soils in seasonally wet flatlands. The

plant can also be found in grasslands and foothill woodlands (Calflora 2023) The microhabitat the plant is found in is vernally mesic (CNPS 2023). Hoary navarretia blooms from May to June at elevations below 1312 feet (Jepson 2023). There are occurrences of hoary navarretia in Fresno County. The plant has only been found in Sacramento and Fresno County. While no clay flats were observed in the Impact Area, this species has low potential to occur in vernal pools and other wetlands in the Impact Area. The proposed Mitigation Site provides potential habitat for this species in the form of vernal pools, and a few small clay flats.

4.1.12 Pincushion Navarretia

Pincushion navarretia (*Navarretia myersii* ssp. *myersii*) is an annual herb that rare and endemic to California. This plant is in the Polemoniaceae family. The plant grows in and around vernal pools as well as other wetlands (Calflora 2023). Specifically, the species is found in moist or dry beds of shallow vernal pools (Day 1993). The plant can also be found in valley grasslands. Pincushion navarretia blooms from April to May and is found at elevations between 66 and 295 feet (Jepson 2023). The plant is usually found in dense colonies. A threat to the plant is overgrazing, along with loss of vernal pool habitat. The closest occurrence of pincushion navarretia is in Merced County, but the depresssional wetland basins at the Impact Site may provide approximately 0.795 acre of low-potential habitat. The vernal pools at the proposed Mitigation Site provide approximately 59 acres of potential habitat for this species.

4.1.13 San Joaquin Valley Orcutt Grass

San Joaquin Valley Orcutt grass is an annual grass that is endemic to the Central Valley of California. The plant is in the Poaceae family and only grows in vernal pools (Calflora 2023). The plant is CESA-listed as endangered and CESA-listed as threatened. The major threat to this Orcutt grass is the spread of agriculture and urbanization. The grass blooms from April to September and is found at elevations below 2625 feet (Jepson 2023). San Joaquin Valley Orcutt grass has several population centers throughout the Central Valley, though most have been extirpated. The Action Area has seasonal wetlands that can provide habitat for the Orcutt grass.

San Joaquin Valley Orcutt grass has been documented approximately 1.3 miles north of the Impact Area and seen in 1987. The species is known from multiple populations near the Jamison Ranch, including from the immediately adjacent property, which has very similar habitats. While the species has not been observed on Jamison Ranch, this local occurrence greatly increases the likelihood that it may occur there. The depressional wetland basins at the Impact Site are not typical of this species habitat, but may provide approximately 0.795 acre of low-potential habitat. The vernal pools at the proposed Mitigation Site provide approximately 59 acres of potential habitat for this species.

4.1.14 Hairy Orcutt Grass

Hairy Orcutt grass (*Orcuttia pilosa*) is an annual grass that is endemic to the Central Valley of California. The grass is in the Poaceae family and is found in vernal pools (Calflora 2023). The plant is ESA- and CESA- listed as endangered. As of 1997 there were 25 known populations of the Orcutt grass with 12 of them being stable. The major threats to hairy Orcutt grass are agriculture and

urbanization (CDFW 2013b). The grass blooms from May to September and is found at elevations below 656 feet (Jepson 2023). Hairy Orcutt grass has occurrences in Fresno County and the seasonal wetlands in the Action Area could provide habitat for the plant.

This species is known from locations approximately seven miles northwest of the Impact Area, and from locations to the northwest, west, south, and southeast of the proposed Mitigation Site, as near as 2.7 miles away. The depressional wetland basins at the Impact Site are not typical of this species habitat, but may provide approximately 0.795 acre of low-potential habitat. The vernal pools at the proposed Mitigation Site provide approximately 59 acres of potential habitat for this species.

4.1.15 Wine-colored Tufa Moss

Wine-colored tufa moss is a moss that is primarily found in Mexico but has also been found in the southwest of the United States. The moss is restricted to calcareous springs and wetlands (Calflora 2023). Wine-colored tufa moss is a warm climate spring species of moss (Spence 2014). The plant has a limited distribution in California. Wine-colored tufa moss is found at elevations between 100 and 5695 feet (CNPS 2023). There are occurrences of the moss in Fresno County. While the Impact Area has some granite-derived soils and a wetland channel, it does not have granite-derived soils *along* a stream. Nonetheless, the Impact Area could provide low-potential habitat for this species. The species is not expected to occur at the proposed Mitigation Site.

4.1.16 Hartweg's Golden Sunburst

Hartweg's golden sunburst (*Pseudobahia bahiifolia*) is an annual herb in the Asteraceae family that is endemic to California. The plant prefers heavy clay soils and is found primarily on top of Mima mounds. The plant is specifically associated with Amador and Rocklin soils (CDFW 2023). It grows in grasslands and foothill woodlands (Calflora 2023). It is primarily found in non-native grasslands. Hartweg's golden sunburst is almost entirely found on north or northeast facing slopes. Occurrences of the plant usually consist of less than 100 plants (CDFW 2023). The plant is ESA- and CESA-listed as endangered. The major threats to Hartweg's golden sunburst are habitat loss from agriculture and residential development. The plant blooms from March to April and is found at elevations from 328 to 656 feet (Jepson 2023). Most occurrences of Hartweg's golden sunburst are found in the foothills of the Sierra Nevada, but the Action Area could provide marginally suitable habitat for the plant in the form of grasslands in the Impact Area and proposed Mitigation Site. The nearest occurrences of the plant are 8.0 miles away from the Impact Area and 7.1 miles away from the Mitigation Site.

4.1.17 San Joaquin Adobe Sunburst

San Joaquin adobe sunburst (*Pseudobahia peirsonii*) is an annual herb endemic to California that is in the Asteraceae family. The plant prefers heavy adobe clay soils and is found in the southeastern grasslands of the San Joaquin Valley and the foothills of the Sierra Nevada. Major threats to San Joaquin adobe sunburst are agriculture and flood control. The plant is ESA-listed as threatened and CESA-listed as endangered. The plant blooms from March to April and is found at elevations between 328 and 2953 feet (Jepson 2023). There are many occurrences of the plant in Fresno County

and the Action Area could provide suitable habitat for the plant in the form of grasslands in the Impact Area and proposed Mitigation Site. The nearest occurrences of the plant are 7.1 miles away from the Impact Area and 22.5 miles away from the Mitigation Site. These occurrences were seen in 2010.

4.1.18 Sanford's Arrowhead

Sanford's arrowhead (*Sagittaria sanfordii*) is an aquatic perennial herb that is endemic to California. This plant is in the Alismataceae family and is found in ponds, ditches, and freshwater wetlands (Calflora 2023). The plants roots and leaves are submerged in water while the inflorescence is what comes out above water. Sanford's arrowhead blooms from May to October and is found at elevations less than 984 feet (Jepson 2023). There are occurrences of the species in Fresno County. Currently Sanford's arrowhead is threatened by loss of wetland habitat from human activity and development. The Impact Area may provide low-potential habitat for this plant in the form of the stock ponds, irrigation tailwater pond, and Outlet Channel. The proposed Mitigation Site may provide habitat in the North Fork Little Dry Creek channel. The nearest occurrences of the plant are 5.7 miles away from the Impact Area, seen in 2018, and 9.6 miles away from the Mitigation Site, seen in 2014.

4.1.19 Greene's Tuctoria

Greene's tuctoria (*Tuctoria greenei*) is an annual grass that is endemic to California that is in the Poaceae family. The plant is found on the eastern edge of the San Joaquin Valley and found in the foothills of the Sierra Nevada. The plant occurs in vernal pools in grasslands (Calflora 2023). The plant needs anaerobic conditions and light to be able to germinate (Keeley 1988). Greene's tuctoria is rare in California and federally threatened. Major threats to the plant are destruction of vernal pools in the San Joaquin Valley. This habitat degradation occurs from agriculture, urban development, overgrazing, trampling by livestock, alterations in hydrology, and introduced species. The plant blooms from May to July and is found at elevations less than 3245 feet (Jepson 2023).

This species formerly occurred approximately one mile south-southwest of the Impact Area, in what is now the City of Clovis. This population was extirpated sometime between 1937 and 1987. Nonetheless, its presence nearby indicates that it has some potential to occur in wetlands in the Impact Area. The species is documented from around 11 miles northwest of the proposed Mitigation Site, which provides potential vernal pool habitat for it. This occurrence was seen in 1987.

4.1.20 Hogwallow Starfish

Hogwallow starfish (*Hesperevax caulescens*) is an annual herb in the Asteraceae family, that is native to California. The plant is found throughout the Central Valley and along the Sierra foothills. The plant occurs in wetlands, specifically vernal pool habitats (Calflora 2023). The plant seems to be restricted to shrink-swell clay of vernally wet areas (Morefield 1992). The plant blooms from May to June and is found at elevations usually less than 984 feet, rarely up to 1640 feet (Jepson). Hogwallow starfish is a rare plant in California. The plant has been found at the Mitigation Site, and the seasonal wetlands of the Impact Area could provide suitable habitat for the species. The nearest occurrence of Hogwallow starfish would be the occurrences found at the Mitigation Site.

4.1.21 Adobe Navarretia

Adobe navarretia (*Navarretia nigelliformis* ssp. *nigelliformis*) is an annual herb in the Polemoniaceae family, that is endemic to California. The plant is found predominately in the Central Valley, with some occurrences being along the coast range with others in the Sierra Nevada foothills. The plant is found in wetlands and vernal pools, along with clay depressions (Calflora 2023). The plant blooms from April to June and is found at elevations between 33 and 3281 feet (Jepson 2023). Adobe navarretia is a rare plant in California, with a limited distribution. The plant has been found at the Mitigation Site; seasonal wetlands in the Impact Area could provide marginal habitat for the species. The nearest occurrence of the plant to the Impact Area are those found at the Mitigation Site.

4.2 Amphibians

4.2.1 California Tiger Salamander

The California Tiger Salamander CTS is a California-endemic Mole Salamander belonging to the family Ambystomatidae. CTS inhabits primarily grassland, scrub, and oak savanna habitats within portions of the Central Coast Range, Sacramento-San Joaquin Delta, and San Joaquin Valley regions (Laabs 2002). The species still occurs throughout most of its historic range but has been impacted due to habitat loss and competition from invasive species. Interestingly, its range and abundance may have also expanded in some areas over the past 150 years due to the construction of stock ponds.

CTS spend most of their lives underground, living in mammal burrows in the uplands (Loredo 2010). They show a strong preference for grassland and scrub habitat, avoiding woodlands and forest (Wang, Savage et al. 2009). They typically migrate between burrows on rainy nights (Stebbins 2012). At the onset of autumn rains, some adults will migrate from the uplands to ponds and wetlands to breed. Females attach hundreds of eggs one at a time to vegetation or other objects along the pond bottom. Young larvae prey on aquatic invertebrates; larger larvae eat other amphibian larvae (including, at times, smaller CTS larvae) (Zeiner, Laudenslayer et al. 1988). As ponds dry in spring or summer, larvae metamorphose and migrate into the uplands. In the case of perennial ponds, larvae may stay in the pond until the onset of autumn rains, or may even over-winter in the pond (Alvarez 2004).

CTS breeds primarily in seasonal waters such as large vernal pools, sag ponds, and man-made stock ponds. Breeding ponds must typically pond for at least 90 continuous days for the species to complete its breeding cycle (USFWS 2014). In general, successful CTS breeding ponds tend to wet-up around December and hold water until at least May (Von May and Vollmar in Prep).

Large, predatory fish such as centrarchids (e.g., bass, bluegill) typically render ponds unsuitable for CTS breeding. The presence of other fish (e.g., mosquitofish, *Gambusia* sp.) and breeding American Bullfrogs (*Lithobates catesbianus*) can also significantly reduce or eliminate CTS breeding (USFWS 2014). Perennial ponds can also build up large populations of aquatic hexapod predators such as dragonfly larvae (Anisoptera) and backswimmers (Notonectidae) that can prey on CTS eggs and young larvae (Ford, Van Hoorn et al. 2013). While perennial ponds provide certainty that CTS larvae

will have the time to develop before dry-down, they are therefore considered less-suitable than long-ponding seasonal ponds.

While CTS can breed in a variety of habitats, it has a particular affinity for highly turbid pools, sparsely vegetated with seasonal wetland vegetation such as pale spikerush (Von May and Vollmar In Prep). Larger pools are generally preferable to smaller ones, and produce greater numbers of larvae, supporting larger populations (Wang, Johnson et al. 2010).

The central distinct population segment is ESA-listed as threatened. All CTS are CESA-listed as threatened. Decline in CTS populations is primarily due to extensive habitat losses, as well as the introduction of non-native predators, such as the American Bullfrog. Agriculture, housing and other forms of development have destroyed large amounts of vernal pools where CTS once bred. Additionally, large-scale control of the California ground squirrels (*Otospermophilus beecheyi*) which create the burrows CTS use is considered a serious threat to CTS (USFWS 2014).

CTS are known from both the Impact Area and the Mitigation Site. A CNDDB record indicates that CTS larvae were observed in a depressional wetland basin located in an inholding property surrounded by the Project Site in 2006. An adult was found approximately 560 feet north of the Project Site in 2015. Reconnaissance larval surveys conducted by VNLC documented CTS larvae in three features in the Project Site in 2023 (VNLC 2023b, **Appendix F**). Two of these features are entirely within the Project Site, while the third straddles the northeastern border of the Project Site. The Impact Area also includes presumed-occupied upland CTS habitat, as well as upland habitat which may be occupied, but is considered low-suitability due to its history, current conditions, and surroundings (described in **Section 5.1**, below). Documented CTS habitat is depicted in **Figure 24**.

CTS breeding has been documented in detail over several years at the Jamison Ranch, with breeding observed in 32 pools across the Ranch, 16 of which are in the proposed Mitigation Site (VNLC 2021). CTS breeding pools on Jamison Ranch are depicted in **Figure 25**. Nearly all of the proposed Mitigation Site provides occupied CTS upland habitat. The areas of CTS habitat in the Action Area are summarized in in **Section 6.1**, below.

4.2.2 Western Spadefoot

The Western Spadefoot is an anuran belonging to the family Scaphiopididae. It is endemic to California and northern Baja California. It ranges from northern California south throughout the Central Valley and its foothills, into coastal southern California and northwest Baja California. Much of the WSF habitat has been lost in the Central Valley due to urban and agricultural development on land that previously supported seasonal rain pools. An estimated 80% of its former habitat in southern California has been lost due to development (Stebbins 2003).

WSF inhabits a variety of different habitats including washes, floodplains of rivers, alluvial fans, playas, and alkali flats. It occurs in grasslands, scrublands, and occasionally in savannah or open woodlands to an elevation of approximately 1,385m (4,500 feet). WSF breeding sites include vernal pools and other temporary rain pools, cattle tanks, and pools of intermittent streams. (Stebbins 2012).

Adult WSF shelter in burrows up to one meter deep for most of the dry season. They may use soil cracks, burrows of gophers, ground squirrels or kangaroo rats, or dig their own burrows with the spades on the hind feet (Stebbins 2012). They are active on the surface primarily at night and in wet conditions. Their diet consists of a variety of invertebrates, including adult beetles, larval and adult moths, crickets, flies, ants, spiders, and earthworms. Tadpoles feed on planktonic organisms, algae, small invertebrates, dead aquatic larvae of amphibians, and may exhibit cannibalism (Bragg 1964).

Adults remain in underground burrows for most of the year, and move to breeding pools after heavy rains, typically in February and March (though they are physiologically capable of breeding at any time if conditions are favorable) (Ervin and Cass 2007). WSF breeding usually occurs 1-2 days after heavy rains. Hatching is rapid, occurring a few days after laying. Tadpoles transform in 4-11 weeks; breeding pools must last for at least 30 days for successful transformation of larvae. Recently metamorphosed individuals seek refuge in the immediate vicinities of breeding pools for up to several days after transformation. They have been witnessed hiding in drying mud cracks and beneath boards and other surface objects (Weintraub 1980).

Targeted WSF surveys have not been conducted at either the Project Site or the Property, but WSF have been documented at both sites during surveys for CTS and VPFS.

The Project Site consists of a mix of more-and-less degraded grasslands and farmlands, as well as seasonal wetlands, stock ponds, and other habitats, as described in the BA, and under "Environmental Baseline", below. Surveys in 2023-2024 documented WSF larvae in 18 features totaling 0.632 acre on and adjacent to the Project Site (**Figure 24**). An additional 0.719 acre of aquatic features also provide suitable WSF breeding habitat, though breeding has not been documented in these features. An agricultural tailwater pond (1.129 acre) on the Project Site provides low-suitability aquatic habitat due to its large size, great depth, and artificially controlled hydrology, all of which are atypical of WSF breeding habitat.

Grasslands cover approximately 206.043 acres of the Project Site, providing suitable upland habitat for WSF. Degraded uplands (primarily fallowed agricultural areas) provide approximately 136.154 acres of low-suitability upland habitat for the species.

The off-site improvement areas do not include aquatic resources or open grasslands or shrublands; WSF are not expected to occur in these areas.

WSF breeding is widespread at the Jamison Ranch Property. While comprehensive surveys of all wetlands on the ranch have not been completed, to date WSF breeding has been observed in 52 pools across the ranch, 32 of which (totaling 4.4 acres) are within the proposed preserve (Figure 3). The entirety of the 857-acre proposed preserve is occupied WSF habitat. This area consists of a matrix of vernal pools and swales, grasslands, and ephemeral and intermittent streams, all suitable for WSF use. Comprehensive wetland mapping has not been completed for the Property but is underway. Total aquatic area on the proposed preserve is estimated to be approximately 50- 60 acres, with the remainder being grasslands (**Figure 25**).

4.3 Birds

4.3.1 Golden Eagle

Golden Eagles, the largest raptors in North America, are brown birds with golden feathers around the neck. Golden Eagle pairs maintain territories that can be as large as 60 square miles. They typically nest in high places including cliffs and tall trees. They build large nests, which they may return to in subsequent breeding years. The timing of mating and egg-laying for Golden Eagles is variable depending on locality. Females lay one to four eggs, and both parents incubate them for 40 to 45 days. Golden Eagles nest and forage in a variety of habitats and have large home ranges. Habitat preferences seem to be for rolling hills, grasslands, chaparral, and oak woodlands. They prey on small mammals, other birds, and reptiles. Populations have undergone slight declines because of human disturbance, habitat loss and loss of prey. A threat to the Golden Eagle could be lead poisoning. Carcasses left out during hunting season could be the cause of the lead poisoning, as lead bullets and fragments may be in the carcasses (Stauber 2010). Current populations seem to be relatively stable.

The Action Area lacks nesting habitat for this species. However, Golden Eagle has been observed foraging in the proposed Mitigation Site. Both the Impact Area and proposed Mitigation Site provide potential foraging habitat for the species. The nearest occurrence of the bird to the Impact Area is 18.8 miles away, seen in 1985.

4.3.2 Cooper's Hawk

Cooper's Hawks are found across the United States and some migrate up to southern Canada while others migrate as far down south as Honduras. The hawk is predominately found in woodlands but can be found in suburbs with ample tree coverage. Cooper's Hawks nest in trees, with the nests being 25-50 feet high. Eggs take 30 to 36 days to hatch and young begin to fly after 4 to 5 weeks. These birds are on the CDFW watchlist and are threatened by collisions with man-made objects, such as cars. However, Cooper's Hawk populations have increased from 1966 and 2019 as the use of DDT has been banned and the hawk has been hunted less. A Cooper's Hawk has been seen foraging at Perrin Road. The Impact Area itself provides limited foraging and nesting habitat because of its generally open character; the animal observed likely nests and forages primarily in the low-density residential development area. This species has low potential to occur at the proposed Mitigation Site, as the open grassland is generally not suitable for it. The nearest documented occurrence of the hawk to the Mitigation Site is at the Impact Area.

4.3.3 Bald Eagle

The Bald Eagle (*Haliaeetus leucocephalus*) is the only eagle unique to North America. Bald Eagles are readily identified by their white head, white tail, and huge hooked, yellow bill. Hundreds of Bald Eagles spend winter in California, arriving during fall and early winter. In most of California, the breeding season lasts from January through July or August, and clutch size is typically 1-3 eggs. Males and females work together to build large stick nests in the canopies of tall trees typically located near a large body of water. During their breeding season, Bald Eagles will occur in many

types of wetland habitats such as seacoasts, rivers, large lakes, or other large bodies of open water with an abundance of fish. Eagles are also known to consume carrion, smaller birds, and rodents. On rare occasion, they have also been observed eating large birds and large fish. Populations declined steadily after World War II due to human disturbance, habitat loss, and widespread use of the pesticide, DDT. Successful recovery efforts have enabled populations to rebound across the United States.

The Action Area lacks nesting habitat for this species. The species may occasionally use the Impact Area, as the Big Dry Creek Reservoir may provide foraging habitat for it. The nearest occurrences of the eagle are 27.0 miles away from the Impact Area and 12.7 miles away from the Mitigation Site. These occurrences were seen in 2000.

4.3.4 Swainson's Hawk

Swainson's Hawks are a medium-sized hawk found predominately in western North America, which migrates as far south as Argentina for winter. The hawk is adapted to open grasslands and has become more dependent on agricultural land. The hawk nests near riparian zones, while also nesting in lone trees in agricultural fields or in trees along roadsides near foraging habitat. Swainson's Hawks lay around 2-3 eggs with incubation done mostly by the female hawk. It takes between 34-35 days for the eggs to hatch and 42-44 days for the young to start to fly. The young may stay with their parents until fall migration. Swainson's Hawks feed on small rodents, other birds and occasionally insects. The raptor is CESA-listed as threatened. Most California breeding pairs are found in the Central Valley and in the Great Basin area in northeastern California. There are an estimated 375 breeding pairs left in California. The largest threat to Swainson's Hawks is the loss of suitable foraging habitat and breeding grounds. Other threats to the hawk are climate change, disease, pesticide poisoning and electrocution.

Swainson's Hawks have been observed foraging over Jamison Ranch, though the ranch itself lacks nesting habitat. Though this species usually occurs closer to the center of the Valley than the Impact Area, it may nonetheless forage in the Impact Area occasionally, especially during mowing of pastures or hay crops. The nearest occurrence of the hawk to the Impact Area is 16.3 miles away and seen in 2017.

4.3.5 Burrowing Owl

Burrowing Owls are owls found in western North America with some owls found in Florida while also being found in Mexico and Central America. The owl is found in open grasslands, prairies, farmlands, and airfields. The owl usually takes over dormant burrows of prairie dogs, ground squirrels and other burrowing mammals. These burrows are where they nest and the owl lays around 7-10 eggs. Only the females incubate the eggs and eggs hatch within 28-30 days. It can take young as little as 6 weeks to leave the nest, but they are not powerful flyers at this point. The owls feed on insects and small mammals, some small birds and even frogs, toads, and snakes. In California the Burrowing Owl is a species of special concern and is threatened by habitat loss. Most populations of Burrowing Owls in California are year-long residents and are found in the Central Valley. Along the

central and southern coast, the bird is rapidly losing habitat because of urbanization and in the Central Valley the owl is threatened by the extermination of ground squirrels, along with being poisoned by pesticides.

Burrowing Owls have been observed nesting and wintering on Jamison Ranch, using both ground squirrel burrows in the uplands, as well as holes in the bluff faces along North Fork Little Dry Creek. The grasslands in the Impact Area provide potential nesting or wintering habitat for the species. The nearest occurrence of the owl to the Impact Area is 8.2 miles away and seen in 1990.

4.3.6 Prairie Falcon

Prairie Falcons (*Falco mexicanus*) are large falcons found in western North America, southern Canada, and northern Mexico. The falcon is found on open hills, plains, prairies, and deserts. The bird nests on ledges of cliffs, dirt banks, or uses abandoned nests of ravens or hawks. Prairie Falcons lay around 3-5 eggs and incubation is mainly done by the female. It takes about 31 days for an egg to hatch and young leave the nest at around 5-6 weeks. The falcon feeds on small mammals, lizards, and small birds. In California, the Prairie Falcon is on the CDFW watchlist. The falcon is susceptible to DDT poisoning and most fatalities of the falcon come from shooting near nests. Anothre threat to the species would be deaths from wind turbines. Overall, species populations are stable, but have seen a gradual decline over the years.

The Action Area lacks suitable nesting habitat for this species, but it may forage on grasslands in both the Impact Area and proposed Mitigation Area. The nearest occurrences of the falcon are 10.9 miles away from the Impact Area and 15.4 miles away from the Mitigation Site. These occurrences were seen in 1985.

4.3.7 Loggerhead Shrike

Loggerhead Shrikes are songbirds found mostly in the United States and northern Mexico. The shrike is found in semi-open country where they perch on lookout posts, usually wires, fences, trees, and scrub. The bird nests in dense trees or shrubs with nests being anywhere from 5 to 30 feet from the ground. Loggerhead Shrikes lay around 5-6 eggs with incubation done by the female for about 16-17 days. It takes around 17-21 days for the young to leave the nest, but parents still care for their young for another 3-4 weeks. The shrike feeds on insects, small birds, rodents, reptiles, and amphibians. In California, Loggerhead Shrikes are a species of special concern. Breeding is most abundant in the Central Valley, coast ranges and southeastern deserts, while in the winter the bird is found predominately in the San Joaquin Valley, and the central and south coast. Loss of oak savanna, coastal scrub and riparian habitats to agriculture is impacting the shrike. Loggerhead Shrikes are facing population declines in California due to habitat loss, but other causes are poorly understood.

While preferred scrubby breeding habitat is absent, this species may occur in both the Impact Area and proposed Mitigation Area, particularly where barbed wire fences pass near foraging habitat such as wetlands. The nearest occurrences of the bird are 71.0 miles away from the Impact Area and 75.5 miles away from the Mitigation Site. These occurrences were seen in 1992.

4.3.8 California Horned Lark

California Horned Larks are a subspecies of Horned Larks that are endemic to California and Baja California. The lark is found in open areas, such as grasslands, with low herbaceous vegetation or widely scattered low shrubs. The bird nests on the ground near grass tufts. Females incubate the eggs for 10-14 days and young are taken care of by both parents. The young leave the nest in about 9-12 days. California Horned Larks eat mainly seeds and insects found on the ground. The horned lark is on the CDFW watchlist and faces population declines from habitat loss. Specifically, habitat loss from agricultural development. The bird is also susceptible to collisions with wind turbines.

The Jamison Ranch is within the year-round range of California Horned Lark, and they are locally abundant on the ranch, and on other open grasslands in the Four Corners area. The large open grasslands used by this species are less available at the Impact Site, but it may use that area as well. The nearest occurrence of the bird to the Impact Area is 7.0 miles away and seen in 1992.

4.3.9 Tricolored Blackbird

A member of the blackbird and oriole family, the male Tricolored Blackbird is distinguished from the common Red-winged Blackbird by its red shoulder patch bordered in white. These birds forage in flocks, mostly on the ground, but occasionally in shrubs and trees. During summer months, they feed on a variety of insects including caterpillars, beetles, and grasshoppers. In fall and winter, they eat the seeds of grasses, weeds, and waste grain (Kaufman 2005). The nesting behavior of the tricolored blackbird is highly social. They form the largest colonies of any North American land bird, forming breeding groups of tens of thousands of individuals (Cook 2005). The birds in these colonies pack their nests closely together in dense cattail or bulrush marshes. The density of these colonies is more densely packed than those of the Red-winged Blackbird, with nests found only one to two feet apart. Breeding takes place from mid-March through July (Kaufman 2005). Unlike the red-winged blackbird, which is abundant throughout the continent, the Tricolored Blackbird has a very small range in the Pacific states. Tricolored Blackbird populations have seriously declined in recent decades due to habitat destruction, and is CESA-listed as threatened. It is speculated that its habit of nesting in dense colonies make the Tricolored Blackbird more susceptible to population decline (Cook 2005). Breeding habitat is absent from the Action Area, but both the Impact Area and the Mitigation Site provide foraging habitat. The nearest occurrences of the bird are 3.4 miles away from the Impact Area, seen in 1974, and 1.6 miles away from the Mitigation Site, seen in 2014.

4.3.10 California Condor

The California Condor is a member of the family Cathartidae or New World vultures, and is among the largest flying birds in the world. Adults weigh approximately 22 pounds (10 kg) and have a wingspan up to 9.5 feet (2.9m). It is a very long-lived species, and reaches sexual maturity at 6 years of age (Koford 1953, Snyder et al. 1987). California Condors are opportunistic scavengers, feeding only on the carcasses of dead animals, including elk, deer, cattle, sheep, and marine mammals such as whales and seals. A condor may eat up to 3 to 4 pounds at a time and may not need to feed again for several days (Kiff et al. 1986).

California Condors nest in various types of rock formations including crevices, overhung ledges, potholes and, more rarely, in cavities in giant sequoia trees (*Sequoiadendron giganteum)* (Snyder et al. 1986). In recent years, reintroduced condors have also nested in burnt-out cavities in coast redwoods (*Sequoia sempervirens*) in the Big Sur area. Traditional roosting sites are maintained on cliffs or large trees, often near feeding sites. Foraging occurs mostly in grasslands, including potreros within chaparral areas or in oak savannahs. At present, sufficient remaining habitat exists in California and in southwestern states to support a large number of condors, if density-independent mortality factors, including shooting, lead poisoning, and collisions with man-made objects, can be controlled (Jurek and Battistone 2014). California Condors were once one of the most endangered animals on earth, with only 22 individuals remaining in the world population in 1983 (Snyder 1983). The species remains ESA- and CESA-listed as endangered. The possibility of eventual genetic problems, resulting from the species' perilously low population size, cannot be discounted. As a result of the multi-agency cooperative Condor Recovery Program, there are now approximately 240 condors in the wild.

The Action Area lacks nesting habitat for this species, and is relatively distant from any current breeding pairs. However, the grasslands on the Impact Area and Mitigation Site provide potential foraging habitat for the species. The nearest occurrences of the condor are 61.8 miles away from the Impact Area and 70.2 miles away from the Mitigation Site. These occurrences were seen in 1976.

4.3.11 Snowy Egret

Snowy Egrets (*Egretta thula*) are large wetland dwelling birds that are found in the United States and into southern South America. The egret is found in and around marshes, swamps, ponds, shores, and other aquatic habitats. Snowy egrets can also, sometimes, be found foraging in dry fields. The egret nests in large colonies with other wading birds. The bird builds nests in trees around 5 to 10 feet off the ground. Snowy Egrets lay around 3-5 eggs and the eggs are incubated by both parents. It takes around 20-24 days for eggs to hatch and 20-25 days for young to leave the nest, but make take up to 30 days for the young to be able to fly. The egret eats fish, insects, crustaceans, frogs, snakes, lizards, and rodents. When eating from open, dry fields the bird will mostly eat insects. Populations of Snowy Egret are stable, while increasing in some areas. This species does not have special status, but is tracked in CNNDB. There is little possibility of finding a Snowy Egret in the Action Area, but it may be found if they are foraging in the grasslands of the Impact Area or Mitigation Site. The nearest occurrence of the egret to the Impact Area is 14.7 miles away and seen in 2012.

4.3.12 Great Blue Heron

Great Blue Herons are one of North America’s most abundant wading birds. The heron is found throughout North America and sometimes migrates into northern South America. The bird is found in freshwater and brackish marshes, along lakes, rivers, bays, lagoons, ocean beaches, mangroves, fields, and meadows. Great Blue Herons usually nest in colonies with nests being high in trees in swamps and forested areas. Occasionally the heron will nest on the ground, in bushes, on rock ledges or coastal cliffs. Great Blue Herons will lay around 3-5 eggs and both parents will incubate the eggs.

It takes around 25-30 days for the eggs to hatch and 60 days for the young to first fly. It takes 65-90 days for the young to fully depart the nest. The heron mostly eats fish but may also eat frogs, salamanders, turtles, snakes, insects, rodents, and other small birds. The heron has been observed stalking voles and gophers in fields. Great Blue Heron populations are stable but are susceptible to the removal and degradation of wetlands. They do not have special status, but are tracked in CNDDB. Though the heron would not nest in the Action Area there is suitable foraging habitat for the species in both the Impact Area and the Mitigation Site. The nearest occurrences of the heron are 59.0 miles away from the Impact Area and 74.4 miles away from the Mitigation Site.

4.3.13 Ferruginous Hawk

The Ferruginous Hawk is a hawk found throughout North America, which winters in California. The bird is found in dry grasslands, prairies, rangelands and sometimes winters in agricultural land. Ferruginous Hawks nest at the top of trees, and occasionally in cliffs and on the ground. The hawk lays around 2-4 eggs with incubation done by both sexes, with females incubating the eggs more. It takes 32-33 days for the eggs to hatch and young take their first flight between 40-50 days. The bird eats small to medium sized mammals along with other birds, snakes, and large insects. According to the North American Breeding Bird Survey, populations of the hawk have increased by 1% from 1966 to 2019. Agricultural conversion, overgrazing, small mammal control, mining and fire can be threats to Ferruginous Hawk nesting habitat. They do not have special status, but are tracked in CNDDB. The hawk has been seen at Jamison Ranch and the nearest CNDDB occurrence of the hawk to the Impact Area is at the Mitigation Site. The Impact Area would provide suitable habitat for foraging.

4.4 Insects

4.4.1 Antioch Efferian Robber Fly

There's little known about the Antioch efferian robber fly (*Efferia antiochi*), but the fly has only been found in Antioch, Fresno, and Scout Island in the San Joaquin River. The fly is predacious of other insects and larvae develop in the ground or in rotting wood. The larvae will feed on other insect larvae. Adults of the species have been collected between September to December. The species does not have special status, but is tracked in CNDDB. The nearest occurrence of the fly to the Impact Area is 11.2 miles away and seen in 1935. The Impact Area is within the range of the fly, but it's unknown if there's suitable habitat for the fly since there's little life history known of the Antioch efferian robber fly.

4.4.2 Crotch Bumble Bee

The Crotch bumble bee (*Bombus crotchii*) is a bee found in California and Nevada. The bee is found in grasslands and scrub and is adapted to hot, dry areas. The bee makes nests underground. Being a short-tongued species, the bee predominately forages from *Asclepias*, *Chaenactis*, *Lupinus*, *Medicago*, *Phacelia*, and *Salvia*. Crotch's bumble bee is CESA-listed as endangered and faces threats of habitat loss, pesticides, and climate change. As of 2008 there has been a major decline in the species range and populations. The range of the bee has decreased by 85% while also experiencing a 93% decline in relative abundance when compared to its historical high. The nearest occurrences

of the bumble bee are 5.0 miles away from the Impact Area and 10.3 miles away from the Mitigation Site. However, these localities have not been re-observed in decades. The nearest occurrences that have been observed in the past 20 years are 37 miles from the Impact Area and 29 miles from the Mitigation Site.

4.4.3 Molestan Blister Beetle

The molestan blister beetle is a beetle found in Central California. The beetle has been mostly found around dried vernal pools. There is little known of the life history of the species but there is information on the beetle's genus, *Lytta*. Once the beetles have mated, females will dig out shallow burrows, and lay her eggs. Others in the genus can lay up to 80-250 eggs and larvae are nest parasites of bees. The larvae of the genus will feed on pollen stores that the female bee has provided to her young. Some species only need pollen from one bee's larval cell while others species need more, and will kill bee larvae and sometimes eat the dead larvae. Once fully grown the beetle will feed on plants. The molestan blister beetle has been found on *Lupinus* and on *Trifolium wormskioldii*, a clover. The species has been collected between early April to early July. With so little known about the species there's minimal information on threats to the species. If the beetle relies on vernal pool plants, then the loss of vernal pool habitat may be a threat to the beetle. The species does not have special status, but is tracked in CNDDB. The nearest occurrences of the beetle are 12.7 miles away from the Impact Area and 16.1 miles away from the Mitigation Site. These occurrences were seen in 1980. Both sites are within the range of the Molestan blister beetle.

4.4.4 Monarch Butterfly

Monarch butterfly (*Danaus plexippus* pop. 1) is listed as a Federal Candidate Endangered species. Monarchs breed on obligate milkweed host plants (*Asclepias* sp.). Larvae feed exclusively on milkweed, and enter pupation between 9 and 18 days old. Adult monarchs emerge after 6 to 14 days. Most adult butterflies live two to five weeks, while overwintering adults may live six to nine months. Overwintering adult monarchs migrate over 2,000 miles to overwintering sites, a journey lasting over two months. The cohort of overwintering adults breeds at the overwintering sites in early spring (February-March) and undertakes a return migration to the summer breeding grounds (USFWS 2020).

Overwintering habitat is characterized by a set of microclimatic conditions including dappled sunlight, high humidity, fresh water and an absence of freezing temperatures or high winds. Preferred trees include blue gum (*Eucalyptus globulu*s), Monterey pine (*Pinus radiata*), and Monterey cypress (*Hesperocyparis macrocarpa*) (Xerxes 2016). The western monarch population is estimated to have declined precipitously to 97% below historical abundance between the 1980s and the mid-2010s (Forister et. al 2019). The current overwintering population of approximately 30,000 individuals may be susceptible to probable extinction due to stochastic events. Major causes of decline include loss of quality breeding and foraging habitat, insecticide application, and changes in habitat availability due to climate change. Though potentially disruptive temporarily, tree thinning activities may

improve long-term habitat suitability for monarch butterflies by improving beneficial microhabitats. (USFWS 2020).

Significant milkweed stands have not been mapped on either the Impact Area or the Mitigation Site, though small amounts may be present, and the butterfly could pass through the area during migration.

4.5 Crustaceans

4.5.1 Vernal Pool Fairy Shrimp

Vernal pool fairy shrimp is a fairy shrimp found in the Central Valley of California, and ranging to southeastern Oregon. The fairy shrimp is found mostly in vernal pools throughout California as well as other ephemeral wetlands. Female fairy shrimp lay their eggs at the pool bottom. When the pools dry out the eggs do as well and are known as cysts. These cysts can stay dried out for years because of the protective coverings on them, the cysts can also withstand digestion from predators. The cysts hatch as a response to heavy rain and water returning to vernal pools. VPFS can start being found in vernal pools in around November and complete their life cycle by early May. It takes around 18 days for the fairy shrimp to reach maturity after hatching and 40 days to reproduce. On average, VPFS complete their life cycle in 91 days. The fairy shrimp are filter feeders and eat algae, bacteria, protozoa, rotifers, and waste from plants and animals.

Though the shrimp have little ability to disperse on their own, the consumption of cysts by aquatic birds allows VPFS to spread to other pools. Large mammals such as cattle are also able to move the cysts around, mainly from wallowing in dirt and getting the cysts caught in their fur. VPFS are ESA-listed as threatened, primarily due to habitat loss from agricultural expansion, predation from non-native predators, habitat modification by non-native plants, climate change, drought, and pesticides. The primary threat is loss and degradation of vernal pools. There are currently 92 occurrences of VPFS that are threatened by development with another 27 occurrences threatened by agricultural conversion.

VPFS are widespread on Jamison Ranch. They have been observed in 100 pools across the ranch, of which 51 are within the proposed Mitigation Site. For the purpose of this BA, it is assumed that all vernal pools and swales on the ranch provide potential VPFS habitat. VPFS have not been observed in the Impact Area. However, the depressional wetland basins provide potential habitat for the species, and protocol large branchiopod surveys have not been conducted. Therefore, all depressional wetland basins are assumed to provide potential VPFS habitat for the purpose of this analysis. The nearest occurrence of VPFS is 2.6 miles away from the Impact Area, seen in 2004.

4.5.2 Vernal Pool Tadpole Shrimp

The vernal pool tadpole shrimp is a small aquatic crustacean in the Triopsidae family. They are ESA-listed as endangered. The species has dorsal compound eyes, a large shield-like carapace covering most of the body, 35 pairs of legs, and two long cercopods at the end of the last abdominal segment. Adult shrimp are up to two inches in length. (Linder 1952, Longhurst 1955, Pennak 1989).

Vernal pool tadpole shrimp are known to occur in a wide variety of seasonal habitats, including vernal pools, clay flats, alkaline pools, ephemeral stock tanks, roadside ditches, and road ruts (Helm 1998; Rodgers 2001). Habitats where they have been observed have ranged from very small, clear, well-vegetated pools to highly turbid, alkali scald pools to large winter lakes of a variety of depths and volumes (Rodgers 2001; Helm 1998).

The vernal pool tadpole shrimp's life history is linked to the seasonal cycle of its pool habitat. The shrimp's diapaused eggs lie dormant in dry pool sediments when the pools are dry (Vollmar 2002). Once winter rainwater fills the pools, populations of the species are re-established from the diapaused eggs (Ahl 1991; Lanway 1974). Eggs, also known as cysts, may hatch at various times, anywhere from 1 hour to 3 weeks after the pools are inundated (ECCC 2006). Vernal pool tadpole shrimp can begin shedding cysts in as little as 15 days (ECCC 2006).

Vernal pool tadpole shrimp are benthic, and swim with their legs down (Helm 1998; Rodgers 2001). They burrow and creep along the bottoms of usually muddy pools, sweeping up dead or live plant and animal material with their leaf-like appendages (Vollmar 2002). Their diet consists mostly of organic detritus; however, they also consume bacteria, protozoa, rotifers, aquatic earthworms, aquatic insects, fairy shrimp, frog eggs, and tadpoles (Vollmar 2002; Pennak 1989).

Vernal pool tadpole shrimp occur exclusively in vernal pools found within the Valley Floor Grasslands and Vernal Pools Natural Community (LSA 2012). The USFWS (1998a) estimates that 60 to 85% of vernal pool tadpole shrimp habitat had been lost in the Central Valley by 1973. Many more acres of habitat, mostly seasonal vernal pools, have been lost since 1973 (LSA 2012). Rapid urbanization and conversion of habitat to agricultural lands are primary threats to the species (ECCC 2006). The limited and disjunct distribution of the vernal pools, coupled with the even more limited distribution of the vernal pool tadpole shrimp, means that any reduction in vernal pool habitat quantity could adversely affect this species (ECCC 2006). Other threats include off-road vehicle use, certain mosquito abatement measures, pesticides/herbicide use, alteration in vernal pool hydrology, fertilizer contamination, invasive non-native plants, gravel mining, and contaminated stormwater runoff (USFWS 1999). These factors have resulted in isolation and fragmentation of habitats, often precluding dispersal between populations or sub-populations, resulting in small isolated populations (LSA 2012). These populations could be highly susceptible to extinction due to chance events, inbreeding depression, or additional environmental disturbance (Gilpin and Soule 1986; Goodman 1987a, b).

Vernal pool tadpole shrimp populations are concentrated in the center of the Great Valley, with major population centers in central Tehama, Sacramento, Solano, and Merced counties. The nearest documented population of the species on the valley floor occurs along the Merced-Madera County line, 30 miles from the Impact Area and 20 miles from the Mitigation Site. A closer population center is present in Fresno County, but this occurs atop Table Mountain, on volcanic rock-based pools, at an elevation of approximately 2,000 feet, so is not a good analogy for the Action Area.

4.5.3 California Linderiella

California linderiella is a species of fairy shrimp endemic to California. The shrimp is found in vernal pools, swales, ephemeral drainages, stock ponds, reservoirs, backhoe pits and ruts caused by vehicular activity. They can be found in pools that are very small (2 square meters) to very large pools (356,253 square meters). Preferred pools appear to be those that are large, deep, and vegetated. California linderiella take around 33 days to mature, 43 days to reproduce and overall have a life expectancy of 139 days. Female fairy shrimp lay their eggs at pool bottoms and when the pools dry the eggs will dry out, becoming cysts and stay dry until the pool fills with water again. Once pools are filled again the cysts will hatch. California linderiella have a similar diet to VPFS, eating algae, bacteria, protozoa, rotifers, and waste from plants and animals. They do appear to select for bacteria (Helm 1999). A major threat to the species is the conversion of vernal pool habitat into agricultural land or urban areas. The species does not have special status, but is tracked in CNDDB.

California linderiella have been observed in 23 pools on the Jamison Ranch, of which 15 are within the proposed Mitigation Site. The nearest occurrence of the shrimp to the Impact Area is 2.3 miles away and seen in 2004. The Impact Area's seasonal wetlands could provide suitable habitat for California linderiella.

4.5.4 Midvalley Fairy Shrimp

Midvalley fairy shrimp is a fairy shrimp endemic to California. The shrimp is found in vernal pools, vernal swales, and other ephemeral wetlands, the shrimp can also occasionally be found in roadside puddles. Midvalley fairy shrimp are found in shallower vernal pools than other fairy shrimp and prefer pools with low to moderate dissolved salts. Just like other fairy shrimp in California, females will lay their eggs at the bottom of pools and when the pools dry out the cysts will remain and hatch once the pools fill with water again. The fairy shrimp has a similar diet to VPFS as a filter feeder. Midvalley fairy shrimp eat algae, bacteria, protozoa, rotifers and waste from plants and animals. The fairy shrimp, on protected land, has little threats it faces, but loss of vernal pool habitat, urbanization and expansion of agriculture are threats to the species as a whole. The species does not have special status, but is tracked in CNDDB.

Midvalley fairy shrimp have been observed in 40 pools on the Jamison Ranch, of which 24 are within the proposed Mitigation Site. The nearest occurrence of the shrimp to the Impact Area is 2.5 miles away and seen in 2002. The Impact Area's seasonal wetlands could provide suitable habitat for the Midvalley fairy shrimp.

4.6 Mammals

4.6.1 Pallid Bat

Pallid bats are bats that are found in western North America and can be found in mountainous areas, intermontane basins, and lowland desert scrub, arid deserts, and grasslands. Mating occurs from around October to December (Hermanson 1983). Young are born from around May to June. The bat will nest in maternity colonies that form in early April. These colonies can have up to 100 individuals.

Young begin to fly at 6 weeks and are weaned between 6-8 weeks. The bat roosts in caves, crevices, mines, and occasionally hollow trees and in buildings. Pallid bats eat a variety of insects and arachnids, such as, beetles, orthopterans, homopterans, moths, spiders, scorpions, solpugids, and Jerusalem crickets. Since the bat has a stout skull, it's able to eat more hard-shelled prey. The pallid bat is a species of special concern in California and is especially sensitive to disturbance to roosting sites. Threats to the species include loss of foraging habitat, fire, urban development, and pesticide use. The nearest occurrence of the bat to the Impact Area is 18.0 miles away and seen in 1979. The Impact Area could provide roosting habitat for the pallid bat in the form of abandoned buildings.

4.6.2 Western Mastiff Bat

The Western mastiff bat (*Eumops perotis californicus*) is a bat found in southwestern North America and Mexico. These bats are found in open areas, semi-arid to arid habitats, such as, conifer and deciduous woodlands, coastal scrub, annual and perennial grasslands, palm oases, chaparral, desert scrub and urban areas. Western mastiff bats are born between early April to August or September. The bats are born into nursery roosts that are at least 35 inches deep and 2 inches wide in rock crevices. Nursery roosts may also be found in buildings. The bat will roost in crevices of cliff face, high buildings, trees, and tunnels during the day. The bats are most active in their roosts in the early morning and late afternoon (Best 1996). The bat leaves the roost around 40-50 minutes after sunset. The bat returns to its roost around 2:00 AM to 3:00 AM. Western mastiff bats eat insects that are in flight, usually smaller, weak flying, nocturnal insects. The bat is a species of special concern in California and faces threats of habitat loss, roost disturbance, colony loss from pest control operators and possible direct and indirect effects of pesticides. The nearest occurrences of the bat are 11.7 miles away from the Impact Area, seen in 1958, and 5.4 miles away from the Mitigation Site, seen in 1994. Both the Impact Area and the Mitigation Site could provide minimal habitat for the western mastiff bat. The Impact Area has minimal roosting habitat in the form of abandoned buildings, while the Mitigation Site has no roosting habitat but suitable foraging habitat.

4.6.3 Western Red Bat

The western red bat (*Lasiurus blossevillii*) is a bat found in the southwestern United States and found in Central and South America. In California the bat roosts in forests and woodlands, and forages in grasslands, shrublands, open woodlands, and croplands. Mating occurs between August and September, with an 80-90 day gestation period, after delayed fertilization. Young are born from late May to early July, with females having litters of 2-3 bats. Lactation lasts for 4-6 weeks and the young begin to fly between 3-6 weeks. Western red bats roost in trees and occasionally shrubs that are adjacent to streams, fields, or urban areas. The bat eats insects, such as, moths, crickets, beetles, and cicadas. In California, western red bats are a species of special concern. These bats are threatened by loss of lowland, riparian, forests, along with bats that use orchards and vineyards for roosting being exposed to pesticides. There is marginal roosting habitat for the western red bat in the Impact Area.

4.6.4 Townsend's Big-eared Bat

The Townsend's big-eared bat (*Corynorhinus townsendii*) is a bat found throughout North America. The bat can be found in forested areas, buildings, areas with a mosaic of woodland, grassland and/or scrubland, limestone caves, lava tubes, and cultivated valleys with nearby hills covered with mixed vegetation. Mating happens from November to February. Gestation lasts 56-100 days with young being born from May to June, with peak births in late May. Young are born into maternity roosts that can be found in caves, tunnels, mines, and buildings. These roosts usually make up a maternity colony, that consists of fewer than 100 individuals. A litter of one is produced annually and young are weaned in 6 weeks. It takes 2.5-3 weeks for young to begin to fly. Townsend's big-eared bats roost in caves, mines, tunnels, buildings, or other man-made structures. The largest part of this bats diet comes from moths, but they may also eat beetles and other soft-shelled insects. In California, Townsend's big-eared bat is a species of special concern. They are threatened by disturbance of roosting sites, even just being disturbed once can lead a roost to be abandoned. The bat is also threatened by loss of habitat and limited dispersal capabilities (Anderson 2018). The nearest occurrence of the bat to the Impact Area is 24.6 miles away and seen in 1946. The Impact Area provides marginal roosting habitat for the Townsend's big-eared bat.

4.6.5 Fresno Kangaroo Rat

The Fresno Kangaroo Rat (*Dipodomys nitratoides exilis*) is a subspecies of the San Joaquin Kangaroo rat. Like other kangaroo rats, it has white fur ventrally and brown-yellow dorsally with a white stripe across its hips, but can be distinguished by the presence of only 4 toes on each of its hind feet (Endangered Species Recovery Program 2017).

The range of the Fresno Kangaroo rat has drastically diminished with no known populations located within the historical geographic range that "encompassed an area of grassland and chenopod scrub communities on the San Joaquin Valley floor, from about the Merced River, Merced County, on the north, to the northern edge of the marshes surrounding Tulare Lake, Kings County, on the south, and extending from the edge of the Valley floor near Livingston, Madera, Fresno, and Selma, westward to the wetlands of Fresno Slough and the San Joaquin River" (Endangered Species Recovery Program 2017). Recently, the species has been located in the south of Kings County, on the Lemoore Naval Air station and could possibly be located in the seasonally flooded wetlands of Fresno, Madera and Merced Counties (Endangered Species Recovery Program 2017).

The Fresno Kangaroo rat prefers uncultivated grassland, shrublands and seasonal wetlands. Seeds are a staple part of their diet and they are equipped with fur lined cheek pouches to store and carry seeds. The also consume various kinds of green and herbaceous vegetation and insects (Endangered Species Recovery Program 2017). Like all Kangaroo rats, the species create burrows, which provide shelter, food storage and a place to birth their young. However, due to the damp soils in the areas in which the Fresno Kangaroo rat lives, the species is forced to forage for seeds and other sustenance for greater portions of the year.

The Fresno Kangaroo Rat is ESA-listed as endangered. The species has mainly been threatened by agricultural development, urbanization, and invasive exotic grasses. Population numbers if the Fresno Kangaroo rat tend to decline and increase rapidly due to spells of drought and flooding (USFWS 2017). Re-colonization and repopulation have been difficult in recent years due to the species fragmented geography. The nearest occurrence of the rat to the Mitigation Site is 15.6 miles away and seen in 1898. The Impact Area is outside of the rat's elevation range but the Mitigation Site provides minimal habitat for the Fresno kangaroo rat.

4.6.6 San Joaquin Kit Fox

The San Joaquin kit fox (SJKF, *Vulpes macrotis mutica*) is a member of the Canidae family, and is the smallest fox in North America, measuring an average of 20 inches in length and weighing about 5 lbs. They are slight, solitary foxes with long legs and a tan to buffy gray coat. They are easily recognized for their especially long ears, which are proportionately the longest of any canid in North America (Eder 2005).

SJKF prefer habitats of open or low vegetation with loose soils. In the northern portion of their range, they occupy grazed grasslands and, to a lesser extent, valley oak woodlands. In the southern and central portion of the Central Valley, SJKF are found in valley sink scrub, valley saltbrush scrub, upper Sonoran subshrub scrub and annual grassland. SJKF are also found in grazed grasslands including areas adjacent to tilled or fallow fields, and suburban settings (USFWS 1998). SJKF is an important predator of small rodents. Their primary prey species include kangaroo rats, pocket mice, and rabbits. They are also known to feed on reptiles, ground-nesting birds, and insects (Eder 2005).

The SJKF requires underground dens to raise pups, avoid predators (Golightly and Ohmart 1984), regulate temperature, and avoid other adverse environmental conditions. In the northern portion of their range, burrowing mammals, primarily California ground squirrels, provide these holes. Dens are usually located on loose-textured soils on slopes of less than 40 degrees (O'Farrell 1980). Natal pupping dens are generally found on slopes of less than 6 degrees (O'Farrell and McCue 1981). Kit foxes breed from late December to March (Egoscue 1956, Morrell 1972, Zoellick et al. 1987). Home range size can vary but generally are 1-2 sq. kilometer in size depending on resource availability. Dispersal distances vary considerably. A six-year study at Elk Hills Petroleum Preserves in California showed that pups dispersed an average distance of 5.0 miles (Scrivner et. al. 1987, USFWS 1998).

SJKF is ESA-listed as endangered and CESA-listed as threatened. Historically, SJKF occurred extensively throughout California's Central Valley and parts of the Salinas and Santa Clara valleys. They currently inhabit some areas of suitable habitat on the San Joaquin Valley floor and in the surrounding foothills of the coastal ranges, Sierra Nevada, and Tehachapi Mountains, from southern Kern County north to Contra Costa, Alameda, and San Joaquin Counties on the west, and some of the larger scattered islands of natural land on the Valley floor in Kern, Tulare, Kings, Fresno, Madera, and Merced Counties (USFWS 1998). The transformation of the Central Valley from open grasslands to farmland, orchards and residential areas has greatly impacted SJKF populations as it

has become more difficult for them to find food and mates. The extensive use of rat poison has also affected SJKF populations. The federal government has recently decided to limit the use of these poisons outdoors (EPA 2015). The nearest occurrences of SJKF are 10.2 miles away from the Impact Area and 9.1 miles away from the Mitigation Site. These occurrences were seen in the 1990's. Both the Impact Area and Mitigation Site have marginal grassland habitat for SJKF.

4.6.7 American Badger

A member of the weasel family, Mustelidae, the American badger is a heavy bodied, short-legged, grayish mammal that features a white medial stripe from its nose over the top of the head and down its back. The species occurs in a variety of open, arid habitats throughout much of western North America, but are most associated with grasslands, savannas, and open scrub along low to moderate slopes (Stephenson and Calcarone 1999). In California, the species is an uncommon, permanent resident throughout most of the state, except for the North Coast area (Grinnell et al. 1937). Badgers require friable soils for digging burrows and their presence can often be determined by the presence of burrows with large openings. A Badger den may approach 30 ft. in length and have a 1 ft. diameter. A sizeable pile of excavated earth can often be found to one side of the burrow entrance.

Badgers are carnivorous and feed primarily on small rodents but also consume reptiles, insects, birds and bird eggs, and carrion (Ahlborn 2005). Their stout bodies, powerful forelimbs, and long curved claws allow badgers to capture their prey in burrows. When not actively foraging, individuals tend to retreat to their den/burrow. Individuals, especially males, are known to occupy relatively large home ranges, from approximately 480 to nearly 3,000 acres (Quinn 2008). The species is considered ferocious and has relatively few predators, though coyotes and golden eagles are known to occasionally prey upon them.

Badgers are solitary except during breeding the between July and August. Interestingly, embryos do not begin to grow until December or February. In March, females will give birth to 1-5 babies in underground nests lined with grass.

American Badgers are listed as a species of special concern by the CDFW due to population decline. The primary threat to the American badger is habitat conversion, as much of its habitat has been lost to agriculture and urban development. Other threats include heavy traffic volume (which leads to road kills), indiscriminate trapping and poisoning, and a reduction in prey base as a result of rodent control (Ahlborn 2005). The species has experienced significant population declines over the past century, particularly in southern California (Williams 1986).

While badgers themselves are very shy of humans, their sign (i.e., excavated ground squirrel burrows) is easy to identify. Badger sign has been observed on the Jamison Ranch and surrounding properties (E. Smith, pers. comm). The nearest occurrence of the badger to the Impact Area is 6.8 miles away and seen in 1987. The Impact Area provides suitable, open, grassland habitat for the American badger.

4.6.8 Hoary Bat

Hoary bats (*Lasiurus cinereus*) are bats found in North America, as far south as Guatemala. The bat can be found in deciduous and coniferous woodlands, while foraging habitat includes open areas. Mating begins in autumn and with delayed fertilization, young are born in mid-May to early July. It takes Hoary bat young around 33 days to fly. Females give birth to their young in trees and may leave the young in the roost while foraging. Hoary bats are moth specialists but do eat some other flying insects. The bat roosts in dense foliage of medium to large trees. The microclimate of the bats roost is very important for selection (Willis 2005). Hoary bats preferred trees and side of trees with lower wind speeds. The bat has been found on the southeast side of trees for roosting. Threats to hoary bats are deforestation and collisions with wind turbines. The nearest occurrences of the bat are 18.1 miles away from the Impact Area, seen in 1915, and 14.6 miles away from the Mitigation Site, seen in 1911. Both the Impact Area and the Mitigation Site provide marginal habitat for the hoary bat.

4.6.9 San Joaquin Long-tailed Weasel

The San Joaquin long-tailed weasel (*Mustela frenata xanthogenys*) is a sub-species of the long-tailed weasel endemic to California. The weasel has little life history information on it but long-tailed weasels are found in a wide variety of habitats. They mostly live near water and are found in habitats such as brushland, open woodland, field edges, riparian grassland, swamps, and marshes. The weasel will use abandoned burrows to use as dens, along with rock crevices, brush piles, stump hollows, or space among tree roots. Long-tailed weasels mate in July or August, with gestation lasting on average 279 days. Young are born in April or May and begin to eat meat between 21-25 days and are weaned in around 35 days. The weasel eats small mammals such as mice, gophers, chipmunks, ground squirrels and rabbits. Long-tailed weasels also eat birds, some insects, salamanders, and small amounts of fruit. Threats to long-tailed weasels include, monocultural farming, drainage of wetlands and pesticides. The species lacks special status, but is tracked in CNDDB. The Impact Area has minimal habitat for the San Joaquin long-tailed weasel.

4.6.10 Yuma Myotis

Yuma myotis (*Myotis yumanensis*) is a bat that is found in North America. The bat is found close to water sources in upland and lowland habitats, such as, riparian, desert scrub, moist woodlands, and forests. The bat forms maternity colonies that consist of thousands of females and young in buildings, caves, mines and under bridges. Yuma myotis mate in fall and give birth to young from late May to mid-June with births peaking in early June. The bat roosts in buildings, mines, caves, and crevices, and have also been seen roosting in abandoned swallow nests and under bridges. Yuma myotis feed on small flying insects. The bat also eats beetles, termites, ants, and arachnids (Braun 2015). Threats to the bat include, reduction of suitable roost sites, roost disturbance from humans, and degradation of foraging habitat. The species lacks special status, but is tracked in CNDDB. The nearest occurrence of the bat to the Impact Area is 30.6 miles away and seen in 1999. The Impact Area provides marginal habitat for Yuma myotis.

4.7 Reptiles

4.7.1 Northwestern Pond Turtle

NPT is a small turtle in the family Emydidae. It has undergone recent taxonomic revisions, including classification under *Clemmys*, *Emy*s, and *Actinemys*. It was taxonomically split into two species: NPT is distributed from Washington through Oregon, northern California, and the Central Valley. Populations on the central and south coast of California, southern California, and Baja California are now treated separately as southwestern pond turtle (*Actinemys pallida*).

NPT is highly aquatic, spending most of its life in or immediately around rivers, streams, lakes, ponds wetlands, reservoirs, and brackish estuarine waters from sea level to 6,500 feet (Holland 1994; Jennings and Hayes 1994). They prefer habitats with areas for cover (vegetation, logs) and basking sites (rocks and other substrates) (Holland 1994). These turtles often bask outside of the water, but quickly re-enter if they are threatened. Summer droughts and cold winters are survived by aestivating/hibernating or burying in loose soil or mud.

NPT move through uplands to travel between aquatic habitats, and to lay eggs. Between April and August, females dig nests on land and lay clutches of 2-11 eggs. Nests are generally located in sunny, open areas with friable soils, typically within 100m of aquatic habitat (Slavens 1995).

Western pond turtles are omnivores, with the potential to be opportunistic predators and scavengers (Holland 1985a, 1985b, Bury 1986). Their diet primarily consists of crustaceans, midges, dragonflies, beetles, and caddisflies. They are also known to eat mammal, bird, reptile, amphibian, and fish carrion. They have been observed foraging on willow and alder catkins, and on ditch grass inflorescences (Holland 1991).

Western pond turtles begin to breed between 10 and 14 years of age. Females leave drying creeks from May to July to oviposit in sunny upland habitats, including grazed pastures. Clutch size ranges from one to 13 eggs, and incubation lasts 80-100 days. Nest predation rates are high and complete failure of nests is common.

NPT is declining in most of its range. It is almost extinct in the San Joaquin Valley and has seen extensive habitat loss, in part due to predation as well as competition from introduced animals, including exotic pet turtles that have been released into the wild (Zeiner and Laudenslayer 1990). A few sites in the San Joaquin Valley have been more recently studied and shown to have strong, extant populations of NPT. The Fresno-Clovis Regional Wastewater Reclamation Facility, southwest of Fresno and Five-Mile Slough in western Fresno County are the two strongest population centers in the region (Germano 2001, Germano 2010).

Both the Project Site and the Property have been subject to intensive biological studies, particularly of aquatic habitats, over multiple years. NPT has not been observed at either site. The nearest documented occurrence of NPT to the Project Site is approximately 0.8 mile to the south (CNDDB 2024). This occurrence consists of a single adult turtle observed in 2016 in the Enterprise Canal within urban Clovis. The occurrence is separated from the Project Site by approximately 0.6 mile of

dense suburban development. The Enterprise Canal intersects with Dry Creek (which crosses the Project Site) approximately 2 miles (along Enterprise Canal) of the occurrence location, and approximately 1.4 miles (along Dry Creek) of the Project Site, for a combined stream distance of approximately 3.4 miles. The Enterprise Canal carries water for much of the year, but Dry Creek below the Project Site is intermittent and controlled by dam releases from Big Dry Creek Dam; it does not generally provide suitable aquatic habitat.

The Project Site itself presents limited aquatic habitat for NPT (**Figure 4**). The Outlet Channel from Big Dry Creek Reservoir (which functionally replaces Dry Creek through the Project Site) is a constructed trapezoidal feature with no riparian corridor. Its hydrology is controlled by dam releases, and therefore tends to consist of either rapid, unimpeded channel flow, or else shallow, marshy conditions with only a few inches of water. Deep, slow-moving water preferred by NPT generally does not occur. The channel lacks haulout and basking opportunities such as inchannel bars, beaches, and instream woody material.

Numerous depressional seasonal wetlands provide potential and occupied habitat for CTS, VPFS, and WSF, but are too small and shallow to be used by NPT. Three seasonal stock ponds are present in the northwest corner of the Project Site, though these typically dry between March and April, and therefore provide aquatic habitat for only a short portion of NPT's active season. They also lack riparian habitat, other cover, and basking opportunities.

The 1.129-acre agricultural tailwater pond near the center of the Project Site provides the best potential habitat for NPT on the Project Site. This feature is large, deep, and still, with a vegetated wetland edge, but little in the way of other cover or basking opportunities. This pond typically fills only from backflow from the Outlet Channel during large releases from Big Dry Creek Reservoir, though it also receives overland flow from former agricultural fields on the Project Site. During drought years, the pond never fills, but in wet years it may remain wet for the entire summer. This irregular hydroperiod, including multi-year dry periods, likely makes the pond unsuitable for supporting a population of NPT.

The Project includes off-site improvement areas, as displayed on **Figure 4**. These consist of required improvements to roads, utilities, and related infrastructure required for the Project. As described in the 2023 BA, these areas consist of existing roads and low- and medium-density residential development. The off-site improvement work areas do not include aquatic resources that might be used by NPT.

Outside the Project work area, Big Dry Creek Reservoir and sections of Dry Creek above the dam may provide suitable habitat in the vicinity of the Project, though NPT has not been documented in these areas. The nearest documented occurrence to the Project Site outside of metropolitan Fresno is approximately five miles north of the Project Site, where turtles were documented along the Friant-Kern Canal in 2004.

The upland portions of the Project Site contain large areas of sunny, relatively open habitat with friable soils. These areas may be suitable for NPT nesting. However, their distance from known aquatic habitats makes them unlikely to be used by NPT.

In summary, NPT has been observed occasionally in the Project vicinity to the south; some suitable habitat occurs to the north of the Project Site; the Project Site itself provides some suitable habitat on a temporary basis, but NPT has not been observed to use it, despite multiple surveys of the site, many of which focused on its aquatic resources. It is therefore prudent to assume that NPT may occasionally move through the Project Site or forage there for limited periods. However, it is unlikely that the Project Site supports a population of NPT. Similarly, NPT could move through offsite work areas while travelling between suitable habitat patches, but there is no habitat to support sheltering or feeding in the off-site work areas.

The nearest documented NPT occurrence to the proposed preserve is approximately 8.7 miles to the northeast, dating to 2010 (CDFW 2024). This occurrence consists of an adult turtle seen entering Hildreth Creek and moving downstream (i.e. toward the proposed preserve). The area between this occurrence and the proposed preserve consists of open grassland crossed by occasional small, intermittent streams lacking riparian vegetation. The confluence between Hildreth Creek and Little Dry Creek (which flows through the Mitigation Area) is over 20 stream- miles below the occurrence, and 10 below the Mitigation Area. The other regional NPT occurrences are located further away, in the foothills, along the San Joaquin River, or associated with the Fresno metropolitan area.

The proposed preserve presents very limited habitat for NPT. Little Dry Creek and its tributaries in the proposed preserve have several stream pools, but these are small and shallow, and lack riparian vegetation, basking opportunities, or cover. These pools typically dry in late Spring or early Summer. Small stock ponds or “dirt tanks” on the proposed preserve are relatively deep (a few feet) and hold water into Summer, but lack any riparian vegetation, basking opportunities, or cover for turtles. Moreover, they are small and disconnected from any riparian corridors. Vernal pools and other seasonal wetlands on the proposed preserve are too shallow to support NPT. Nearly all of the proposed preserve consists of open, sunny grasslands with friable soils which could be used for NPT nesting. However, NPT are very unlikely to travel so far from core aquatic habitat to nest.

The Madera Canal crosses the Jamison Ranch approximately 1.6 miles north of the proposed preserve. The canal is a large, steep-sided, trapezoidal feature used to provide large water deliveries from Millerton Lake to the valley floor. During deliveries, it has swift flows of cold water; between deliveries, it supports shallow ponding along its length. The canal does create numerous ponds and marshes in adjacent areas, including a large seasonal marsh immediately north of the Jamison Ranch, approximately 1.3 miles north of the proposed preserve. No NPT have been documented in the Madera Canal or these adjacent features.

In summary, the proposed preserve presents limited habitat for NPT. The lack of nearby documentations or highly suitable habitat make it unlikely that NPT use the proposed preserve with any frequency.

4.7.2 Northern California Legless Lizard

The Northern California legless (*Anniella pulchra*) lizard lacks legs and eyelids, has a short snout, a blunt tail and is anywhere from 4-7 inches in length. Its smooth scales come in many colors from silver, beige to dark brown and black. There are usually several stripes down its back beginning at the dorsal, but this is not always the case. This lizard's range extends from South Ventura County to South Contra Coast County. There are scattered occurrences in the San Joaquin Valley, in the southern Sierras, the desert portions of the Tehachapi Mountains and part of the San Gabriel Mountains. The Northern California legless lizard prefers loose, warm, and moist soil with some vegetation cover. It is commonly found in areas with leaf litter near bushes or dunes held together with bush lupine and mock heather with plenty of sun exposure. There are also occurrences in chaparral, beach dunes, pine-oak woodlands, sandy washes, and stream terraces. Its diet includes insects, beetle, spiders, and termites. This species is a CDFW Species of Special Concern. Its main threat is habitat loss from human land development (especially the planting of ice plants) and off-road vehicles. The nearest occurrences of the lizard are 43.0 miles away from the Impact Area and 34.0 miles away from the Mitigation Site. These occurrences were seen in 2000. Both the Impact Area and the Mitigation Site have marginally suitable habitat for the Northern California legless lizard.

4.7.3 Coast Horned Lizard

The Blainville's horned lizard has a wide, flat, oval shaped body with pointed scales down its back and a crown of horns on its head. Its colored varies, some being reddish or brown, others grey or yellow. It will typically have dark splotches on its smooth underbelly. Historically these lizards have been found along the California coast as south as Baja California and as east as the Sierras. Recently the lizard's range has diminished and fragmented with populations favoring the western central portion of its historical range. The lizard prefers sandy soils in low vegetation in valleys, foothills, and semiarid mountains. It can be found in chaparral, woodlands, and coniferous forests. The lizard's diet consists mainly of harvester ants but includes other invertebrates such as spider, beetle, termites, and honeybees. The Blainville's horned lizard is a CDFW species of special concern. Threats to its habitat include agriculture and urban development. The nearest occurrences of the lizard are 5.0 miles away from the Impact Area and 11.2 miles away from the Mitigation Site. These occurrences were seen in 2011. Both the Impact Area and the Mitigation Site have suitable habitat for the coast horned lizard.

4.7.4 Blunt-nosed Leopard Lizard

The Blunt-nosed leopard lizard (*Gambelia sila*) was named pragmatically as it in fact does have a truncated nose and a leopard-like scale pattern. It is 3-5 inches in length with a long, rounded tail. It is greyish brown with cream-colored bands across its back and dark spots (California Herps 2017). The range of this lizard has been severely limited. It inhabits parts of the San Joaquin valley (Santa Barbara, Kern and Merced counties) near foothills and in valleys (California Herps 2017). The Blunt-nosed lizard prefers flat grasslands for running. It tends to avoid areas with dense vegetation;

however, it will utilize spaces with dense shrub cover for thermoregulation. It uses mammal's dens and burrows for shelter, consuming insects, and other lizards (California Herps 2017). This species is ESA- and CESA-listed as endangered, and is also California Fully Protected. Its habitat is threatened by agriculture, farming, urban development, over-grazing, mining, oil wells and off-roading (California Herps 2017). The nearest occurrence of the lizard to the Mitigation Site is 17.6 miles away and seen in 1916. The Mitigation Site has potential grassland habitat for the blunt-nosed leopard lizard.

5.0 Environmental Baseline and Cumulative Effects

This section describes the environmental baseline of the Impact Area and proposed Mitigation Site, and discusses how the Proposed Action would contribute to cumulative effects in conjunction with future State, Tribal, local or private actions that are reasonably certain to occur in the Action Area.

5.1 Environmental Baseline

5.1.1 Impact Area

The Impact Area's environmental baseline has been strongly impacted by expanding suburban development in the vicinity, dam construction and stream diversion immediately upslope, and agricultural use on the Project Site itself.

5.1.1.1 On-Site Work Areas

The Project Site has been modified by human use, as can be seen in the habitat types and areas listed in **Table 6**, above. Grasslands make up about 56% of the Project Site. Like nearly all California grasslands, the uplands are dominated by non-native European annual grasses. Additional weeds are also present, though this habitat is more characterized by forage grasses than noxious weeds (VNLC 2023c, **Appendix G**). These grasslands have generally been subject only to livestock grazing, though some dirt roads, firebreaks, and other minor infrastructure are also present.

In addition to these grasslands, a further 28% of the Project Site is composed of a community referred to here as Disturbed/Remnant/Ruderal Grasslands. This category includes areas which were formerly levelled and flood-irrigated (but have since been returned to dry pasture), areas which have been dry-farmed or otherwise suffered severe soil disturbance, and small patches of grassland separated from other habitat by developed land covers. These grasslands are united by the fact that human land use history has significantly impeded their ability to provide habitat values for ESA-listed species.

Approximately 5% of the Project Site consists of a former small farm. This area includes dilapidated structures, and old row crop fields which have been fallowed, and are now used as grazing land, or not managed. They function similarly to the Disturbed/Remnant/Ruderal Grasslands.

The Dry Creek channel once flowed across the Project Site. However, the Big Dry Creek Dam, constructed just above the site, cut off all flow through the natural channel over 70 years ago (VNLC 2023a). The old channel is now a sandy area comprising approximately 4% of the Project Site. It no longer provides any aquatic or riparian habitat values, but also does not provide grassland habitat values. It is very lightly vegetated with plants tolerant of very dry soils (VNLC 2023c). Several of

these plants are California natives, but the very sandy, open habitat is atypical of valley grassland environments.

Nearly all of the remainder of the Project Site consists of roads, residences, tree nurseries, and other high-intensity land uses which are not compatible with the ESA-listed species in the area.

A very small portion of the On-Site Work Area consists of depressional wetland basins and artificial stockponds (most of these features are avoided by the Project). The depressional wetland basins are natural wetland features. They appear to mostly be swales associated with the old stream, which are now hydrologically enhanced by groundwater from the Big Dry Creek Dam, an unlined earthen reservoir (VNLC 2023a). This additional hydrology may allow these basins to support wetland vegetation and wildlife, when normally their highly permeable soils would prevent this. The stockponds are ponds excavated in the uplands to capture stormwater for use by livestock. These two types of aquatic features provide the most obvious special-status species habitat on-site. WSF and CTS both breed in these habitats, and the depressional wetland basins are suitable habitat for VPFS, as discussed in **Section 3.3.1.1.1.4.2**, above.

5.1.1.2 Off-Site Improvements Areas

The Off-Site Improvements Areas consist almost entirely of existing paved roads, or their immediate shoulders in residential neighborhoods. These areas generally do not provide habitat values for ESA-listed species, as described in **Section 3.3.1.1.1.6**, above. ESA-listed species entering these areas are at significant risk of harm from vehicle strikes, humans, domestic animals, and other urban threats. The 750-foot section of E. Behymer Ave. adjacent to the large vacant parcel could be the site of occasional road crossings or other temporary access by listed species, if they occur on that parcel.

5.1.1.3 Areas of Indirect Effects

The areas where the Project is expected to have indirect effects on listed species or their habitats are the depressional wetland basins which are present within 250 feet of the work areas. These consist of the wetlands between the Project Site and the Big Dry Creek Dam, described above, and the depressional wetland basin located within the inholding, described in **Sections 3 and 4**, above. The wetlands between the Project Site and Big Dry Creek Dam have been modified by the construction of the dam, as described above. The wetland within the inholding has been subject to impacts from discing, as well as from construction of the Big Dry Creek Dam Outlet Channel, which interrupted its former hydrologic connectivity.

In summary, the Impact Area has been significantly modified, fragmented, and hydrologically disrupted. However, it still supports remnant habitat values. In some cases, the modifications may have created some listed-species habitat, as in the case of CTS and WSF breeding in the modified depressional wetland basins and stockponds.

5.1.2 Mitigation Site

The proposed Mitigation Site is located on the larger Jamison Ranch. The ranch was purchased by the Jamison family for the purpose of livestock grazing in 2016. The property has apparently been operated solely for livestock grazing going back to the 19th century. There is very little in the way of

human development on the ranch. There is a single developed area on the ranch (but outside the proposed Mitigation Site) consisting of a gravel parking area, a system of corrals, and associated infrastructure (cattle chutes, scales, etc.). The ranch features a limited network of jeep trails, but no graded roads other than a single gravel road providing access to the corrals. The ranch is perimeter-fenced with barbed wire, and cross-fencing divides it into six large pastures, and one smaller "traps" pasture. The proposed Mitigation Site encompasses most of three of the large pastures. The Madera Canal crosses the very northeastern-most tip of the Ranch, outside of the proposed Mitigation Site (VNLC 2021). These features are displayed on **Figure 20**.

In general, the ranch's baseline condition is similar to that of many well-managed central valley cattle ranches. Like nearly all California grasslands, the uplands are dominated by non-native European annual grasses. Some native forbs persist in the grasslands, however, particularly late-season annuals such as tarweeds (VNLC 2021). While many of the grasses that dominate the ranch are considered moderately invasive by the California Invasive Plant Council (Cal-IPC 2023), the ranch is generally free of noxious weeds which are detrimental to livestock ranching.

The vernal pools and swales on the Ranch are an exception to the rule of non-native dominance. They are dominated by California vernal pool endemic species, and host multiple rare vernal pool specialists (as described in **Section 3.3.1.2.1.2**).

While the vast majority of the vernal pools seem entirely natural, 11 features (five of which are in the proposed Mitigation Site) were enhanced at some point in the past. In these locations, existing low spots in the terrain were further excavated and bermed to make small stock ponds or "dirt tanks". The dirt tanks were created to provide additional water for livestock, but their extended ponding also makes them ideal CTS breeding ponds. Because they are smaller than traditional stock ponds (about 0.1 acre each), they always dry by fall, and thus do not host predatory fish or bullfrogs. These characteristics make them a critical part of the site's habitat baseline (VNLC 2021).

5.2 Cumulative Effects

The Proposed Action will result, as an interrelated action, in the annexation of the Vista Ranch Master Plan Area to the City of Clovis. The Master Plan Area is approximately 507 acres, including the approximately 368-acre Project Site as well as approximately 139 acres of other lands (**Figure 26**, and **Figure 3**). These additional lands include six parcels totaling approximately 103 acres located along E. Shepherd Avenue, an approximately 27-acre inholding almost completely surrounded by the Project, and approximately nine acres of roads included in the Off-Site Improvements areas, discussed above. Their habitats and baseline conditions are discussed below for reference.

However, while annexation of these lands into the City of Clovis will occur as part of the Proposed Action, the development of these lands is not a part of the Proposed Action. These properties are owned by separate entities unrelated to the Action Agency or the Applicant, and the Action Agency and the Applicant have no interest in these properties. Development of these properties would be entirely at the discretion of the owners of these properties. It is possible, but is *not reasonably certain*

at this time that the Proposed Action will ultimately facilitate development of these properties. Because future development of these properties is not reasonably certain, potential impacts to listed species and their habitats on these properties as a result of such development are not considered relevant to cumulative effects of the Proposed Action. If these properties are developed in the future, responsibility for impacts to listed species would belong to the developer. Moreover, such activities could be subject to separate future ESA review, under either Section 7 or Section 10, depending on the scope of the activities, and could thus necessitate future federal action—again, per Service guidelines (USFWS 1998), placing them outside the scope of cumulative effects analysis for the Proposed Action).

5.2.1 E. Shepherd Avenue Properties

Six parcels are located within the Vista Ranch Master Plan Area but outside of the Project Site along E. Shepherd Avenue. The westernmost of these parcels is an approximately five-acre lot containing a residence and heavily-grazed animal pasture. This habitat is similar to the low-density residential and disturbed/remnant/ruderal grasslands habitat types described above.

The parcel just east of the main entrance to the Project Site along E. Shepherd Avenue is approximately 26 acres. It also contains a residence on a large lot, surrounded by ruderal grassland.

The two center parcels along E. Shepherd Avenue, totaling approximately 36 acres, are the location of an approved Conditional Use Permit for a mini-storage facility. This area is currently being graded for development (G. Lewis pers. comm.). It presently provides no special-status-species habitat values.

The parcel east of the approved storage facility is approximately 30 acres. It consists of a residence, several outbuildings, and several small horse paddocks. Like the two westernmost parcels, the heavily-grazed horse paddocks provide very limited habitat values, and are subject to significant traffic noise, light pollution, and human visitation.

The easternmost parcel is approximately six acres, and consists of a small vineyard and associated structures, similar in character to the intensive agriculture land use type described above. It does not provide appreciable habitat values for ESA-listed species.

5.2.2 Inholding Property

The inholding property is an approximately 27-acre triangular area, which is bordered to the west and north by the proposed Project Site. To the east, this property is bordered by the Big Dry Creek Dam Outlet Channel, and beyond it, the proposed Project Site. This parcel largely consists of grassland. It also contains one depressional wetland basin in which CTS larvae have been previously observed. (Indirect effects to this feature are described in **Section 6.1.1.2**, below). Its habitat values are otherwise consistent with the annual grassland habitat type described above.

6.0 Effects of the Action

This section analyzes the effects of the Proposed Action and its interrelated and interdependent actions. **Table 13** provides a quantitative analysis of the land cover types in the Project Site, their disposition under the planned Project, and their suitability for/documented occupancy by CTS and VPFS. It also summarizes the area of impacts within the Project Site by suitability/occupancy status for each species. **Table 14** and **Table 15** provide the same analyses for the Off-Site Improvements Areas, and the areas of off-site indirect impacts, respectively. Note that indirect effects which occur from proximity to development, but are within the Project Site, are included in **Table 13**, while **Table 15** presents indirect effects which occur outside of the Project Site. As discussed in **Section 4.2.1**, one occupied CTS breeding pool (which also provides suitable VPFS habitat) straddles the boundary of the Project Site. The on-site acreage of this pool is included in **Table 13**, and the off-site portion is included in **Table 15**.

Table 16 presents the approximate areas of each habitat type present on the entire Jamison Ranch and in the proposed Mitigation Area, as well as the amount of CTS and VPFS habitat present.

Summarized analyses of impacts and preservation by species are provided in the following sections.

Table 13. Project Site Impacts to CTS and VPFS Habitat[1]

Habitat Type	Disposition	CTS Habitat	VPFS Habitat	Area (acres)
Project Site[1]				
Abandoned Dry Creek Channel	Developed	Low Suitability (Upland)	-	14.906
Abandoned Dry Creek Channel	Avoided	Low Suitability (Upland)	-	0.265
Agricultural Tailwater Pond	Avoided	Low Suitability (Breeding)	-	1.129
Canal (Non-Wetland Channel)	Avoided	-	-	0.210
Canal (Wetland Channel & Fringing Margin)	Avoided	-	-	0.553
Depressional Wetland Basin	Avoided	-	Suitable	0.487
Depressional Wetland Basin	Avoided	Occupied (Breeding)	Suitable	0.022
Depressional Wetland Basin	Developed	Suitable (Breeding)	Suitable	0.061
Developed/Roads	Developed	-	-	10.079
Disturbed/Remnant/Ruderal Grassland	Developed	Low Suitability (Upland)	-	102.448
Disturbed/Remnant/Ruderal Grassland	Avoided	Low Suitability (Upland)	-	0.862
Farm Headquarters	Developed	Low Suitability (Upland)	-	17.673
Grassland	Developed	Suitable (Upland)	-	188.375
Grassland	Avoided	Suitable (Upland)	-	15.972

Habitat Type	Disposition	CTS Habitat	VPFS Habitat	Area (acres)
Grassland (possible FGC 1600 Jurisdiction)	Developed	Suitable (Upland)	-	0.130
Grassland (possible FGC 1600 Jurisdiction)	Avoided	Suitable (Upland)	-	1.567
Intensive Agriculture	Developed	-	-	5.683
Low-Density Residential	Developed	-	-	7.099
Stockpond	Developed	Suitable (Breeding)	-	0.044
Stockpond	Developed	Occupied (Breeding)	-	0.390
Stockpond	Avoided	Occupied (Breeding)	-	0.111
Subtotal				**368.066**

Species	Project Site[1] ESA-Listed Species Habitat Subtotals		
CTS	**Suitable (Upland)**	**Direct Impact**	**188.504**
	Suitable (Upland)	**Avoided**	**17.539**
	Low Suitability (Upland)	**Direct Impact**	**135.028**
	Low Suitability (Upland)	**Avoided**	**1.127**
	Occupied (Breeding)	**Direct Impact**	**0.390**
	Occupied (Breeding)	**Indirect Impact**	**0.132**
	Suitable (Breeding)	**Direct Impact**	**0.105**
	Suitable (Breeding)	**Indirect Impact**	**0**
	Low Suitability (Breeding)	**Direct Impact**	**0**
	Low Suitability (Breeding)	**Indirect Impact**	**1.129**
VPFS	**Suitable**	**Direct Impact**	**0.061**
	Suitable	**Indirect Impact**	**0.509**

[1]The area owned or controlled by Wilson Premier Homes, which will be developed into a mixed-use subdivision.

Table 14. Off-Site Improvements Impacts to CTS and VPFS Habitat[2]

Habitat Type	Disposition	CTS Habitat	VPFS Habitat	Area (acres)
Developed/Roads	Developed	-	-	40.736
Disturbed/Remnant/Ruderal Grassland	Developed	Low Suitability (Upland)	-	5.139
Dry Creek Outlet Channel Culvert	Culvert to Remain Undisturbed	-	-	0.136
Farm Headquarters	Developed	Low Suitability (Upland)	-	0.091
Grassland	Developed	Suitable (Upland)	-	1.179
Intensive Agriculture	Developed	-	-	0.783
Low-Density Residential	Developed	-	-	1.879
Subtotal				**49.941**
Species	**Off-Site Improvements Areas[2] ESA-Listed Species Habitat Subtotals**			
CTS	**Suitable (Upland)**	**Direct Impact**		**1.179**
	Low Suitability (Upland)	**Direct Impact**		**5.230**

[2]Areas of Armstrong Avenue, East Behymer Avenue, Fowler Avenue, Perrin Avenue, Locan Avenue, and East Shepherd Avenue outside the Wilson Premier Homes properties, but where Project work may be conducted.

Table 15. Off-Site Indirect Impacts to CTS and VPFS Habitat[3]

Habitat Type	Disposition	CTS Habitat	VPFS Habitat	Area (acres)
Canal (Non-Wetland Channel)	n/a, outside Project Site	-	-	0.296
Canal (Wetland Channel & Fringing Margin)	n/a, outside Project Site	-	-	2.113
Depressional Wetland Basin	n/a, outside Project Site	Occupied (breeding)	Suitable	0.236
Dry Creek Outlet Channel Culvert	n/a, outside Project Site		-	0.021
Subtotal				**2.667**
Species	**Off-Site Indirect Effects Areas[3] ESA-Listed Species Habitat Subtotals**			
CTS	**Occupied (Breeding)**	**Indirect Impact**		**0.236**
VPFS	**Suitable**	**Indirect Impact**		**0.236**

[3]Areas within 250 feet of project-related work areas (includes 250-ft buffer of both on-site and off-site improvements areas).

Table 16. CTS and VPFS Habitat on Jamison Ranch and Proposed Mitigation Site

Habitat Type	Overall Ranch Area (acres)	Proposed Mitigation Site (acres)
Annual Grassland (CTS Upland Habitat)	1787.3	795.4
Documented CTS Breeding Pool (documented or presumed VPFS habitat)	3.9	3.2
Other Vernal Pool or Swale (documented or presumed VPFS habitat)[4]	122.5	55.8
North Fork Little Dry Creek (not CTS habitat)[5]	2.7	1.3
Other Ephemeral Drainage (not CTS habitat)	3.6	1.3
Total CTS Habitat	1913.7	854.4
Total VPFS Habitat	124.3	59
Total Area	**1920**	**857**

[4]Comprehensive wetland mapping has not been conducted. Area of vernal pools and swales is estimated via a scaled estimate based on 20% of the ranch which has been mapped. All documented CTS habitat has been accurately mapped.

[5]CTS larvae have been repeatedly documented in North Fork Little Dry Creek. However, based on discussions with CDFW, this habitat is not treated as CTS breeding habitat for the purpose of this analysis. Linear footage of North Fork Little Cry Creek is 12,166ft total, 11,442ft in Proposed Preserve.

6.1 ESA-Listed Species

6.1.1 Potential Effects on California Tiger Salamander

Table 17 summarizes all impacts to (and avoidance of) CTS habitat in the Impact Area, including on-site, off-site, and indirect impacts. Under the Proposed Action, compensatory mitigation for impacts to occupied or suitable CTS habitat would be provided at a ratio of three acres of preserved habitat at the Mitigation Site for every one acre of direct or indirect impact in the Impact Area. Impacts to low-suitability CTS habitat would be mitigated at a ratio of two-to-one. **Table 18** summarizes the impact and mitigation acreage and ratios.

Specific causes of direct and indirect impacts are described below, along with descriptions of the effects of avoidance, minimization, and mitigation measures.

Table 17. Summary of All Impacts to CTS Habitat

Habitat Class	Disposition	Area (acres)
Suitable (Upland)	Direct Impact	189.683
Suitable (Upland)	Avoided	17.539
Low Suitability (Upland)	Direct Impact	140.257
Low Suitability (Upland)	Avoided	1.127
Occupied (Breeding)	Direct Impact	0.390
Occupied (Breeding)	Indirect Impact	0.369
Suitable (Breeding)	Direct Impact	0.105
Low Suitability (Breeding)	Indirect Impact	1.129
Subtotals by Habitat Suitability		
All Occupied/Suitable Habitat	**Direct or Indirect Impact**	**190.547**
All Occupied/Suitable Habitat	**Avoided**	**17.539**
All Low-Suitability Habitat	**Direct or Indirect Impact**	**141.386**
All Low-Suitability Habitat	**Avoided**	**1.127**
Impact Area Total		**350.599**

Table 18. Summary of CTS Impacts, Mitigation, and Mitigation Ratios

	CTS Occupied/ Suitable Habitat (acres)	CTS Low-Suitability Habitat (acres)	Subtotal (acres)
Area Impacted	190.547	141.386	331.93
Proposed Mitigation Ratio	3:1	2:1	-
Proposed Mitigation Amount	571.641	282.772	854.413
Amount on Proposed Mitigation Site	854.4	-	854.4
Achieved Mitigation Ratio	**3:1**	**2:1**	**2.57:1**

6.1.1.1 Direct Effects

The Project will fill 0.390 acre of documented CTS breeding habitat, and 0.105 acre of suitable breeding habitat. The Project will also convert approximately 189.7 acres of presumed-occupied CTS upland habitat, as well as approximately 140.3 acres of low-suitability upland habitat (**Figure 27**). This destruction of habitat represents a direct adverse effect.

6.1.1.2 Indirect Effects

Three documented CTS breeding pools (totaling 0.369 acre) in the Impact Area will be avoided by the Project and will not be filled. However, two of these (totaling 0.127 acre) will be surrounded by development, with development activities taking place as near as 25 feet from the features. The remnant habitat patches containing these pools will range in size from approximately 0.5 acre to approximately 27 acres. The other feature (0.241 acre) straddles the Project Site boundary. It will be avoided by Project development, and the portion of it within Vista Ranch property will not be directly impacted. Following development of the Project, it will be located along the northeast edge of the Project Site. It will exist in a strip of open land approximately 250 feet wide for most of its length

between the development and Big Dry Creek Dam. The development will be as near as 25 feet from the end of the feature within the Project Site. The current neighboring habitat consisting of annual grassland will be replaced by mixed-use development.

One pond with low suitability for CTS breeding (1.129 acre) will also be surrounded on two out of three sides by development, with development activities taking place as near as 25 feet. Post-construction, it will exist in an approximately two-acre triangle of land between the development and the Big Dry Creek Dam Outlet Channel, with the above-mentioned 27-acre undeveloped grassland parcel lying beyond the canal.

CTS depend on the ability to migrate between their breeding pools and the large areas of open grassland where the adults spend most of their lives. The development will interrupt that migration, reducing the ability of new metamorphs to reach shelter and food, and the ability of existing adults to find their way back to the ponds to breed.

The conversion of the existing grassland to developed area may modify the pools' watersheds or spillways by increasing the amount of impervious surface and redirecting storm runoff. The pools could be subject to introduction of exotic species from the development. The pools could also receive reduced seed and pollen input for native plants due to the reduction of nearby buffer lands. They may also be subject to increased human visitation. These changes represent a permanent, indirect, adverse effect on this habitat.

6.1.1.3 Avoidance and Minimization Measures

In order to avoid and/or minimize negative effects to CTS and its habitat, various take avoidance and habitat preservation measures will be implemented, as described above in Section **3.2.1.3.1**. Implementation of stormwater BMPs under the required SWPPP will reduce the risk of construction runoff impacting the features. Construction barriers and worker training will reduce the risk of unintended entry into and direct impacts to avoided habitats from construction activities. Relocation of adult CTS according to an approved plan will provide an opportunity to salvage some of the existing population's members and genetic diversity, and wildlife exclusion barriers will reduce mortality from animals re-entering the active work area. Speed limits, pipe-capping and trench-covering will reduce mortality of CTS caught within the work area, and trash control will reduce the risk of predators of CTS being attracted to the work site and preying on exposed animals. Avoidance of hazardous materials such as monofilament mesh and pesticides in the work area will further reduce the risk of unintentional take. Monitoring by qualified biologists will help ensure the above measures are adhered to, and provide additional opportunities for take avoidance and salvage.

Following project development, fencing and sensitive resource signage will reduce the severity of indirect impacts to avoided pools from increased human visitation post-construction.

6.1.1.4 Preservation of California Tiger Salamander Habitat

The preservation of the Mitigation Site on the Jamison Ranch will ensure the long-term protection of approximately 3.2 acres of documented CTS breeding habitat and 851.2 acres of occupied CTS upland habitat in an area targeted for conservation. Implementation and funding of a management

and monitoring plan will ensure that the habitat is subject to scientific monitoring and habitat management for the benefit of the species. Preservation of habitat in a large block, connected with other open lands and preserves, provides an opportunity for this wide-ranging species to maintain healthy population sizes and genetic diversity.

6.1.1.5 Conclusion - Effects of Action on California Tiger Salamander

The Project will directly fill 0.495 acre of documented or potential CTS breeding habitat. It will cause negative indirect effects to a further 0.369 acre of documented CTS breeding habitat and 1.129 acre of low-suitability CTS breeding habitat. The Project will also destroy approximately 190 acres of presumed-occupied CTS upland habitat, and approximately 140 acres of low-suitability CTS upland habitat. Based on this, the Project **may affect** and is **likely to adversely affect** California tiger salamander. However, the Project incorporates avoidance and minimization measures to reduce the severity of impacts. It also preserves occupied or suitable CTS habitat at a ratio of three acres of preserved habitat for one acre of impacted occupied or suitable habitat, and two acres of preserved habitat for one acre of impacted low-suitability habitat. Based on this, the Project avoids, minimizes, and/or mitigates adverse effects and **contributes to the survival and recovery of this species**.

6.1.2 Potential Effects on Vernal Pool Fairy Shrimp

Table 19 summarizes all impacts to (and avoidance of) VPFS habitat in the Impact Area, including on-site, off-site, and indirect impacts. A mitigation ratio of three acres of preserved VPFS habitat for every one acre of direct or indirect impact to VPFS habitat is standard for projects and impacts of this type. However, due to the very high relative cover of VPFS habitat at the Mitigation Site compared to the Impact Area, and the need to provide sufficient mitigation for impacts to CTS, the Proposed Action would actually result in an approximately 73-to-one mitigation ratio. **Table 20** summarizes the impact and mitigation acreage and ratios.

Table 19. Summary of All Impacts to VPFS Habitat

Habitat Class	Disposition	Area (acres)
Suitable	**Direct Impact**	**0.061**
Suitable	**Indirect Impact**	**0.745**
Total		**0.806**

Table 20. Summary of VPFS Impacts, Mitigation, and Mitigation Ratios

	VPFS Suitable Habitat
Directly Impacted	0.061
Indirectly Impacted	0.745
Impact Area Subtotal	0.806
Proposed Mitigation Ratio	3:1
Proposed Mitigation Amount	2.419
Amount on Proposed Mitigation Site	59
Actual Mitigation Ratio	**73.18:1**

Specific causes of direct and indirect impacts are described below, along with descriptions of the effects of avoidance, minimization, and mitigation measures.

6.1.2.1 Direct Effects

Twenty-three features (totaling 0.806 acre) in the Impact Area provide potentially suitable habitat for VPFS. Two of these features, totaling 0.061 acre, will be filled by the Project (**Figure 28**). This destruction of habitat represents a direct adverse effect.

6.1.2.2 Indirect Effects

Of the 21 features in the Impact Area which will not be filled, four features (totaling 0.076 acres) will be completely surrounded by development, with development activities taking place as near as 25 feet from the features. The remnant habitat patches containing these pools will range in size from approximately 0.5 acre to approximately 27 acres. The other 17 features will be located along the northeast edge of the Project Site after development. They will exist in a strip of open land that is 250 feet wide for most of its length, between the development and Big Dry Creek Dam. The development will be as near as 25 feet from the features. The current neighboring habitat consisting of annual grassland will be replaced by mixed-use development.

The conversion of the existing grassland to developed area may modify the pools' watersheds or spillways by increasing the amount of impervious surface and redirecting storm runoff. The pools could be subject to introduction of exotic species from the development. The pools could also receive reduced seed and pollen input for native plants due to the reduction of nearby buffer lands. They may also be subject to increased human visitation. These changes represent a permanent, indirect, adverse effect on this habitat.

6.1.2.3 Avoidance and Minimization Measures

In order to avoid and/or minimize negative effects to VPFS and its habitat, various take avoidance and habitat preservation measures will be implemented, as described above in Section **3.2.1.3.1**. Implementation of stormwater BMPs under the required SWPPP will reduce the risk of construction runoff impacting the features. Construction barriers and worker training will reduce the risk of unintended entry into and direct impacts to avoided habitats from construction activities. Avoidance of hazardous materials such as pesticides in the work area will reduce the risk of these materials entering the habitat. Monitoring by qualified biologists will help ensure the above measures are adhered to.

Following project development, fencing and sensitive resource signage will reduce the severity of indirect impacts to avoided pools from increased human visitation post-construction.

6.1.2.4 Preservation of Vernal Pool Fairy Shrimp Habitat

The preservation of the Mitigation Site on the Jamison Ranch will ensure the long-term protection of approximately 59 acres of occupied or suitable VPFS habitat. This habitat is high-quality natural habitat in an area targeted for conservation. Implementation and funding of a management and monitoring plan will ensure that the habitat is subject to scientific monitoring and habitat management for the benefit of the species.

6.1.2.5 Conclusion - Effects of Action on Vernal Pool Fairy Shrimp

The Project will directly fill 0.061 acre of presumed VPFS habitat. The Project will cause indirect adverse effects to 0.745 acre of presumed VPFS habitat. Based on this, the Project **may affect** and is **likely to adversely affect** vernal pool fairy shrimp. However, based on the avoidance and minimization measures taken to reduce the severity of impacts, and the preservation of occupied or suitable VPFS habitat at the extremely generous ratio of approximately 73 acres of preservation per one acre of impact, the Project avoids, minimizes, and/or mitigates adverse effects and **contributes to the survival and recovery of this species**.

6.1.3 Potential Effects on Western Spadefoot

Because of WSF's habits—including spending most of its life underground and emerging only nocturnally—the number of WSF individuals potentially affected is difficult to accurately determine. For the purpose of analyzing impacts and determining appropriate mitigation, acres of habitat are used as a proxy for the amount of take. **Table 21** summarizes all impacts to (and avoidance of) WSF habitat in the Impact Area, including on-site direct impacts, off-site direct impacts, and indirect impacts. Under the Proposed Action, compensatory mitigation for direct impacts (i.e. habitat conversion by development) to occupied or suitable WSF habitat would be provided at a ratio of three acres of preserved habitat at the proposed preserve for every one acre of conversion in the Impact Area. Direct impacts to low-suitability WSF habitat would be mitigated at a ratio of two-to-one. Indirect impacts to occupied or suitable WSF habitat would be mitigated at a ratio of 1:1, and indirect impacts would be mitigated at a ratio of 0.67:1. **Table 22** summarizes the impact and mitigation acreage and ratios.

Specific causes of direct and indirect impacts are described below, along with descriptions of the effects of avoidance, minimization, and mitigation measures.

Table 21. Summary of All Impacts to Western Spadefoot Habitat

Habitat Class	Disposition	Area (acres)
Suitable (Upland)	Direct Impact	188.504
Habitat Class	**Disposition**	**Area (acres)**
Suitable (Upland)	Avoided	17.539
Low Suitability (Upland)	Direct Impact	135.027
Low Suitability (Upland)	Avoided	1.127
Occupied (Breeding)	Avoided	0.632
Suitable (Breeding)	Direct Impact	0.495
Suitable (Breeding)	Avoided	0.224
Low Suitability (Breeding)	Avoided/Modified	1.129
Subtotals by Habitat Suitability		
All Occupied/Suitable Habitat	**Direct Impact**	**188.999**
All Occupied/Suitable Habitat	**Avoided**	**18.395**
All Low-Suitability Habitat	**Direct Impact**	**135.027**
All Low-Suitability Habitat	**Avoided/Modified**	**2.256**
Impact Area Total		**344.677**

Table 22. Summary of Western Spadefoot Impacts, Mitigation, and Mitigation Ratios

	WSF Occupied/ Suitable Habitat (acres)	WSF Low-Suitability Habitat (acres)	Subtotal (acres)
Area Directly Impacted	188.999	135.027	324.026
Direct Impact Mitigation Ratio	3:1	2:1	-
Direct Impact Mitigation Amount	566.997	270.054	837.051
Area Indirectly Impacted	18.395	2.256	20.651
Indirect Impact Mitigation Ratio	1:1	0.67:1	-
Indirect Impact Mitigation Amount	18.395	1.512	19.907
Total Mitigation Acreage (all habitats/impacts)			**857**

6.1.3.1 Direct Effects

While AMMs have been incorporated to reduce the risks of Project construction, the Project may result in direct mortality of WSF individuals through vehicle strikes, crushing/entombment of animals in burrows, or other construction-related injury or mortality. The Project will fill 0.495 acre of suitable breeding habitat and convert approximately 189.7 acres of presumed-occupied WSF upland habitat, as well as approximately 140.3 acres of low-suitability upland habitat (**Figure 29**). These are direct adverse effects.

6.1.3.2 Indirect Effects

Eighteen documented WSF breeding pools (totaling 0.632 acre) in the Impact Area will be avoided by the Project and will not be filled. Two of these documented breeding pools (totaling 0.034 acre) will be surrounded by development, with development activities taking place as near as 25 feet from the features. The remnant habitat patches containing these pools will range in size from approximately 0.5 acre to approximately 27 acres. The other documented breeding pools (totaling 0.598 acre, including off-site portions of a pool which straddles the Project Site boundary) will be avoided by Project development. Following development of the Project, they will be located along the northeast edge of the Project Site. These pools will exist in a strip of open land approximately 250 feet wide for most of its length between the development and Big Dry Creek Dam. The development will be as near as 25 feet from the pools. The current neighboring habitat southwest of the pools, consisting of annual grassland, will be replaced by mixed-use development.

One pond with low suitability for WSF breeding (the agricultural tailwater pond, 1.129 acre) will also be surrounded on two out of three sides by development, with development activities taking place as near as 25 feet. Post-construction, it will exist in an approximately two-acre triangle of land between the development and the Big Dry Creek Dam spillway canal, with the above- mentioned 27-acre undeveloped grassland parcel lying beyond the canal. This pond will also be subject to hydrologic modification, including input of treated runoff from developed areas, resulting in increased duration and regularity of its hydroperiod.

The conversion of the existing grassland to developed area may modify the breeding pools' watersheds or spillways by increasing the amount of impervious surface and redirecting storm runoff. The avoided areas could be subject to introduction of exotic species from the development and could receive reduced seed and pollen input for native plants due to the reduction of nearby buffer lands. They may also be subject to increased human visitation.

Animals in the avoided areas may be subject to increased risk of harm from these indirect effects on their habitat. WSF depend on the ability to migrate between their breeding pools and the upland habitats where adults shelter and forage. The development will reduce the amount of foraging and sheltering habitat available, and interfere with the ability of WSF to move to and from breeding pools. Animals entering the adjacent development may also be at increased risk of harm from humans, pets, vehicles, exposure to chemicals, and other anthropogenic factors.

These changes represent a permanent, indirect, adverse effect on the avoided habitat and the WSF population remaining in it.

6.1.3.3 Avoidance and Minimization Measures

In order to avoid and/or minimize negative effects to WSF and its habitat, various take avoidance and habitat preservation measures will be implemented, as described above. Implementation of stormwater Best Management Practices (BMPs) under the required Stormwater Pollution Prevention Plan (SWPPP) will reduce the risk of construction runoff impacting the features. Construction barriers and worker training will reduce the risk of unintended entry into and direct impacts to avoided habitats from construction activities. Relocation of adult WSF according to an approved plan will provide an opportunity to salvage some of the existing population's members and genetic diversity, and wildlife exclusion barriers will reduce mortality from animals re- entering the active work area. Speed limits, pipe-capping and trench-covering will reduce mortality of WSF caught within the work area, and trash control will reduce the risk of predators of WSF being attracted to the work site and preying on exposed animals. Avoidance of hazardous materials such as monofilament mesh and pesticides in the work area will further reduce the risk of unintentional take. Monitoring by qualified biologists will help ensure the above measures are adhered to and provide additional opportunities for take avoidance and salvage.

Following project development, fencing and sensitive resource signage will reduce the severity of indirect impacts to avoided pools from increased human visitation post-construction. The addition of stormwater treatment and redirection into avoided wetlands, combined with the recording of a conservation easement over the avoided areas, will further reduce indirect impacts to the avoided habitats.

6.1.3.4 Preservation of Western Spadefoot Habitat

The protection of the proposed preserve on the Jamison Ranch will ensure the long-term preservation of approximately 4.4 acres of documented WSF breeding habitat, approximately 47.1 acres of potential WSF breeding habitat, and 804.5 acres of occupied WSF upland habitat in an area targeted for conservation. Implementation and funding of a management and monitoring plan will ensure that

the habitat is subject to scientific monitoring and habitat management for the benefit of the species. Preservation of habitat in a large block, connected with other open lands and preserves, provides an opportunity for this wide-ranging species to maintain healthy population sizes and genetic diversity. See the Compensatory Mitigation Plan & Mitigation Climate Change Analysis for additional discussion of this preservation (RCEC 2024).

6.1.3.5 Conclusion - Effects of Action on Western Spadefoot

The Project will directly fill 0.495 acre of suitable WSF breeding habitat. It will cause negative indirect effects to a further 0.632 acre of documented WSF breeding habitat and 1.129 acre of low-suitability WSF breeding habitat. The Project will also destroy approximately 190 acres of presumed-occupied WSF upland habitat, and approximately 140 acres of low-suitability WSF upland habitat. Based on this, the Project **may affect** and is **likely to adversely affect** western spadefoot. However, the Project incorporates AMMs to reduce the severity of impacts. It also preserves occupied or suitable WSF habitat at a ratio of three acres of preserved habitat for one acre of impacted occupied or suitable habitat, and two acres of preserved habitat for one acre of impacted low-suitability habitat. Based on this, the Project avoids, minimizes, and/or mitigates adverse effects and **contributes to the survival and recovery of this species**.

6.1.4 Potential Effects on Northwestern Pond Turtle

The Project Site and Property provide only limited and transient NPT habitat, and do not apparently support populations of NPT. NPT is relatively visible during most of its lifecycle, and so direct effects on individuals are more detectable than for secretive or cryptic species such as WSF, CTS, and VPFS. Effects on habitat are summarized in **Table 23**, below, but the analysis of effects on NPT does not use acres as a proxy for individuals, since the habitat appears unoccupied. Specific causes of direct and indirect impacts are described below, along with descriptions of the effects of avoidance, minimization, and mitigation measures.

Table 23. Summary of All Impacts to Northwestern Pond Turtle Habitat

Habitat Class	Disposition	Area (acres)
Potential Terrestrial Habitat	Direct Impact	323.531
Potential Terrestrial Habitat	Avoided	18.666
Low Suitability Aquatic Habitat	Direct Impact	0.435
Low Suitability Aquatic Habitat	Avoided	1.091
Low Suitability Aquatic Habitat	Enhanced	1.129
Total Area		**344.852**

6.1.4.1 Direct Effects

While AMMs have been incorporated to reduce the risks of Project construction, the Project may result in direct mortality of transient NPT individuals through vehicle strikes, entrapment, harassment, or other construction-related mortality. If it occurred, this would be a direct adverse effect.

The only large and constant populations of NPT documented in the region are distant and separated from the Project Site by many miles of urban and agricultural development. These population centers will not be affected by the Proposed Action. The number of individuals which might move through the Action Area is expected to be low. The rarity of sightings in the vicinity makes a precise prediction impossible, but we estimate that two or fewer individual NPT are likely to be encountered during Project development.

6.1.4.2 Indirect Effects

The Project will fill 0.435 acre of low-suitability aquatic habitat. The Project will also convert approximately 323.531 acres of upland habitat, through which NPT could potentially move (**Figure 30**). Three low-suitability aquatic habitats in and adjacent to the Project Site (one stock pond, the agricultural tailwater pond, and the outlet channel, totaling 3.203 acre) will be avoided by the Project and will not be filled. These features will be partially surrounded by development, with development activities taking place as near as 25 feet. These features will remain accessible from off-site, but the ability of NPT to move to and from these habitats will be reduced.

The conversion of the existing uplands to developed area may modify avoided features' watersheds or spillways by increasing the amount of impervious surface and redirecting storm runoff. The ponds could be subject to introduction of exotic species from the development and receive reduced seed and pollen input for native plants due to the reduction of nearby buffer lands. They may also be subject to increased human visitation.

NPT entering the avoided areas in the future may be subject to increased risk of harm from these indirect effects on their habitat. NPT attempting to cross through the developed area may be at increased risk of harm from humans, pets, vehicles, exposure to chemicals, and other anthropogenic factors. These potential impacts represent a permanent, indirect, adverse effect on this habitat.

6.1.4.3 Avoidance and Minimization Measures

In order to avoid and/or minimize negative effects to NPT and its habitat, various take avoidance and habitat preservation measures will be implemented, as described above, and in Section

3.2.1.3.1 of the BA. Implementation of stormwater Best Management Practices (BMPs) under the required Stormwater Pollution Prevention Plan (SWPPP) will reduce the risk of construction runoff impacting the features. Construction barriers and worker training will reduce the risk of unintended entry into and direct impacts to avoided habitats from construction activities. Relocation of NPT according to an approved plan will provide an opportunity to salvage some of the existing population's members and genetic diversity, and wildlife exclusion barriers will reduce mortality from animals re-entering the active work area. Speed limits and trench-covering will reduce mortality of NPT caught within the work area, and trash control will reduce the risk of predators of NPT being attracted to the work site and preying on exposed animals. Avoidance of hazardous materials such as monofilament mesh and pesticides in the work area will further reduce the risk of unintentional take. Monitoring by qualified biologists will help ensure the above measures are adhered to and provide additional opportunities for take avoidance and salvage.

Following project development, fencing and sensitive resource signage will reduce the severity of indirect impacts to avoided habitats from increased human visitation post-construction. The addition of stormwater treatment and redirection into avoided wetlands, combined with the recording of a conservation easement over the avoided areas, will further reduce indirect impacts to the avoided habitats.

6.1.4.4 Preservation and Enhancement of Northwestern Pond Turtle Habitat

The agricultural tailwater pond, adjacent to the Outlet Channel, will be modified as part of the Project, as described above. Its current hydrology is very irregular, because it is primarily filled by dam releases from Big Dry Creek Dam. These releases occur sporadically based on rainfall and the assessed capacity of the dam. After project implementation, the pond will receive treated stormwater flows from the community, which are more regular and predictable. The Project Proponent is seeking to create a more stable hydroperiod and habitat in the pond, both to enhance its aquatic resource values and to make it a more beautiful feature adjacent to the community. (Note that this enhancement is not intended to provide compensatory mitigation for impacts to jurisdictional aquatic resources). This change, while not conducted for the purpose of NPT habitat enhancement, will nonetheless make the pond more suitable for use by NPT. The Outlet Channel is the most likely movement path from the known occurrence south of the Project Site to Big Dry Creek Reservoir and open lands to the north. If NPT do move along the channel, the avoided and enhanced pond will provide potential habitat along the route.

The protection of the proposed preserve on the Jamison Ranch will ensure the long-term preservation of approximately 857 acres within NPT's historical range. This habitat may not currently be occupied by NPT but may become occupied in the future if habitat enhancements and/or reintroductions are conducted n the proposed preserve or nearby lands. Such enhancements and/or reintroductions are not currently planned. However, protection of the proposed preserve preserves the opportunity for future re-occupation of this habitat.

6.1.4.5 Conclusion - Effects of Action on Northwestern Pond Turtle

Habitat on the Project Site appears unoccupied and provides only limited and transient habitat values for NPT. Loss of this habitat is unlikely to cause significant effects on NPT populations. Direct mortality of transient NPT crossing the Project Site is unlikely, but the possibility should not be discounted. This possibility means that the Project **may affect** and is **likely to adversely affect** northwestern pond turtle. However, the Project incorporates AMMs to reduce the likelihood of mortality of NPT. Based on this, the Project avoids, minimizes, and/or mitigates adverse effects to NPT. The estimated impact to two or fewer individual NPT will not significantly affect populations of this species.

6.1.5 Other ESA-Listed Species with Potential to Occur

Succulent owl's-clover has a low potential to occur in the Impact Area. Because of this, the risk of take of this species is **discountable**. Moreover, if the species did occur, it would likely be at very low numbers, and thus, any take caused by the Project would be **insignificant**. Succulent owl's-

clover does occur in nine vernal pools totaling 0.59 acre on the proposed Mitigation Site. Preservation of this population, and the funding of its monitoring and management, will provide a net **beneficial effect** over the long term.

San Joaquin Valley Orcutt grass, Hairy Orcutt grass, and Greene's tuctoria have a low potential to occur in the Impact Area. Because of this, the risk of take of these species is **discountable**. Moreover, if these species did occur, it would likely be at very low numbers, and thus, any take caused by the Project would be **insignificant**. These species have not been observed at the Mitigation Site, but do have potential to occur there. The Proposed Action may therefore have **insignificant effects**, **discountable effects**, or **beneficial effects** on these species.

Neither the Impact Area nor the Mitigation Site provide nesting habitat for California Condor. While this species may range widely, it has not been observed in the vicinity of either site. The Proposed Action would not eliminate any currently-used foraging area, nor any potential nesting area. Because of the lack of Condor sightings in the vicinity, the risk of take of individual birds is **discountable**.

For the reasons described above, the Proposed Action **may affect, but is not likely to adversely affect** the species described in this section.

6.1.6 Other ESA-Listed Species with Low Potential to Occur

California jewelflower, Hartweg's golden sunburst, San Joaquin adobe sunburst, monarch butterfly, vernal pool tadpole shrimp, Fresno kangaroo rat, San Joaquin kit fox, and blunt-nosed leopard lizard all have low potential to occur in the Action Area. Of these, Fresno kangaroo rat and blunt-nosed leopard lizard are not expected to occur in the Impact Area, only at the Mitigation Site.

The likelihood of encountering any of these species in the Impact Area is very low. Similarly, the impacted habitats do not provide significant habitat values for these species. Therefore, the risk of take of these species is **discountable**. Moreover, if these species did occur, it would likely be at very low numbers, and thus, any take caused by the Project would be **insignificant**. For Fresno kangaroo rat and blunt-nosed leopard lizard, which have potential to occur only at the Mitigation Site, any possible effects of the Proposed Action would be **beneficial**. For these reasons, the Proposed Action **may affect, but is not likely to adversely affect** these species.

6.1.7 ESA-Listed Species Not Expected to Occur

USACE has determined that seven listed species which appeared in the literature search are not expected to occur in the Action Area due to a lack of suitable habitat and/or range restrictions. These species are foothill yellow-legged frog, California red-legged frog, Yellow-Billed Cuckoo, Least Bell's Vireo, Valley elderberry longhorn beetle, Conservancy fairy shrimp, and giant garter snake. The Proposed Action will have **no effect** on these species.

6.1.8 Other Special-Status Species

In addition to ESA-listed species, multiple species which are not ESA-listed appeared in the literature search, and are analyzed here. The ESA and Section 7 consultation do not apply to these species. However, some Action Agencies require the analysis of other special-status species, so they have

been included for completeness. Potential impacts to these species will be further addressed in the CEQA document prepared for the Project. Any avoidance, minimization, and mitigation measures determined to be appropriate during the CEQA analysis will be included in the Project.

Twenty-seven special-status species (not ESA-listed) appeared in the literature search, but are not expected to occur in the Action Area due to range restrictions or lack of appropriate habitat. These are tree-anemone, Hoover's cryptantha, streambank spring beauty, King's River monkeyflower, small-flowered monkeyflower, Sierra Nevada monkeyflower, California satintail, Madera leptosiphon, orange lupine, Arizona pholistoma, Hall's wyethia, Double-crested Cormorant, Osprey, Yellow-headed Blackbird, Yellow Warbler, Black-crowned Night Heron, hardhead, Sacramento hitch, Hurd's metapogon robber fly, Table Mountain harvestman, western pearlshell, western ridged mussel, spotted bat, North American porcupine, Northern California ringtail, San Joaquin pocket mouse, and California glossy snake. These Proposed Action will have **no effect** on these species.

Nine special-status species have low potential to occur in both the Impact Area and Mitigation Site, due to limited habitat suitability and distance to known occurrences. These are brassy bryum, Hoover's calycadenia, bristly sedge, hoary navarretia, pincushion navarretia, Bald Eagle, western mastiff bat, hoary bat, and Northern California legless lizard. These species have a low likelihood of being encountered so the Proposed Action **may affect, but is not likely to adversely affect** these species.

Six special-status species occur, or have potential to occur on the Mitigation Site, and have a low potential to occur in the Impact Area due to limited habitat suitability and/or distance to recent documented occurrences. These species are dwarf downingia, Sanford's arrowhead, hogwallow starfish, adobe navarretia, Prairie Falcon, and Ferruginous Hawk. The preservation of the Mitigation Site may benefit these species, but they have a low likelihood of being encountered so the Proposed Action **may affect, but is not likely to adversely affect** these species.

Six special-status species have a low potential to occur in the Impact Area due to limited habitat suitability and/or distance to recent documented occurrences, and also have a low potential, or are not expected, to occur on the Mitigation Site. These species are wine-colored tufa moss, Snowy Egret, western red bat, Townsend's big-eared bat, San Joaquin long-tailed weasel, and Yuma myotis. They have a low likelihood of being encountered so the Proposed Action **may affect, but is not likely to adversely affect** these species.

Seven special-status species are known to occur on the Mitigation Site, and have potential to occur in the Impact Area. These species are Golden Eagle, Swainson's Hawk, Burrowing Owl, California Horned Lark, California linderiella, midvalley fairy shrimp, and American badger. The preservation of occupied habitat for these species will have a beneficial effect on them. The CEQA document for the Project will analyze these species potential occurrence in the Impact Area and determine appropriate avoidance, minimization, and/or mitigation for these species to ensure that the Proposed Action does not adversely affect them.

Eight special-status species have potential to occur in both the Impact Area and the Mitigation Site. These species are Ewan's larkspur, spiny-sepaled button-celery, forked hare-leaf, Loggerhead Shrike, Tricolored Blackbird, Great Blue Heron, Crotch bumble bee, and Molestan blister beetle. The preservation of potential habitat for these species may have a beneficial effect on them. The CEQA document for the Project will analyze these species potential occurrence in the Impact Area and determine appropriate avoidance, minimization, and/or mitigation for these species to ensure that the Proposed Action does not adversely affect them.

Three special-status species have potential to occur in the Impact Area, but have a low potential, or are not expected, to occur on the Mitigation Site due to limited habitat suitability and/or distance to recent documented occurrences. These species are coast horned lizard, Antioch efferian robber fly, and pallid bat. The CEQA document for the Project will analyze these species potential occurrence in the Impact Area and determine appropriate avoidance, minimization, and/or mitigation for these species to ensure that the Proposed Action does not adversely affect them.

One special-status species (Cooper's Hawk) has been documented to use the Impact Area, but has a low probability of using the Mitigation Site. While this species has been observed in the Impact Area, it is unlikely to make significant use of the Project Site due to low-suitability habitat. The CEQA document for the Project will analyze this species potential occurrence in the Impact Area and determine appropriate avoidance, minimization, and/or mitigation for this species to ensure that the Proposed Action does not adversely affect it.

6.2 Designated Critical Habitat

No Designated Critical Habitat exists within the Impact Area.

6.2.1 VPFS Critical Habitat Unit VERFS24A

The proposed Mitigation Site is entirely within VPFS Critical Habitat Unit VERFS24A (**Figure 11**). As described in the *Designation of Critical Habitat for Four Vernal Pool Crustaceans and Eleven Vernal Pool Plants; Final Rule* (USFWS 2005), the Primary Constituent Elements (PCEs) of critical habitat for vernal pool fairy shrimp are:

> (i) Topographic features characterized by mounds and swales and depressions within a matrix of surrounding uplands that result in complexes of continuously, or intermittently, flowing surface water in the swales connecting the pools…providing for dispersal and promoting hydroperiods of adequate length in the pools;
>
> (ii) Depressional features including isolated vernal pools with underlying restrictive soil layers that become inundated during winter rains and that continuously hold water for a minimum of 18 days, in all but the driest years; thereby providing adequate water for incubation, maturation, and reproduction. As these features are inundated on a seasonal basis, they do not promote the development of obligate wetland vegetation habitats typical of permanently flooded emergent wetlands;

> (iii) Sources of food, expected to be detritus occurring in the pools, contributed by overland flow from the pools' watershed, or the results of biological processes within the pools themselves, such as single-celled bacteria, algae, and dead organic matter, to provide for feeding; and
>
> (iv) Structure within the pools described above…consisting of organic and inorganic materials, such as living and dead plants from plant species adapted to seasonally inundated environments, rocks, and other inorganic debris that may be washed, blown, or otherwise transported into the pools, that provide shelter.

The proposed Mitigation Site possesses all of these PCEs. Preservation of the Mitigation Site will protect these PCEs by preventing conversion of the habitat, and requiring monitoring and management for the benefit of the species. Therefore, the Proposed Action is **Not Likely to Destroy or Adversely Modify** this unit of Designated Critical Habitat.

No other Designated Critical Habitat is present in the Action Area.

6.3 Analysis of Alternate Actions

The Proposed Action is not anticipated to require an Environmental Impact Statement (EIS). Therefore, a formal Alternatives Analysis has not been prepared for this document.

While no Alternatives Analysis has been prepared, The Applicant did undergo an informal consultation process with USACE and the Applicant's own consultants to minimize the impacts of the Proposed Action on listed species and potential jurisdictional waters of the United States. This resulted in project re-designs to avoid 21 of the 24 pools which provide special-status species habitat, and the creation of the buffer (250 feet wide for most of its length) which protects 17 of those pools in a unified strip of land, allowing ongoing habitat connectivity between them.

7.0 Other Relevant Information

Relevant reports, memoranda, and other documents describing the Project Site, the Mitigation Site, and the proposed Project are attached, as described in **Section 9.0**.

8.0 Conclusion

In conclusion, USACE has determined that the following species are not present in the Action Area due to lack of suitable habitat or range limitations, and therefore the Proposed Action will have **no effect** on them: foothill yellow-legged frog, California red-legged frog, Yellow-Billed Cuckoo, Least Bell's Vireo, Valley elderberry longhorn beetle, Conservancy fairy shrimp, and giant garter snake.

For some of the species analyzed in this BA, limited potential habitat may exist in Action Area, but the species has not been detected and is not expected to occur due to limited potential habitat and distance to nearest recent sightings. Because of this, adverse effects are not expected for these species. USACE has accordingly determined that the Proposed Action **may affect, but is not likely to adversely affect** such species, which are: Hartweg's golden sunburst, San Joaquin adobe sunburst,

monarch butterfly, vernal pool tadpole shrimp, Fresno kangaroo rat, San Joaquin kit fox, and blunt-nosed leopard lizard.

Succulent owl's-clover is abundant at the Mitigation Site, but has not been detected and is not expected to occur in the Impact Area due to the limited suitability of the habitat present. Because of this, only beneficial effects are likely to occur for this species. USACE has determined that the Proposed Action **may affect, but is not likely to adversely affect this species**.

The Proposed Action **may affect, and is likely to adversely affect** VPFS due to adverse impacts to 0.806 acre of presumed VPFS habitat. However, based on the inclusion of avoidance and minimization measures, and the preservation of approximately 59 acres of VPFS habitat at the proposed mitigation site, the Proposed Action would **contribute to the survival and recovery of this species**.

The Proposed Action **may affect, and is likely to adversely affect**, California tiger salamander due to adverse impacts to 190 acres of known or potential CTS habitat, and 141 acres of low-suitability CTS habitat. However, avoidance, minimization, and mitigation measures including but not limited to construction monitoring, exclusion measures, and the permanent conservation of 857 acres of occupied CTS habitat ensure that the Proposed Action would **contribute to the survival and recovery of this species**.

The Proposed Action **may affect, and is likely to adversely affect**, western spadefoot and northwestern pond turtle. The Project incorporates measures which will effectively mitigate this risk and ensure that the survival of neither species is jeopardized over the long term. The Project Proponent is seeking Incidental Take Coverage for these species.

The Impact Area does not include any Designated Critical Habitat; however, the Proposed Action will result in the permanent conservation and management of 857 acres of VPFS critical habitat unit VERFS24A at the proposed Mitigation Site. Therefore, the Proposed Action is not likely to destroy or adversely modify any unit of Designated Critical Habitat.

9.0 List Of Documents

The documents in **Appendices A-I** are included to provide the Service with the necessary information to proceed with formal consultation. These documents are:

Appendix A. FWS Official Species List
Appendix B. Map Figures
Appendix C. Vista Ranch Tentative Map Tract No. 6438
Appendix D. ECORP Consulting Biological Resources Assessment for the Triangle Property Project
Appendix E. VNLC Aquatic Resources Delineation for the Vista Ranch Project Site
Appendix F. VNLC CTS And Vernal Pool Branchiopod Sampling Report for the Vista Ranch Project Site
Appendix G. VNLC Floristic Inventory Report for the Vista Ranch Project Site
Appendix H. Madera Terrace Conservation Bank Draft Prospectus
Appendix I. Vista Ranch Project Conceptual Mitigation Plan

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11.0 List Of Contacts/Contributors/Preparers

This document was prepared by Vollmar Natural Lands Consulting, Inc. in collaboration with Redtail Consulting, on behalf of Wilson Premier Homes, Inc.

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12.0 Defined Terms

Action Agency – US Army Corps of Engineers, which is taking the Action.

Action Area – all areas to be affected directly or indirectly by the proposed Federal Action. These include the Project Site, Off-Site Improvements Areas, Indirect Effects Areas, and Mitigation Site, totaling approximately 1,277 acres (**Figure 1**).

Applicant – Wilson Premier Homes, Inc. which has applied for coverage for the Project under Nationwide Permit 29.

Cumulative Effects – the effects of future State, Tribal, local or private actions that are reasonably certain to occur in the action area. Future Federal actions that are unrelated (i.e., not interrelated or interdependent) to the proposed Action are not considered in this analysis because they will be subject to separate consultation pursuant to section 7 of the Act.

ESA Listed Species – all species listed under the ESA as Threatened, Endangered, Proposed Threatened, Proposed Endangered, or Candidate.

Impact Area – the Project Site, Off-Site Improvements areas, and Indirect Effects Areas, encompassing approximately 420 acres. These areas collectively represent the locations where adverse effects on listed species and/or designated critical habitat may occur as a result of the Action (**Figure 14**).

Indirect Effects – effects which are caused by or will result from the proposed Action that occur later in time, but they still are reasonably certain to occur.

Indirect Effects Areas – The areas within 250 feet of On-Site or Off-Site Improvements Areas where adverse indirect effects can reasonably be expected to occur to aquatic habitat for large branchiopods and amphibians (**Figure 13**).

Interrelated and Interdependent Actions – actions that are part of a larger action and depend on the larger action for their justification (interrelated actions) and action having no independent utility apart from the proposed action (interdependent actions). These are actions which would not occur *but for* the proposed Action.

Interrelated and Interdependent Areas – areas outside of the proximate Federal Action Project effects will occur as a result of the Proposed Action. These include the On-Site Work Areas, Off-Site Improvements Areas, Indirect Effects Areas, and Mitigation Site.

Mitigation Site – an approximately 857-acre portion of the Jamison Ranch, which will be preserved as mitigation for impacts caused by the Project (**Figures 18-20**). Preservation of the Mitigation Site will include recording a conservation easement to be held by an appropriately-qualified entity, and creation of an endowment to fund monitoring and management as defined in a Long-Term Management Plan approved by regulatory agencies. This is further described in the Conceptual Mitigation Plan (**Appendix I**).

Off-Site Improvements Areas – areas outside of the Project Site where Project-related work will be conducted. These include approximately 50 acres of roadways within Fresno County which will be improved as part of the Project (**Figure 10** and **Figure 14**).

On-Site Work Areas – areas within the Project Site where Project-related work will be conducted (**Figure 10** and **Figure 14**).

Project Site – the approximately 368-acre area owned or controlled by Wilson Premier Homes, which will be developed into a mixed-use subdivision (**Figures 2**, **3**, and **6**).

APPENDIX A

FWS OFFICIAL SPECIES LIST

APPENDIX B

MAP FIGURES

APPENDIX C

VISTA RANCH TENTATIVE MAP TRACT NO. 6438

APPENDIX D

ECORP CONSULTING BIOLOGICAL RESOURCES ASSESSMENT FOR THE TRIANGLE PROPERTY PROJECT

APPENDIX E

VNLC AQUATIC RESOURCES DELINEATION FOR THE VISTA RANCH PROJECT SITE

APPENDIX F

VNLC CTS AND VERNAL POOL BRANCHIOPOD SAMPLING REPORT FOR THE VISTA RANCH PROJECT SITE

APPENDIX G

VNLC FLORISTIC INVENTORY REPORT FOR THE VISTA RANCH PROJECT SITE

APPENDIX H

MADERA TERRACE CONSERVATION BANK

DRAFT PROSPECTUS

APPENDIX I

VISTA RANCH PROJECT CONCEPTUAL MITIGATION PLAN

E.1 - A – FWS Official Species List

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United States Department of the Interior

FISH AND WILDLIFE SERVICE
Sacramento Fish And Wildlife Office
Federal Building
2800 Cottage Way, Room W-2605
Sacramento, CA 95825-1846
Phone: (916) 414-6600 Fax: (916) 414-6713

In Reply Refer To:
Project Code: 2023-0117525
Project Name: Vista Ranch

August 15, 2023

Subject: List of threatened and endangered species that may occur in your proposed project location or may be affected by your proposed project

To Whom It May Concern:

The enclosed species list identifies threatened, endangered, proposed and candidate species, as well as proposed and final designated critical habitat, that may occur within the boundary of your proposed project and/or may be affected by your proposed project. The species list fulfills the requirements of the U.S. Fish and Wildlife Service (Service) under section 7(c) of the Endangered Species Act (Act) of 1973, as amended (16 U.S.C. 1531 *et seq.*).

New information based on updated surveys, changes in the abundance and distribution of species, changed habitat conditions, or other factors could change this list. Please feel free to contact us if you need more current information or assistance regarding the potential impacts to federally proposed, listed, and candidate species and federally designated and proposed critical habitat. Please note that under 50 CFR 402.12(e) of the regulations implementing section 7 of the Act, the accuracy of this species list should be verified after 90 days. This verification can be completed formally or informally as desired. The Service recommends that verification be completed by visiting the IPaC website at regular intervals during project planning and implementation for updates to species lists and information. An updated list may be requested through the IPaC system by completing the same process used to receive the enclosed list.

The purpose of the Act is to provide a means whereby threatened and endangered species and the ecosystems upon which they depend may be conserved. Under sections 7(a)(1) and 7(a)(2) of the Act and its implementing regulations (50 CFR 402 *et seq.*), Federal agencies are required to utilize their authorities to carry out programs for the conservation of threatened and endangered species and to determine whether projects may affect threatened and endangered species and/or designated critical habitat.

A Biological Assessment is required for construction projects (or other undertakings having similar physical impacts) that are major Federal actions significantly affecting the quality of the human environment as defined in the National Environmental Policy Act (42 U.S.C. 4332(2)

(c)). For projects other than major construction activities, the Service suggests that a biological evaluation similar to a Biological Assessment be prepared to determine whether the project may affect listed or proposed species and/or designated or proposed critical habitat. Recommended contents of a Biological Assessment are described at 50 CFR 402.12.

If a Federal agency determines, based on the Biological Assessment or biological evaluation, that listed species and/or designated critical habitat may be affected by the proposed project, the agency is required to consult with the Service pursuant to 50 CFR 402. In addition, the Service recommends that candidate species, proposed species and proposed critical habitat be addressed within the consultation. More information on the regulations and procedures for section 7 consultation, including the role of permit or license applicants, can be found in the "Endangered Species Consultation Handbook" at:

https://www.fws.gov/sites/default/files/documents/endangered-species-consultation-handbook.pdf

Migratory Birds: In addition to responsibilities to protect threatened and endangered species under the Endangered Species Act (ESA), there are additional responsibilities under the Migratory Bird Treaty Act (MBTA) and the Bald and Golden Eagle Protection Act (BGEPA) to protect native birds from project-related impacts. Any activity, intentional or unintentional, resulting in take of migratory birds, including eagles, is prohibited unless otherwise permitted by the U.S. Fish and Wildlife Service (50 C.F.R. Sec. 10.12 and 16 U.S.C. Sec. 668(a)). For more information regarding these Acts, see https://www.fws.gov/program/migratory-bird-permit/what-we-do.

The MBTA has no provision for allowing take of migratory birds that may be unintentionally killed or injured by otherwise lawful activities. It is the responsibility of the project proponent to comply with these Acts by identifying potential impacts to migratory birds and eagles within applicable NEPA documents (when there is a federal nexus) or a Bird/Eagle Conservation Plan (when there is no federal nexus). Proponents should implement conservation measures to avoid or minimize the production of project-related stressors or minimize the exposure of birds and their resources to the project-related stressors. For more information on avian stressors and recommended conservation measures, see https://www.fws.gov/library/collections/threats-birds.

In addition to MBTA and BGEPA, Executive Order 13186: *Responsibilities of Federal Agencies to Protect Migratory Birds*, obligates all Federal agencies that engage in or authorize activities that might affect migratory birds, to minimize those effects and encourage conservation measures that will improve bird populations. Executive Order 13186 provides for the protection of both migratory birds and migratory bird habitat. For information regarding the implementation of Executive Order 13186, please visit https://www.fws.gov/partner/council-conservation-migratory-birds.

We appreciate your concern for threatened and endangered species. The Service encourages Federal agencies to include conservation of threatened and endangered species into their project planning to further the purposes of the Act. Please include the Consultation Code in the header of this letter with any request for consultation or correspondence about your project that you submit to our office.

Attachment(s):

- Official Species List

OFFICIAL SPECIES LIST

This list is provided pursuant to Section 7 of the Endangered Species Act, and fulfills the requirement for Federal agencies to "request of the Secretary of the Interior information whether any species which is listed or proposed to be listed may be present in the area of a proposed action".

This species list is provided by:

Sacramento Fish And Wildlife Office
Federal Building
2800 Cottage Way, Room W-2605
Sacramento, CA 95825-1846
(916) 414-6600

PROJECT SUMMARY

Project Code: 2023-0117525
Project Name: Vista Ranch
Project Type: Mixed-Use Construction
Project Description: This document provides a brief overview of Wilson Premier Homes' proposed Vista Ranch mixed-use development project, which would be located on an approximately 950-acre site immediately outside the current limits of the City of Clovis (City) and outside the City's current Sphere of Influence (SOI). Some 500 acres of the larger site would be developed under the proposed Vista Ranch Master Plan, including approximately 368 acres proposed for development in the next few years, and an additional approximately 139 acres slated for later development.

The Vista Ranch project is proposed to accommodate future growth anticipated in the Clovis area. The primary project objectives are: expansion of the City's Sphere of Influence (SOI) to include the entirety of the approximately 950-acre site; annexation of the Vista Ranch Master Plan area to the City of Clovis, bringing it within City limits; completion of the master planning process; development of up to 3,286 residential units within a master-planned community.

Additional objectives that will guide design of the project include the following: Expanding the City's SOI in an area contemplated by the City General Plan to establish a logical and orderly boundary that promotes the efficient extension of municipal services to areas planned for growth; developing urban uses in an area that is planned for such uses in the City General Plan and is proximate to urban services and roadways; establishing a logical phasing plan to ensure that each phase of development includes necessary public improvements required to meet City standards; embracing the site's natural resources and views of the Sierra Nevada; providing residential housing opportunities that are visually attractive; refining the mixture of housing types, sizes, and densities to collectively provide for local and regional housing demand; providing infrastructure that meets City standards and is integrated with existing and planned facilities; developing a strong pedestrian network that links activities, recreational amenities, local commercial uses, and neighborhoods together; creating an environment that is safe and secure; and increasing affordability and housing diversity in the Clovis area.

The project would construct a mixed-use development anticipated to provide up to 3,286 residential units, including both single- and multi-family units at varying densities. Development has been configured to avoid wetland impacts to the extent feasible, by preserving a belt of open space along the northeast project boundary.

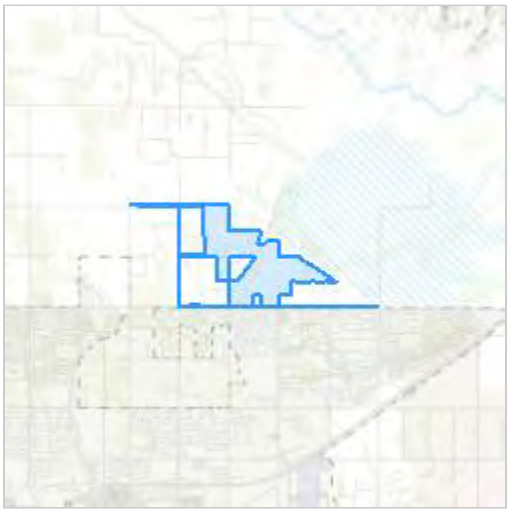
Vista Ranch is planned to center on a mixed-use "village core" area surrounded by higher-density residential development, with progressively lower residential densities toward the edges of the development,

transitioning to surrounding rural/agricultural uses. Higher housing densities would also cluster along major circulation corridors and local amenities. Residential areas would offer a variety of housing types and lot sizes to accommodate a range of housing objectives and buyer needs with a goal to ensure housing for a range of families and lifestyles. The village core would provide a neighborhood commercial center and business campus designed to offer local-serving retail and service uses as well as employment opportunities. A new elementary school and community recreation centers would also be located in this area.
North Temperance Avenue is the primary roadway providing access to the Vista Ranch site from the south; East Shepherd Avenue bounds the south edge of the site and carries east-west traffic. To the north, a new bridge would be constructed across the canal downstream of the Big Dry Creek Dam, providing access from the west.

[Project Description truncated due to character limit]

Project Location:

The approximate location of the project can be viewed in Google Maps: https://www.google.com/maps/@36.8737402,-119.67500007128731,14z



Counties: Fresno County, California

ENDANGERED SPECIES ACT SPECIES

There is a total of 14 threatened, endangered, or candidate species on this species list.

Species on this list should be considered in an effects analysis for your project and could include species that exist in another geographic area. For example, certain fish may appear on the species list because a project could affect downstream species.

IPaC does not display listed species or critical habitats under the sole jurisdiction of NOAA Fisheries[1], as USFWS does not have the authority to speak on behalf of NOAA and the Department of Commerce.

See the "Critical habitats" section below for those critical habitats that lie wholly or partially within your project area under this office's jurisdiction. Please contact the designated FWS office if you have questions.

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1. NOAA Fisheries, also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

MAMMALS

NAME	STATUS
Fresno Kangaroo Rat *Dipodomys nitratoides exilis* There is **final** critical habitat for this species. Your location does not overlap the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/5150	Endangered
San Joaquin Kit Fox *Vulpes macrotis mutica* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/2873	Endangered

BIRDS

NAME	STATUS
California Condor *Gymnogyps californianus* Population: U.S.A. only, except where listed as an experimental population There is **final** critical habitat for this species. Your location does not overlap the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/8193	Endangered
Yellow-billed Cuckoo *Coccyzus americanus* Population: Western U.S. DPS There is **final** critical habitat for this species. Your location does not overlap the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/3911	Threatened

REPTILES

NAME	STATUS
Blunt-nosed Leopard Lizard *Gambelia silus* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/625	Endangered

AMPHIBIANS

NAME	STATUS
California Tiger Salamander *Ambystoma californiense* Population: U.S.A. (Central CA DPS) There is **final** critical habitat for this species. Your location does not overlap the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/2076	Threatened
Foothill Yellow-legged Frog *Rana boylii* Population: South Sierra Distinct Population Segment (South Sierra DPS) No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/5133	Proposed Endangered

INSECTS

NAME	STATUS
Monarch Butterfly *Danaus plexippus* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/9743	Candidate

CRUSTACEANS

NAME	STATUS
Conservancy Fairy Shrimp *Branchinecta conservatio* There is **final** critical habitat for this species. Your location does not overlap the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/8246	Endangered
Vernal Pool Fairy Shrimp *Branchinecta lynchi* There is **final** critical habitat for this species. Your location does not overlap the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/498	Threatened

FLOWERING PLANTS

NAME	STATUS
Fleshy Owl's-clover *Castilleja campestris ssp. succulenta*	Threatened
There is **final** critical habitat for this species. Your location does not overlap the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/8095	
Greene's Tuctoria *Tuctoria greenei*	Endangered
There is **final** critical habitat for this species. Your location does not overlap the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/1573	
Hartweg's Golden Sunburst *Pseudobahia bahiifolia*	Endangered
No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/1704	
San Joaquin Valley Orcutt Grass *Orcuttia inaequalis*	Threatened
There is **final** critical habitat for this species. Your location does not overlap the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/5506	

CRITICAL HABITATS

THERE ARE NO CRITICAL HABITATS WITHIN YOUR PROJECT AREA UNDER THIS OFFICE'S JURISDICTION.

YOU ARE STILL REQUIRED TO DETERMINE IF YOUR PROJECT(S) MAY HAVE EFFECTS ON ALL ABOVE LISTED SPECIES.

IPAC USER CONTACT INFORMATION

Agency: Private Entity
Name: Eric Smith
Address: 2401 Capitol Avenue
Address Line 2: Ste 301
City: Sacramento
State: CA
Zip: 95816
Email esmith@vollmarconsulting.com
Phone: 5302202835

LEAD AGENCY CONTACT INFORMATION

Lead Agency: Army Corps of Engineers

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E.1 - B – Map Figures

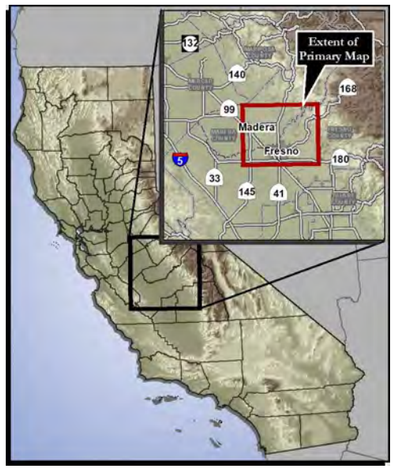
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FIGURE 1
Regional Vicinity Map

Vista Ranch Project Action Area
Fresno and Madera Counties, California

Legend

- Project Site (368 ac.)
- Off-Site Work Area (50 ac.)
- Proposed Preserve (857 ac.)



Vollmar NATURAL LANDS CONSULTING

Data Sources: VNLC, 2023 | USGS, various TIGER, 2011
GIS/Cartography by: E. Smith, Sep. 2023
Map File: 361_Vista_Vicinity_B-P_2025-1006.mxd

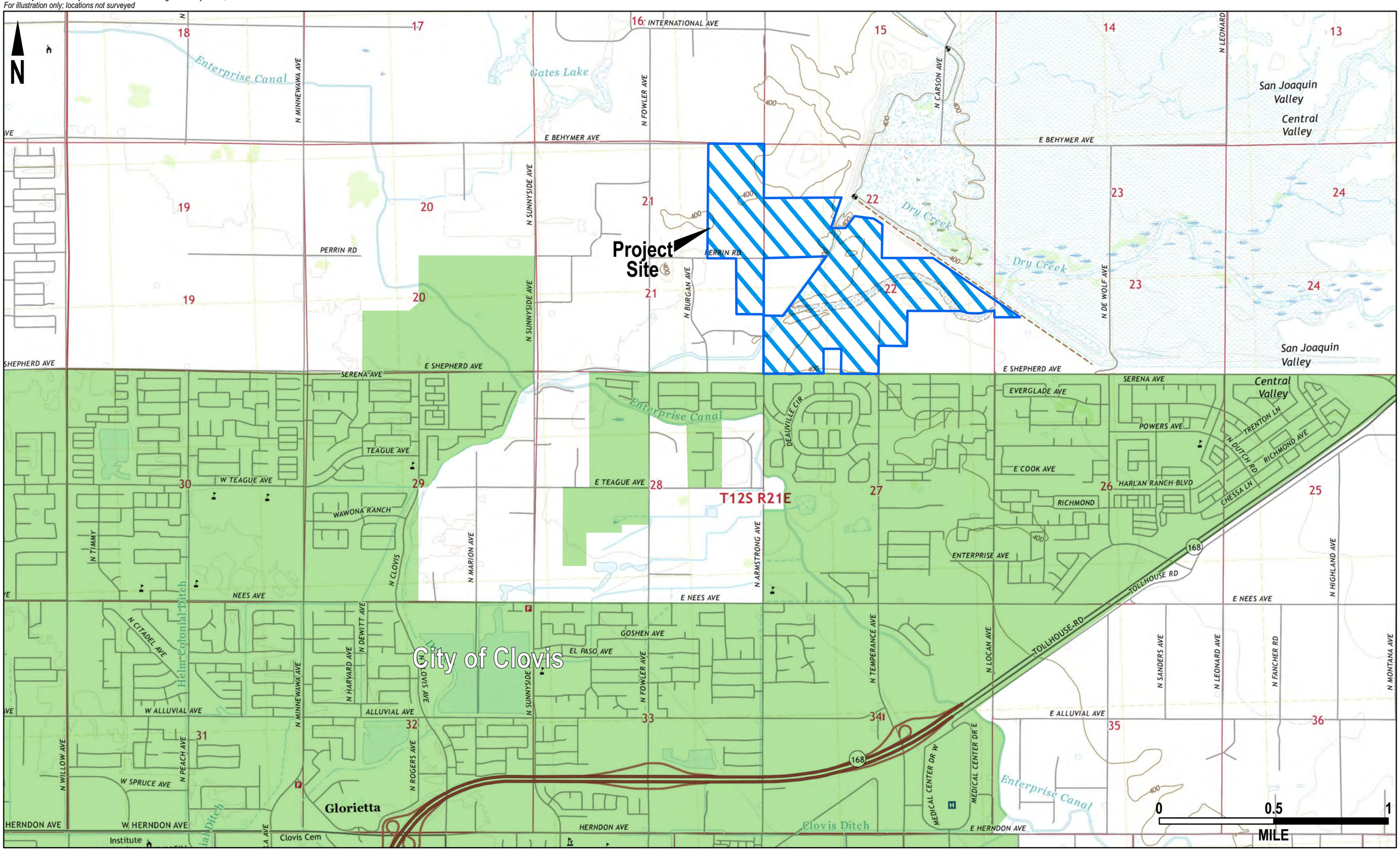
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1 inch = approx. 3.2 miles at tabloid layout

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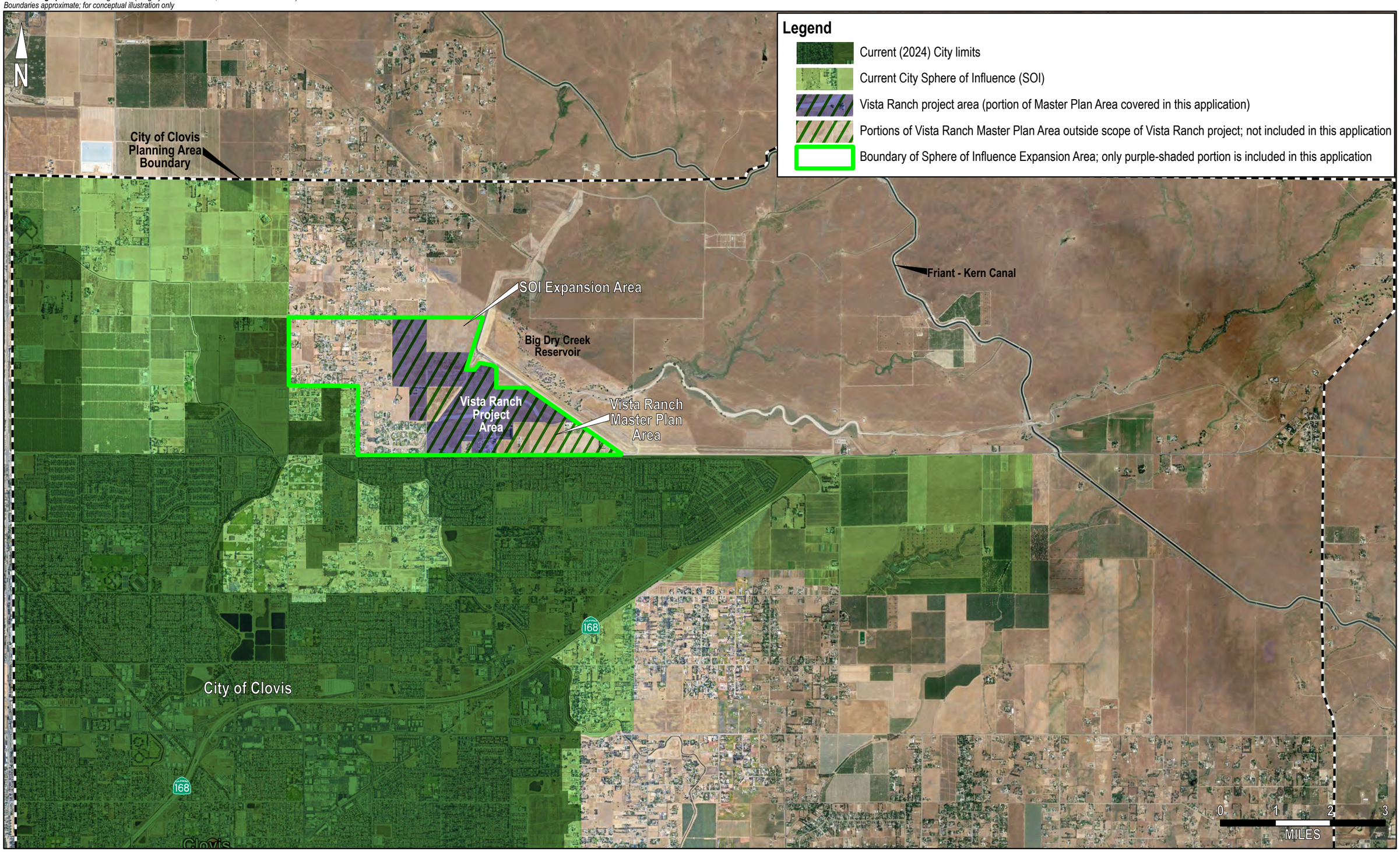
Base Map Sources: City of Clovis 2014; U.S. Geological Survey 2021a, 2021b
For illustration only; locations not surveyed



Redtail Consulting
Environment & Community

Figure 2. Vista Ranch Site Location and Extent
Wilson Premier Homes

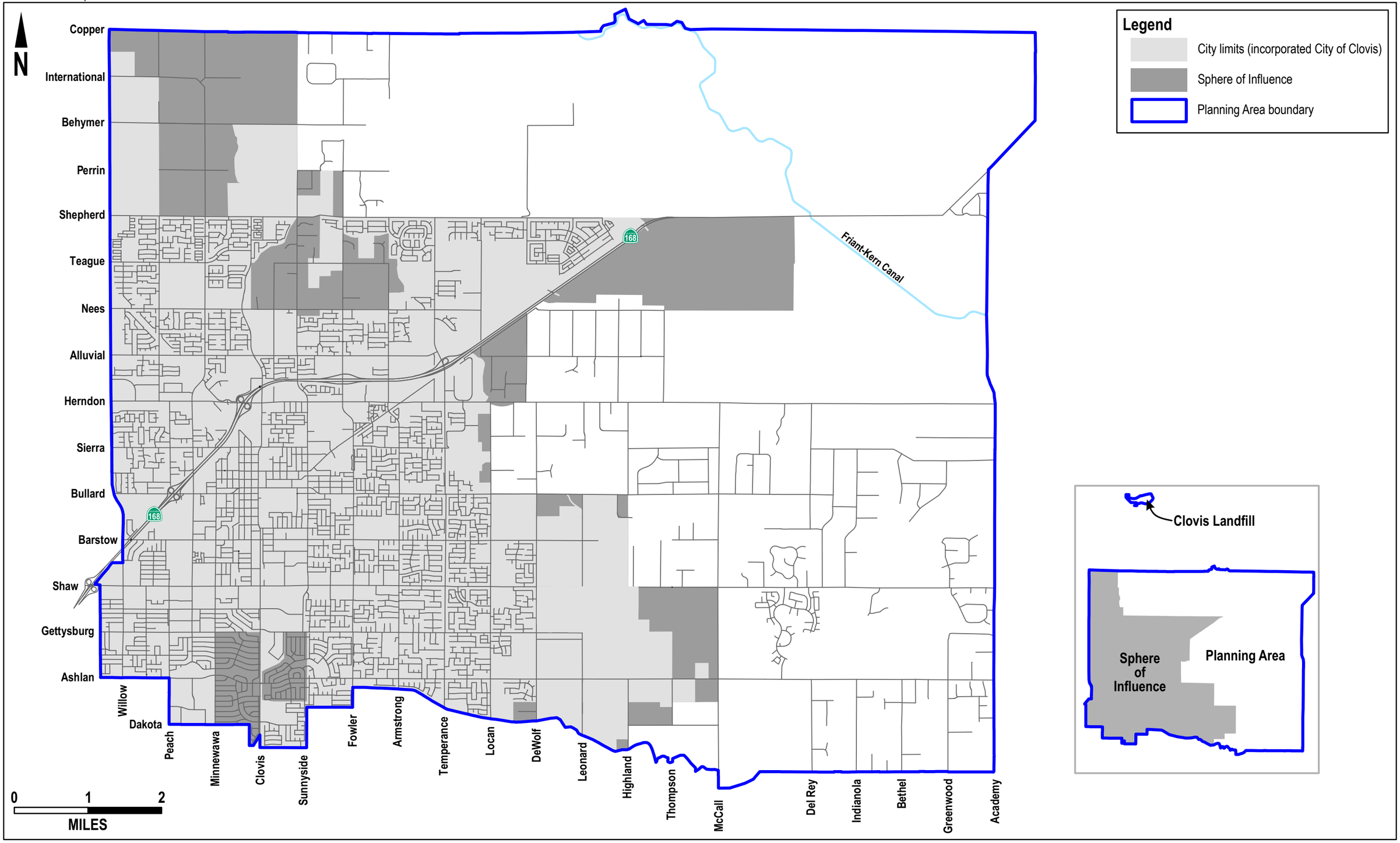
Map Source: *modified from* City of Clovis (2014)
Aerial Photograph Source: GoogleEarth (imagery date: 06/09/2022, downloaded: 08/22/2023)
Boundaries approximate; for conceptual illustration only



Redtail Consulting
Environment & Community

Figure 3. Vista Ranch Planning Context
Wilson Premier Homes

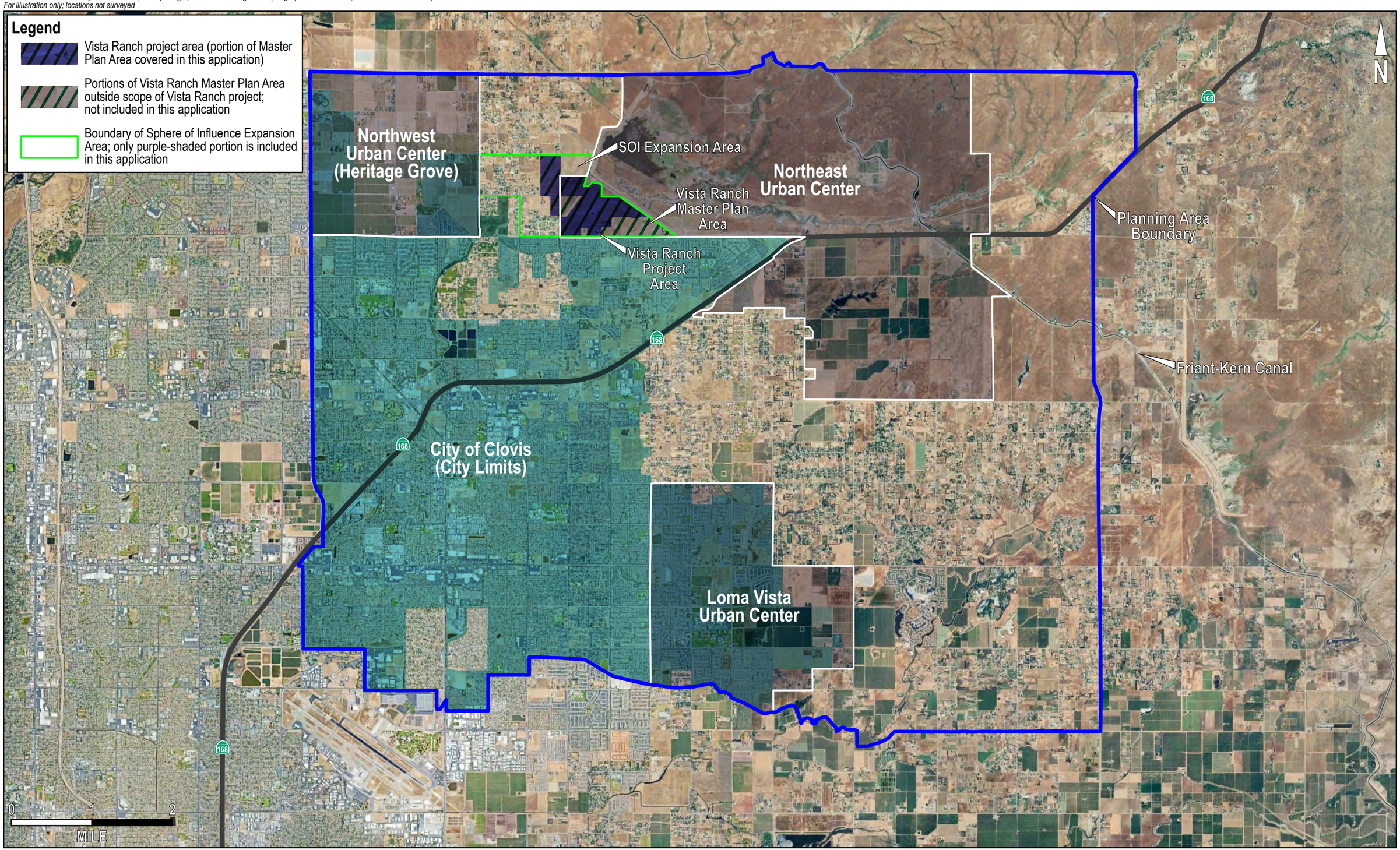
Source: *modified from* City of Clovis 2014



Redtail Consulting
Environment & Community

Figure 4. City of Clovis Planning Boundaries
Vista Ranch
Wilson Premier Homes

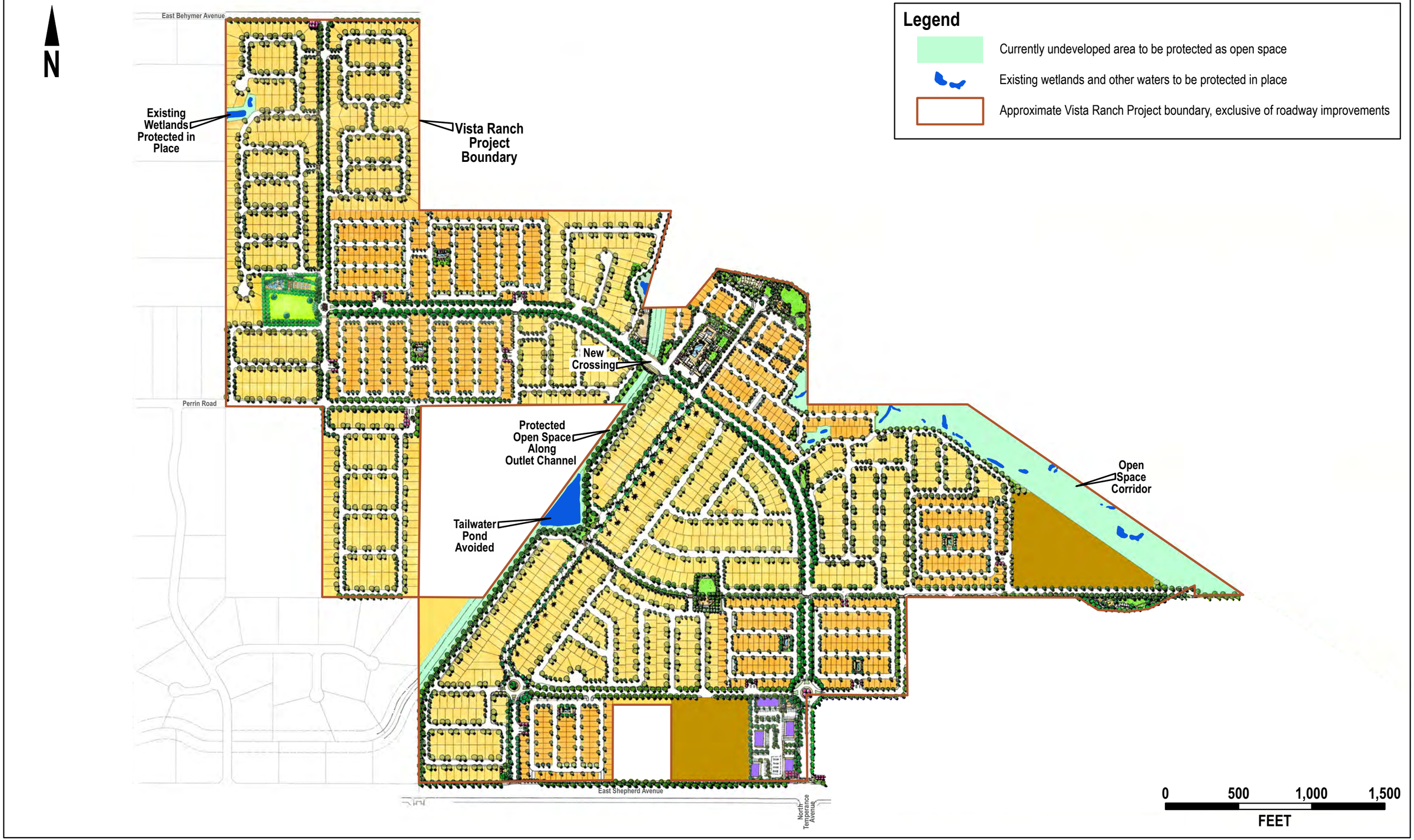
Sources: *modified from* City of Clovis 2014; aerial photograph base from GoogleEarth (imagery date: 11/10/2023, downloaded: 05/18/2024)
For illustration only; locations not surveyed



Redtail Consulting
Environment & Community

Figure 5. General Plan–Designated Urban Center Growth Areas
Vista Ranch
Wilson Premier Homes

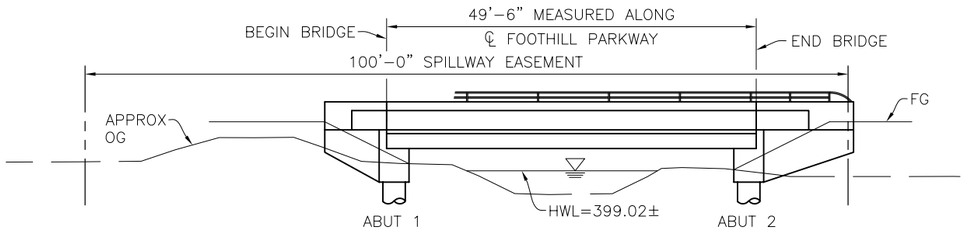
Source: *modified from* Wilson Premier Homes 2025
For illustration only



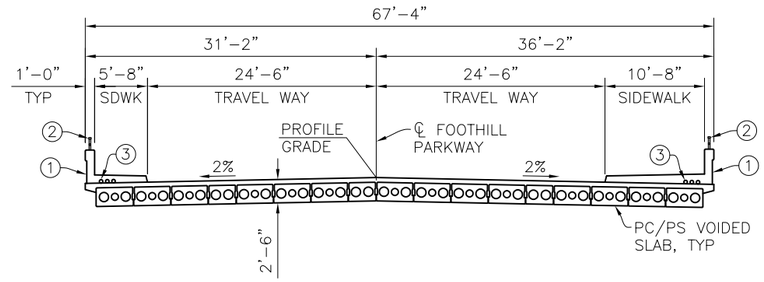
Redtail Consulting
Environment & Community

Figure 6. Vista Ranch Project Schematic Development Layout
Wilson Premier Homes

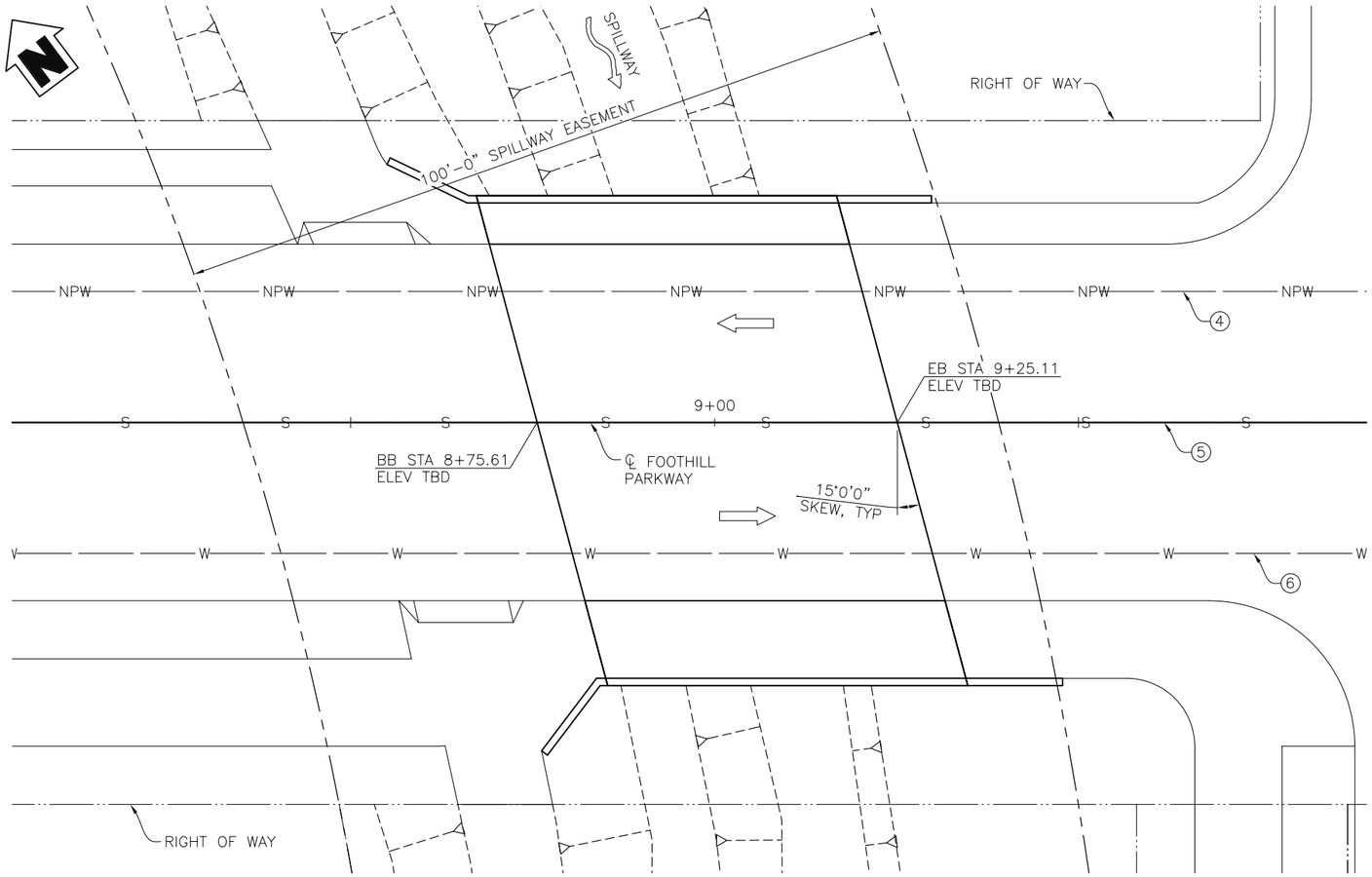
Source: *modified from* Cornerstone Structural Engineering Group 2024
For illustration only



ELEVATION
1" = 20'



TYPICAL SECTION
1/8" = 2' - 0"



PLAN
1" = 20'

LEGEND:

1. CONCRETE BARRIER TYPE 732SW (B11-58 – | B11-59 – | B11-59A –)
2. TUBULAR HANDRAILING (B11-51 –)
3. OPENINGS FOR DRY UTILITIES
4. NON–POTABLE WATER MAIN (12" MAX DIA.)
5. SEWER MAIN (12" MAX DIA.)
6. WATER MAIN (16" MAX DIA.)

⇨ INDICATES DIRECTION OF TRAFFIC

Figure 7. Vista Ranch Bridge Concept
Wilson Premier Homes

Source: *modified from* Wilson Premier Homes 2023

N

Vista Ranch Project Area Boundary

Phase 4

Phase 5

Phase 6

Phase 4a

Phase 2

Phase 3

Phase 6

Phase 1

Phase 2

Legend

Wetlands/waters avoidance area (protected open space; no development)

Note: Development Area boundary as shown does not encompass all adjacent roadway improvements

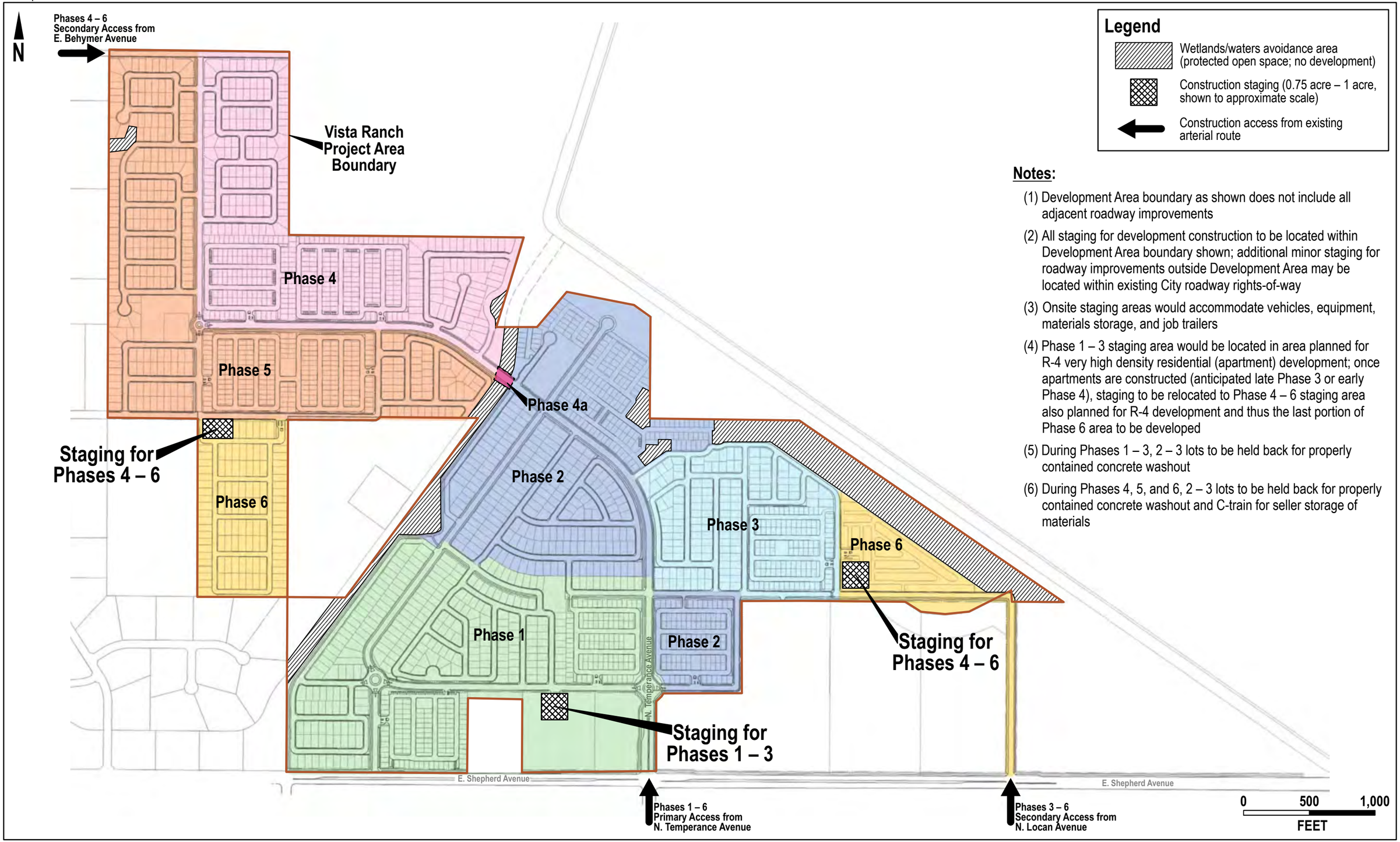
0 500 1,000

FEET

Redtail Consulting
Environment & Community

Figure 8. Anticipated Project Phasing
Vista Ranch
Wilson Premier Homes

Base Map Source: Wilson Premier Homes 2023



Legend

- Wetlands/waters avoidance area (protected open space; no development)
- Construction staging (0.75 acre – 1 acre, shown to approximate scale)
- Construction access from existing arterial route

Notes:

(1) Development Area boundary as shown does not include all adjacent roadway improvements

(2) All staging for development construction to be located within Development Area boundary shown; additional minor staging for roadway improvements outside Development Area may be located within existing City roadway rights-of-way

(3) Onsite staging areas would accommodate vehicles, equipment, materials storage, and job trailers

(4) Phase 1 – 3 staging area would be located in area planned for R-4 very high density residential (apartment) development; once apartments are constructed (anticipated late Phase 3 or early Phase 4), staging to be relocated to Phase 4 – 6 staging area also planned for R-4 development and thus the last portion of Phase 6 area to be developed

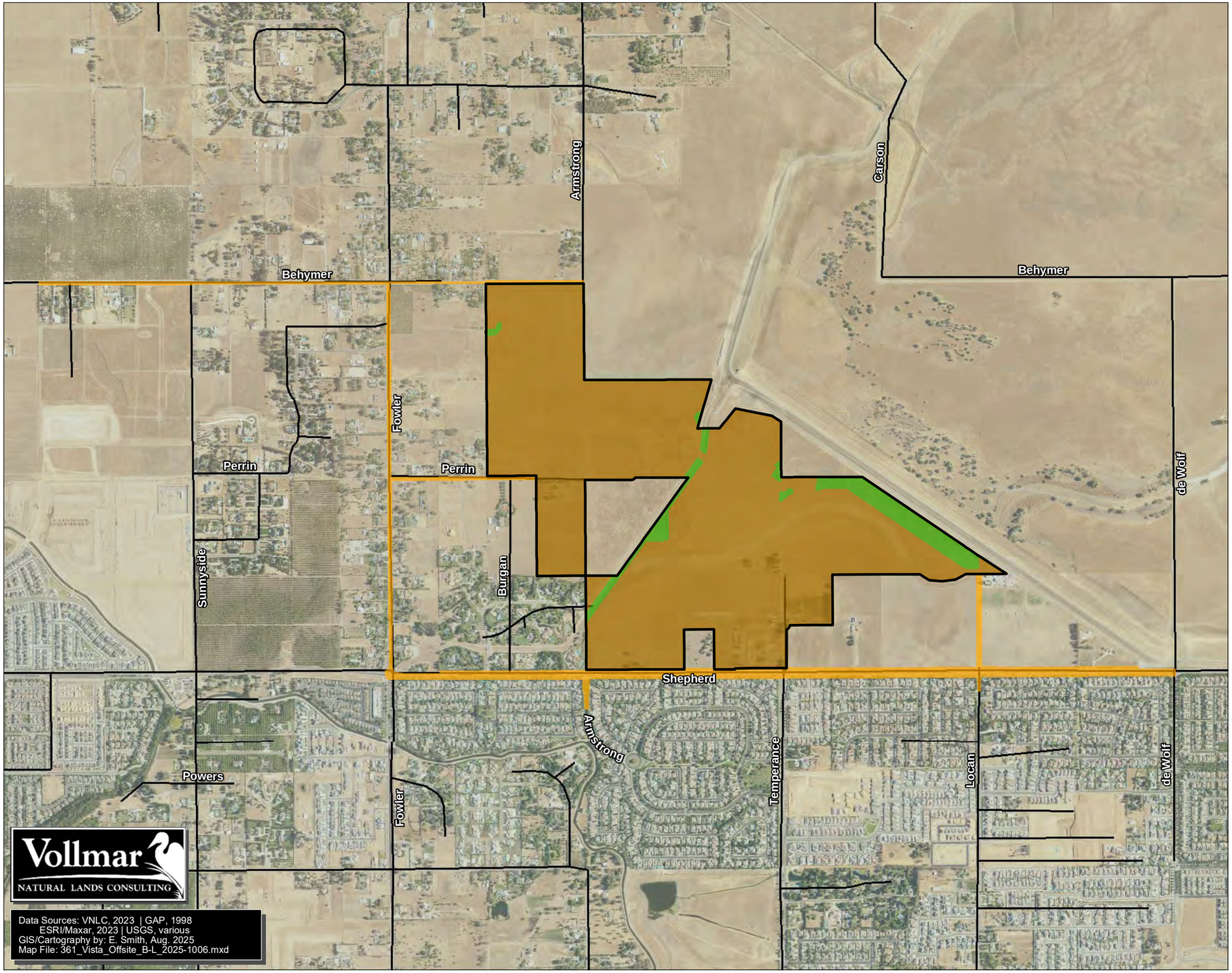
(5) During Phases 1 – 3, 2 – 3 lots to be held back for properly contained concrete washout

(6) During Phases 4, 5, and 6, 2 – 3 lots to be held back for properly contained concrete washout and C-train for seller storage of materials

Figure 9. Construction Access and Staging
Vista Ranch
Wilson Premier Homes

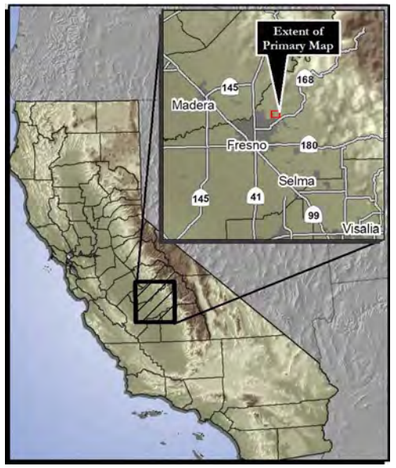
FIGURE 10
Off-site Improvements

Vista Ranch Development
Fresno County, California



Legend

- Project Site (368 ac.)
- On-Site Work Area (approx. 345 ac.)
- On-Site Wetland Avoidance Area (approx. 23 ac.)
- Off-Site Work Area (approx. 50 ac.)



Vollmar
NATURAL LANDS CONSULTING

Data Sources: VNLC, 2023 | GAP, 1998
ESRI/Maxar, 2023 | USGS, various
GIS/Cartography by: E. Smith, Aug. 2025
Map File: 361_Vista_Offsite_B-L_2025-1006.mxd

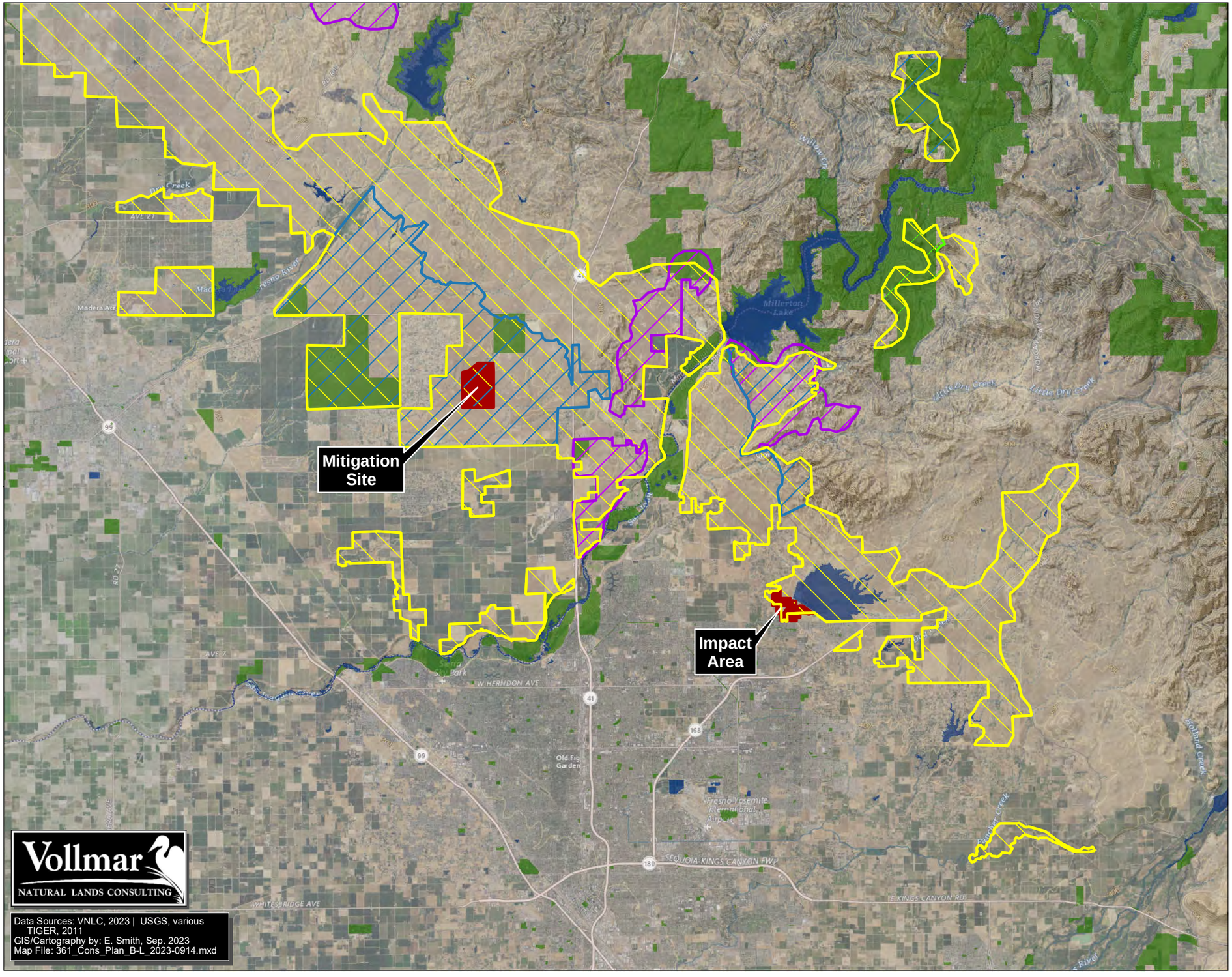
N
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1:16,000
(1 in. = 1,333 feet. at Tabloid Layout)

0 200 400 800 Meters
0 750 1,500 3,000 Feet

FIGURE 11
Regional Conservation Planning

Action Area
Fresno and Madera Counties, California

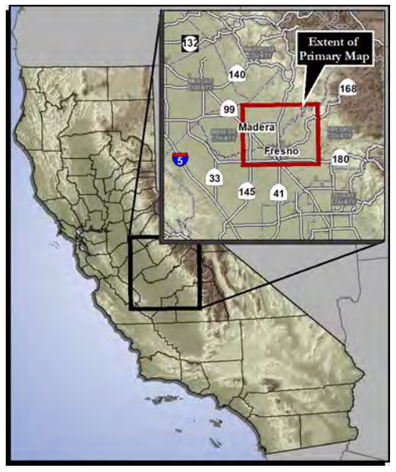


Legend

- Action Area
- Public or Preserved Land
- Vernal Pool Core Recovery Area

Designated Critical Habitat

- California Tiger Salamander
- Vernal Pool Fairy Shrimp
- Vernal pool Tadpole Shrimp



Vollmar NATURAL LANDS CONSULTING

Data Sources: VNLC, 2023 | USGS, various TIGER, 2011
GIS/Cartography by: E. Smith, Sep. 2023
Map File: 361_Cons_Plan_B-L_2023-0914.mxd

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1:200,000

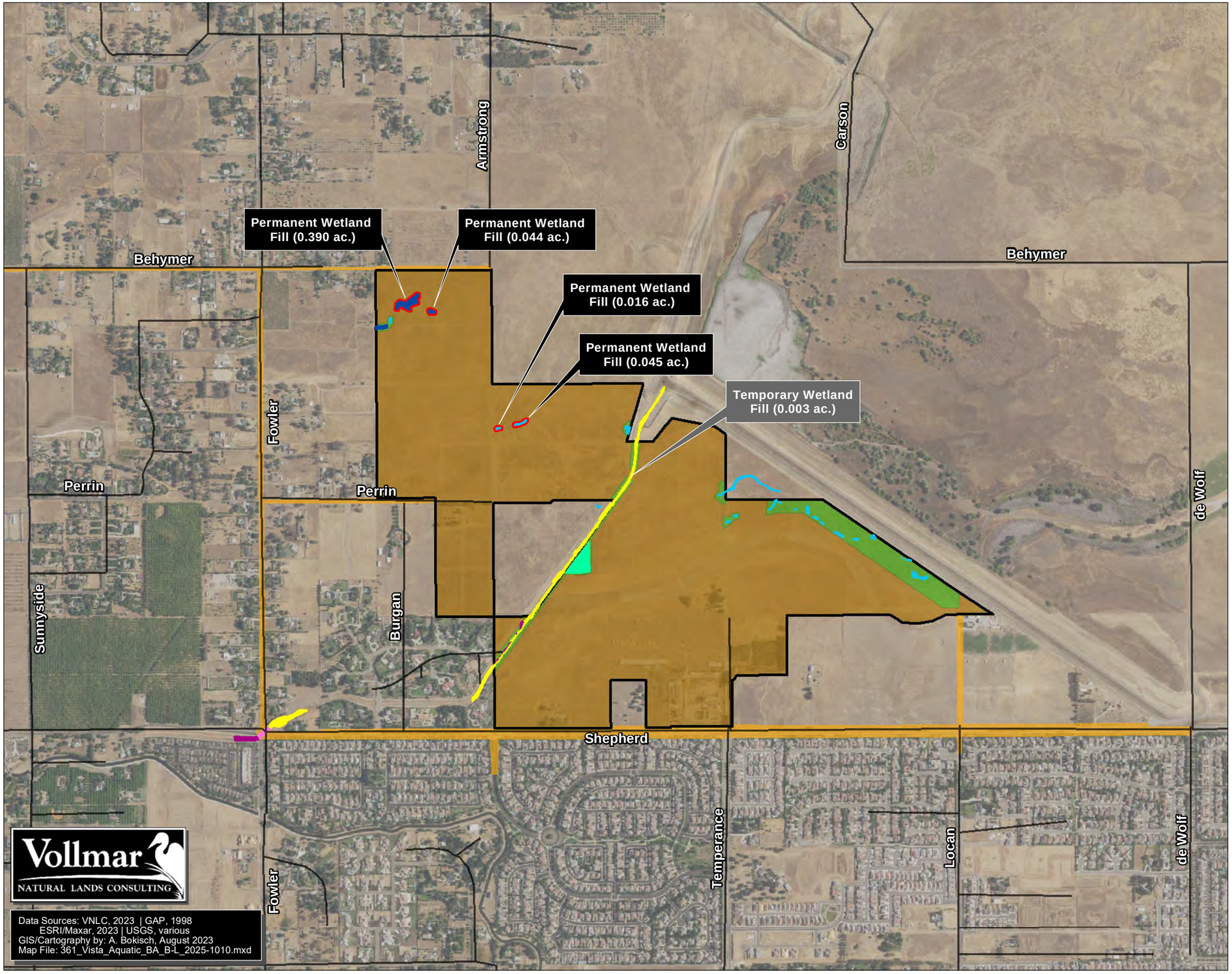
1 inch = approx. 3.2 miles at tabloid layout

0 2.5 5 10 Km

0 1 2 4 Mi

FIGURE 12
Aquatic Resources

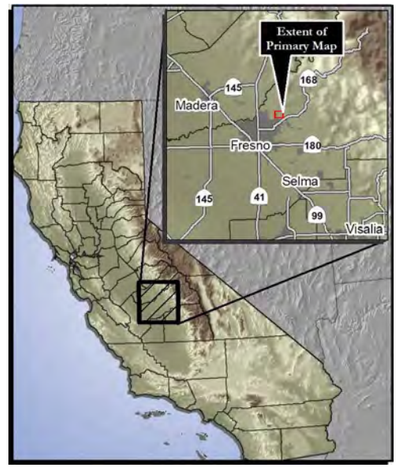
Vista Ranch Development
Fresno County, California



Legend

Aquatic Resources

- Agricultural Tailwater Pond
- Canal (Non-Wetland Channel)
- Canal (Wetland Channel)
- Culvert
- Depressional Wetland Basin
- Stockpond
- Wetland Fill
- Project Site (368 ac.)
- On-Site Work Area (approx. 345 ac.)
- On-Site Wetland Avoidance Area (approx. 23 ac.)
- Off-Site Work Area (approx. 50 ac.)



Vollmar NATURAL LANDS CONSULTING

Data Sources: VNLC, 2023 | GAP, 1998
ESRI/Maxar, 2023 | USGS, various
GIS/Cartography by: A. Bokisch, August 2023
Map File: 361_Vista_Aquatic_BA_B-L_2025-1010.mxd

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1:13,500
(1 in. = 1,125 feet. at Tabloid Layout)

0 150 300 600 Meters

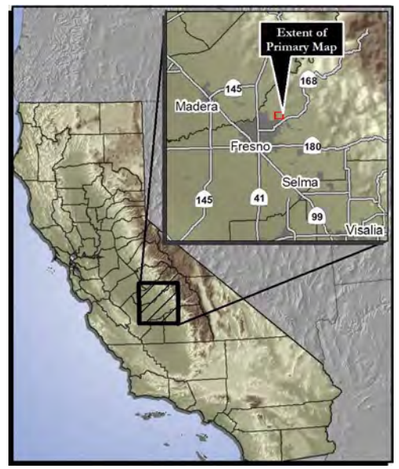
0 750 1,500 3,000 Feet

FIGURE 13
Indirect Impacts to Off-Site Habitat

Vista Ranch Development
Fresno County, California

Legend

- Project Site (368 ac.)
- Areas of Off-Site Indirect Effects to Listed Species Habitat (0.236 ac.)
- Other Aquatic Features within 250' of Work Areas (not listed species habitat, 2.43 ac.)
- 250-ft Buffer of Work Areas
- On-Site Work Area (approx. 345 ac.)
- On-Site Wetland Avoidance Area (approx. 23 ac.)
- Off-Site Work Area (approx. 50 ac.)



N
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1:7,200
(1 in. = 600 feet. at Tabloid Layout)

0 50 100 200 Meters
0 300 600 1,200 Feet

Vollmar
NATURAL LANDS CONSULTING

Data Sources: VNLC, 2023 | GAP, 1998
ESRI/Maxar, 2023 | USGS, various
GIS/Cartography by: A. Bokisch, August 2023
Map File: 361_Vista_Indirect_B-L_2025-1010.mxd

FIGURE 14
USGS Topographic Map

Vista Ranch Development
Fresno County, California

Township 12 South, Range 21 East, Section 8

Township 12 South, Range 21 East, Section 9

Township 12 South, Range 21 East, Section 10

Township 12 South, Range 21 East, Section 11

Township 12 South, Range 21 East, Section 12

Township 12 South, Range 21 East, Section 13

Township 12 South, Range 21 East, Section 14

Township 12 South, Range 21 East, Section 15

Township 12 South, Range 21 East, Section 16

Township 12 South, Range 21 East, Section 17

Township 12 South, Range 21 East, Section 20

Township 12 South, Range 21 East, Section 21

Township 12 South, Range 21 East, Section 22

Township 12 South, Range 21 East, Section 23

Township 12 South, Range 21 East, Section 24

Township 12 South, Range 21 East, Section 25

Township 12 South, Range 21 East, Section 26

Township 12 South, Range 21 East, Section 27

Township 12 South, Range 21 East, Section 28

Township 12 South, Range 21 East, Section 29

Township 12 South, Range 21 East, Section 33

Township 12 South, Range 21 East, Section 34

Township 12 South, Range 21 East, Section 35

Township 12 South, Range 21 East, Section 36

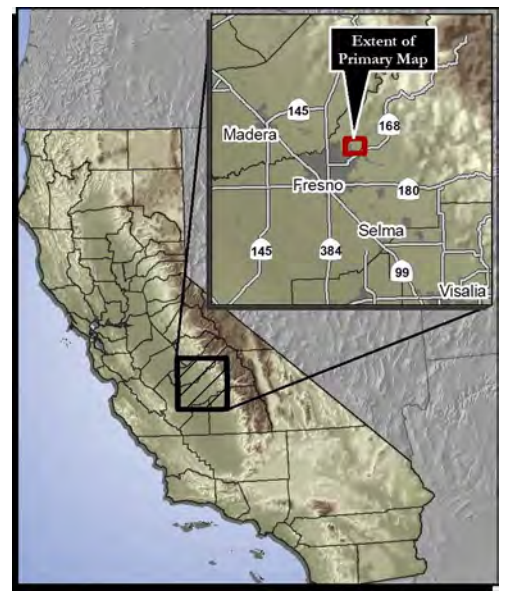
E COPPER AVE
HORSESHOE BEND AVE
E BEHYMER AVE
E SHEPHERD AVE
E COLE AVE
E TEAGUE
E NEES AVE
PERRIN RD
SERENA AVE
POWERS AVE
HERITAGE AVE
LEXINGTON
MUNCIE AVE
RABAIOLI
E COOK AVE
RICHMOND
LESTER AVE
SALEM LN
N SUNNYSIDE AVE
N STANFORD AVE
N PURDUE AVE
RENN AVE
N BURGAN AVE
BURGAN AVE
N FOWLER AVE
N CARSON AVE
N LEONARD AVE
N DE WOLF AVE
N ARMSTRONG AVE
N LINDA LN
N MARION
PURDUE
DUKE AVE
MOODY
TEAGUE AVE
HERITAGE
OMAHA
N HIGHLAND AVE
V SANDERS AVE
V LEONARD AVE
N FANCHER
Gates Lake
Enterprise Canal
Dry Creek
Friant-Kern Canal

Vollmar NATURAL LANDS CONSULTING

Data Sources: VNLC, 2023 | USGS, various USHUD, 2015 | TIGER, 2011 | SFEI, 2023 ESRI/Maxar, 2023
GIS/Cartography by: E. Smith, Sep. 2023
Map File: 361_Vista_DRG_B-L_2025-1010.mxd

Legend

- Stream
- Project Site (368 ac.)
- Off-Site Work Area (50 ac.)
- Areas of Off-Site Indirect Effects to Listed Species Habitat (0.236 ac.)
- Other Aquatic Features within 250' of Work Areas (not listed species habitat, 2.43 ac.)
- Impact Area (Work Areas plus Aquatic Habitats within 250 ft., 420.7 ac.)
- Wetlands/Waters (CARI, SFEI 2023)
- Public Land Survey Boundary
- City of Clovis



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1:24,000
(1 in. = 2,000 feet at Tabloid Layout)

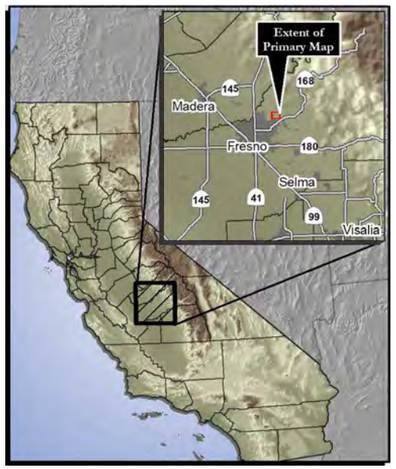
0 250 500 1,000 Meters
0 1,000 2,000 4,000 Feet

FIGURE 15
Aerial Photo

Vista Ranch Development
Fresno County, California

Legend

Project Site (368 ac.)



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1:7,200
(1 in. = 600 feet. at Tabloid Layout)

0 50 100 200 Meters
0 300 600 1,200 Feet

Vollmar
NATURAL LANDS CONSULTING

Data Sources: VNLC, 2023 | USDA-WSS, 2023
ESRI/Maxar, 2023 | USGS, various | GAP, 2023
GIS/Cartography by: E. Smith, Sep. 2023
Map File: 361_Vista_AP_B-L_2023-0914.mxd

FIGURE 16
Soil Units

Vista Ranch Development
Fresno County, California

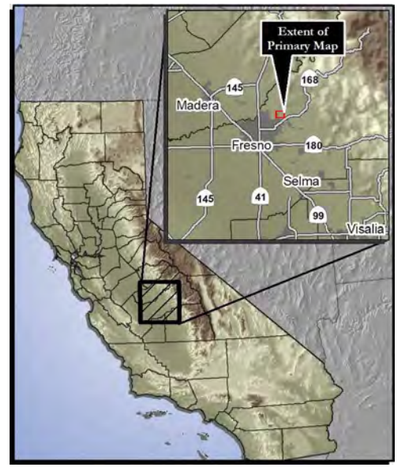
Soil Map Unit

- An;Alamo clay
- AoA;Atwater loamy sand, 0 to 3 percent slopes
- AoB;Atwater loamy sand, 3 to 9 percent slopes
- ArA;Atwater sandy loam, 0 to 3 percent slopes
- AtA;Atwater sandy loam, moderately deep, 0 to 3 percent slopes
- ArB;Atwater sandy loam, 3 to 9 percent slopes
- BcC;Blasingame loam, 3 to 15 percent slopes
- CzcB;Cometa-San Joaquin sandy loams, 3 to 9 percent slopes
- DhB;Delhi loamy sand, 3 to 9 percent slopes
- Dn;Dello sandy loam
- Fn;Foster loam
- Gf;Grangeville fine sandy loam
- Gn;Grangeville fine sandy loam, hard substratum
- GtA;Greenfield sandy loam, 0 to 3 percent slopes
- Hu;Hildreth clay
- MoD;Millerton rocky fine sandy loam, 3 to 30 percent slopes
- Ra;Ramona sandy loam
- Rb;Ramona sandy loam, hard substratum
- Re;Ramona loam, hard substratum
- Rh;Riverwash
- SeA;San Joaquin loam, 0 to 3 percent slopes
- SgA;San Joaquin loam, shallow, 0 to 3 percent slopes
- TzbA;Tujunga loamy sand, 0 to 3 percent slopes
- VaA;Visalia sandy loam, 0 to 3 percent slopes

E Behymer Ave
E Behymer Ave
Fowler Ave
de Wolf Avenue
Perrin Road
Shepherd Ave
Shepherd Ave

Legend

- Selected Local Road
- Study Area (368 ac.)



Vollmar
NATURAL LANDS CONSULTING

Data Sources: VNLC, 2023 | USDA-WSS, 2023
ESRI/Maxar, 2023 | USGS, various | GAP, 2023
GIS/Cartography by: E. Smith, August 2023
Map File: 361_Vista_Soils_B-L_2025-1010.mxd

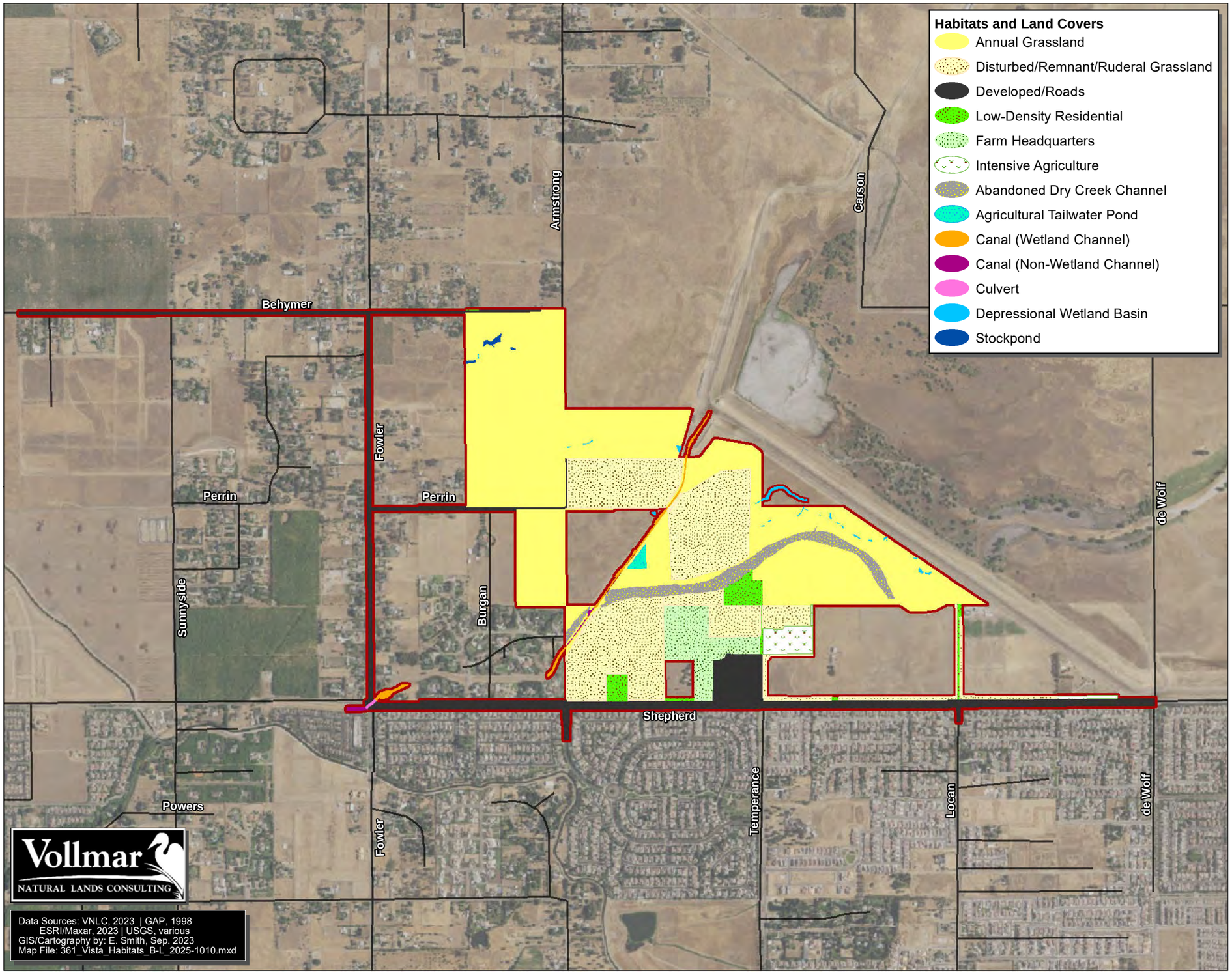
N
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1:16,000
1 in. = 1,333 ft. at Tabloid Layout

0 150 300 600 Meters
0 750 1,500 3,000 Feet

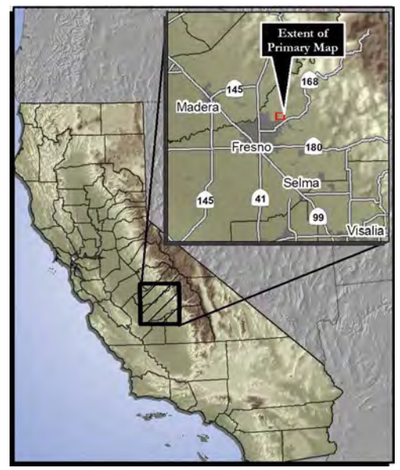
FIGURE 17
Habitats and Land Covers

Vista Ranch Development
Fresno County, California



Legend

Impact Area (Work Areas plus Aquatic Habitats within 250 ft.)



N
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1:16,000
1 in. = 1,333 ft. at Tabloid Layout

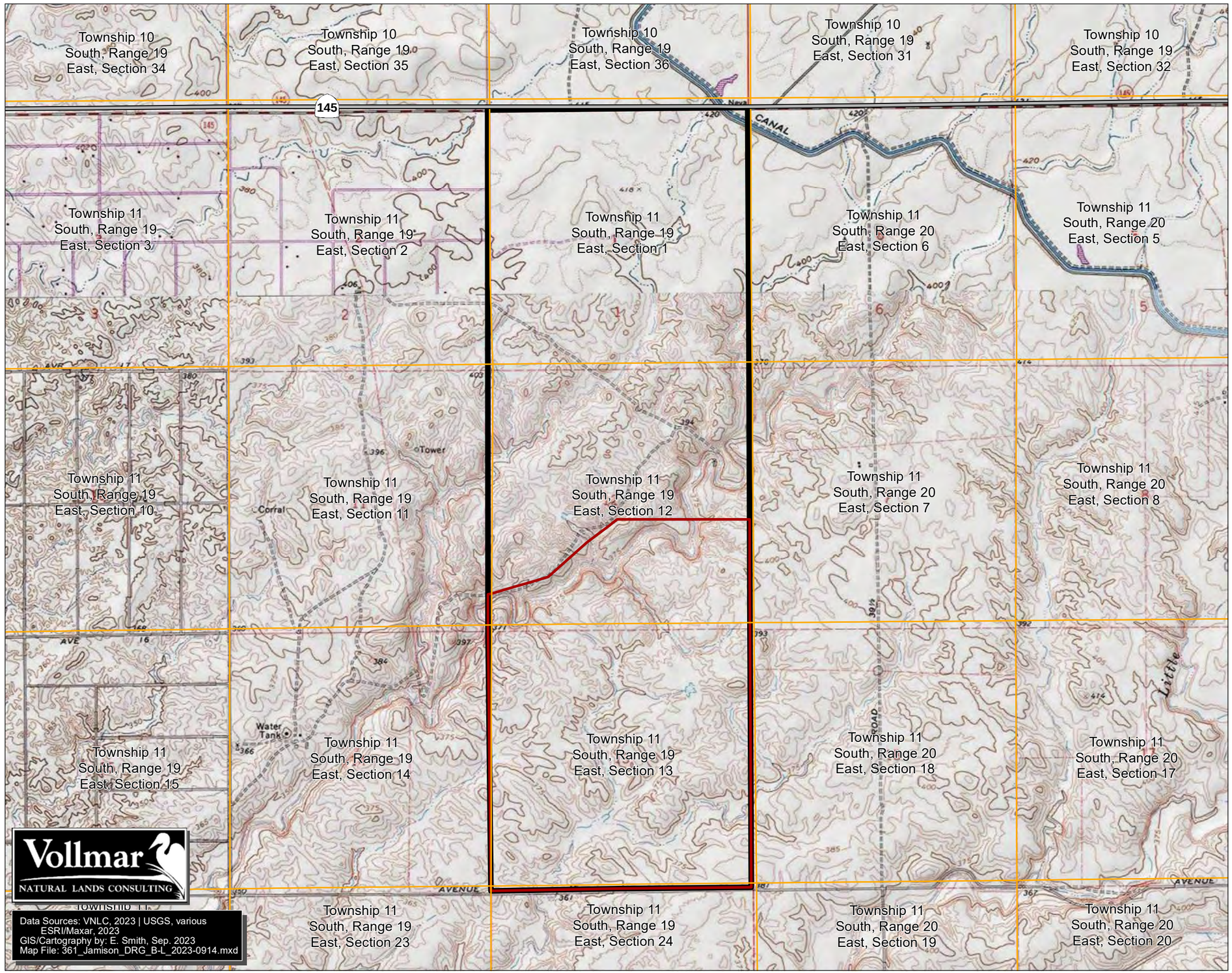
0 150 300 600 Meters
0 750 1,500 3,000 Feet

Vollmar
NATURAL LANDS CONSULTING

Data Sources: VNLC, 2023 | GAP, 1998
ESRI/Maxar, 2023 | USGS, various
GIS/Cartography by: E. Smith, Sep. 2023
Map File: 361_Vista_Habitats_B-L_2025-1010.mxd

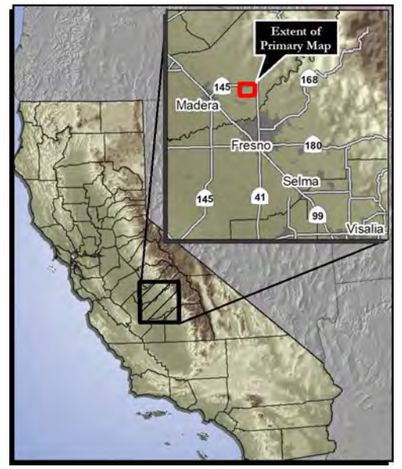
FIGURE 18
USGS Topographic Map

Jamison Ranch
Madera County, California



Legend

- Proposed Preserve (857 ac.)
- Jamison Ranch (1,920 ac.)
- Public Land Survey Boundary



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1:24,000
(1 in. = 2,000 feet. at Tabloid Layout)

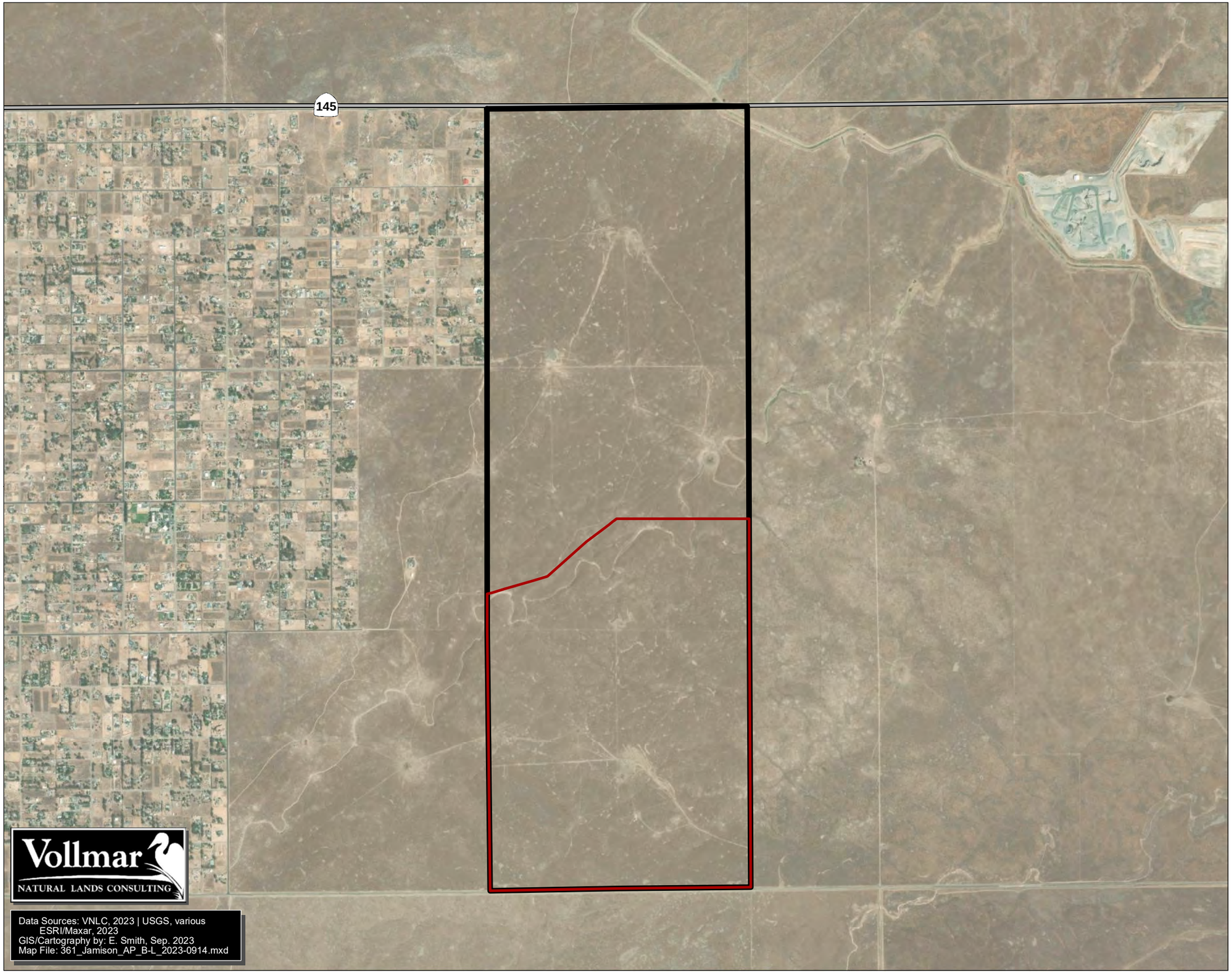
0 200 400 800 Meters
0 1,000 2,000 4,000 Feet

Vollmar NATURAL LANDS CONSULTING

Data Sources: VNLC, 2023 | USGS, various ESRI/Maxar, 2023
GIS/Cartography by: E. Smith, Sep. 2023
Map File: 361_Jamison_DRG_B-L_2023-0914.mxd

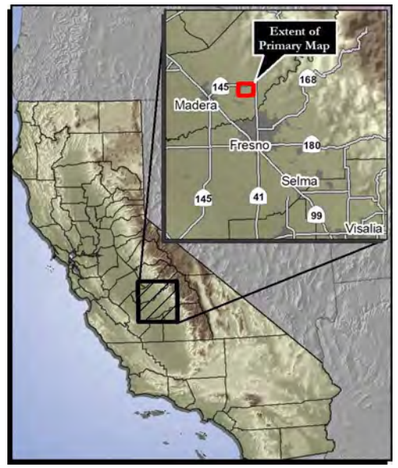
FIGURE 19
Aerial Photo Map

Jamison Ranch
Madera County, California



Legend

- Proposed Preserve (857 ac.)
- Jamison Ranch (1,920 ac.)



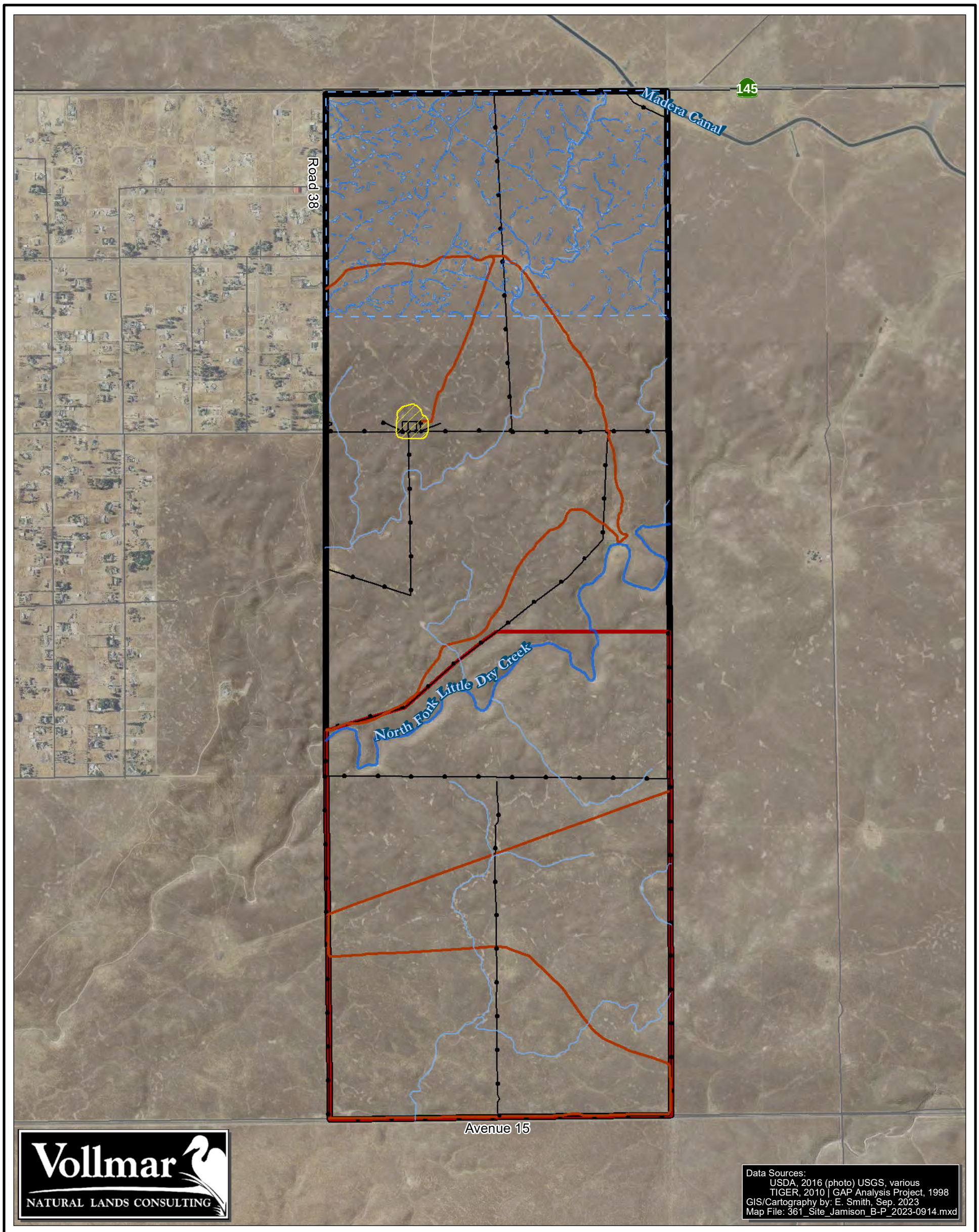
N
W E
S

1:24,000
(1 in. = 2,000 feet. at Tabloid Layout)

0 200 400 800 Meters
0 1,000 2,000 4,000 Feet

Vollmar
NATURAL LANDS CONSULTING

Data Sources: VNLC, 2023 | USGS, various
ESRI/Maxar, 2023
GIS/Cartography by: E. Smith, Sep. 2023
Map File: 361_Jamison_AP_B-L_2023-0914.mxd



Legend

- Barbed Wire Fence
- Ranch Road or Two-Track
- North Fork Little Dry Creek
- Ephemeral Drainage
- Vernal Pool or Swale
- Area of Comprehensive Wetland Mapping
- Building Envelope (5 ac.)
- Proposed Preserve (857 ac.)
- Jamison Ranch (1,920 ac.)

FIGURE 20
Site Map

Jamison Ranch
Madera County, California

N
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1:18,000
1 inch = 1,500 feet

0 200 400 800 Meters
0 750 1,500 3,000 Feet

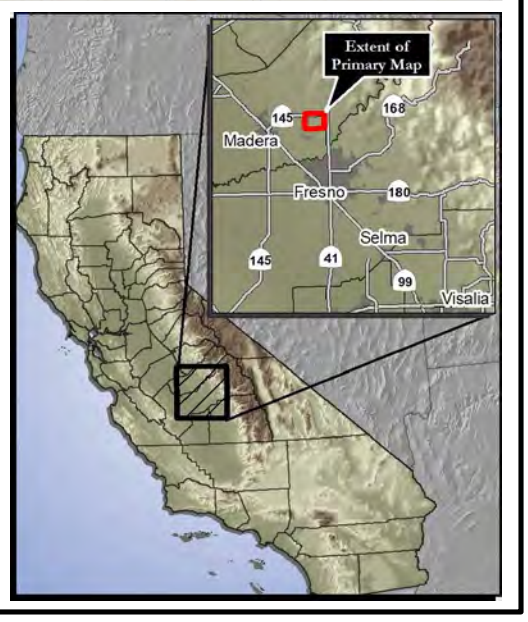


FIGURE 21
Soil Units

Jamison Ranch
Madera County, California

Soil Map Unit

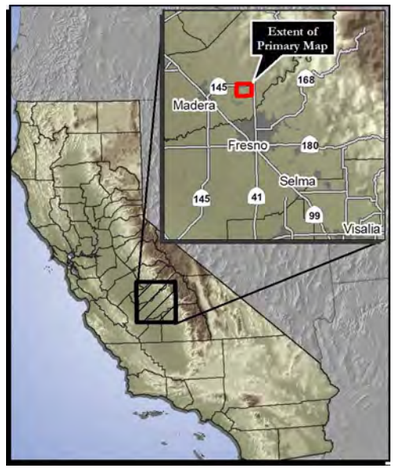
- CsB - Cometa gravelly sandy loam, 3 to 8% slopes
- CuB - Cometa sandy loams, 3 to 8% slopes
- HgA - Hanford sandy loam, moderately deep, 0 to 3%
- HsB - Hornitos gravelly sandy loam, 3 to 8% slopes
- RaA - Ramona sandy loam, 0 to 3% slopes
- SaA - San Joaquin sandy loam, 0 to 3% slopes
- TuB - Trigo fine sandy loam, 3 to 8% slopes
- WfB - Whitney fine sandy loam, 3 to 8% slopes
- WfC - Whitney fine sandy loam, 8 to 15% slopes

145
Road 37
Avenue 17
Avenue 16
Avenue 15

HsB
RaA
CuB
HgA
WfB
RaA
WfB
RaA
HgA
WfB
CuB
WfC
SaA
SaA
SaA
SaA
WfB
CuB
SaA
WfC
CsB
CsB
HgA
HgA
CuB
TuB
CsB
TuB

Legend

- Selected Local Roads
- Proposed Preserve (857 ac.)
- Jamison Ranch (1,920 ac.)



N
W E
S

1:24,000
(1 in. = 2,000 feet. at Tabloid Layout)

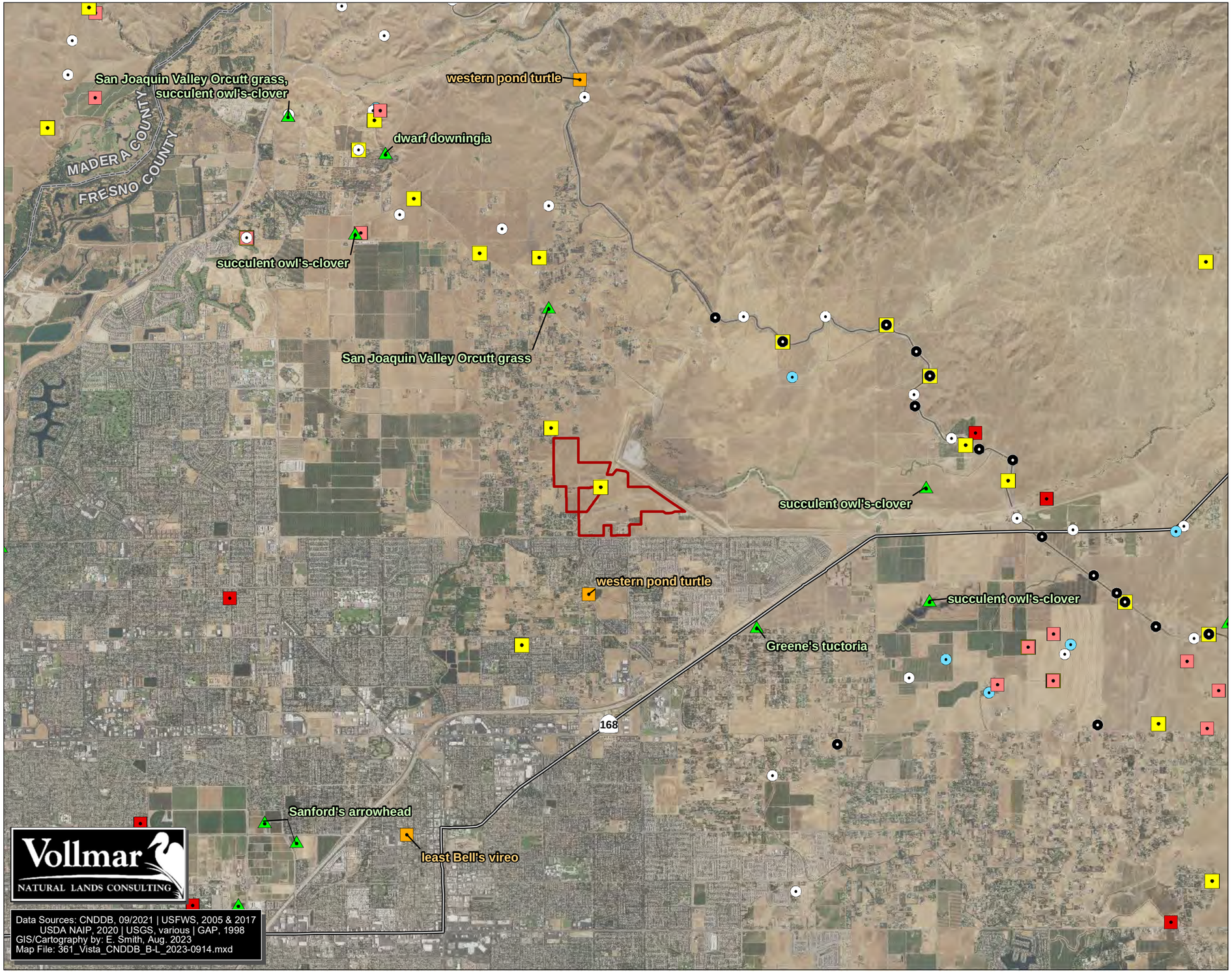
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0 1,000 2,000 4,000 Feet

Vollmar NATURAL LANDS CONSULTING

Data Sources: VNLC, 2023 | USDA-WSS, 2023
ESRI/Maxar, 2023 | USGS, various | GAP, 1998
GIS/Cartography by: A. Bokisch, August 2023
Map File: 361_Jamison_Soils_B-L_2023-0914.mxd

FIGURE 22
Regional Special-Status Species Map

Vista Ranch Project Site
Fresno County, California



Legend

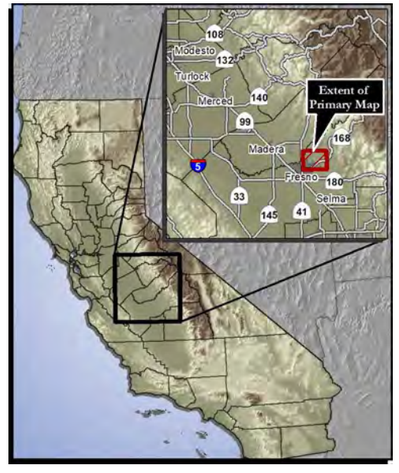
Documented Special-Status Species Occurrence (CNDDB)

Animals

- California Tiger Salamander
- Tricolored Blackbird
- Western Spadefoot
- Vernal Pool Fairy Shrimp
- California Fairy Shrimp
- Midvalley Fairy Shrimp
- Other Special-Status Animal Species (with label)

Plants

- Plant Species (with label)
- Highway
- Project Site (368 ac.)
- County Boundary



N
W E
S

1:63,360
(1 in. = 1 mi. at Tabloid Layout)

0 0.5 1 2 Km

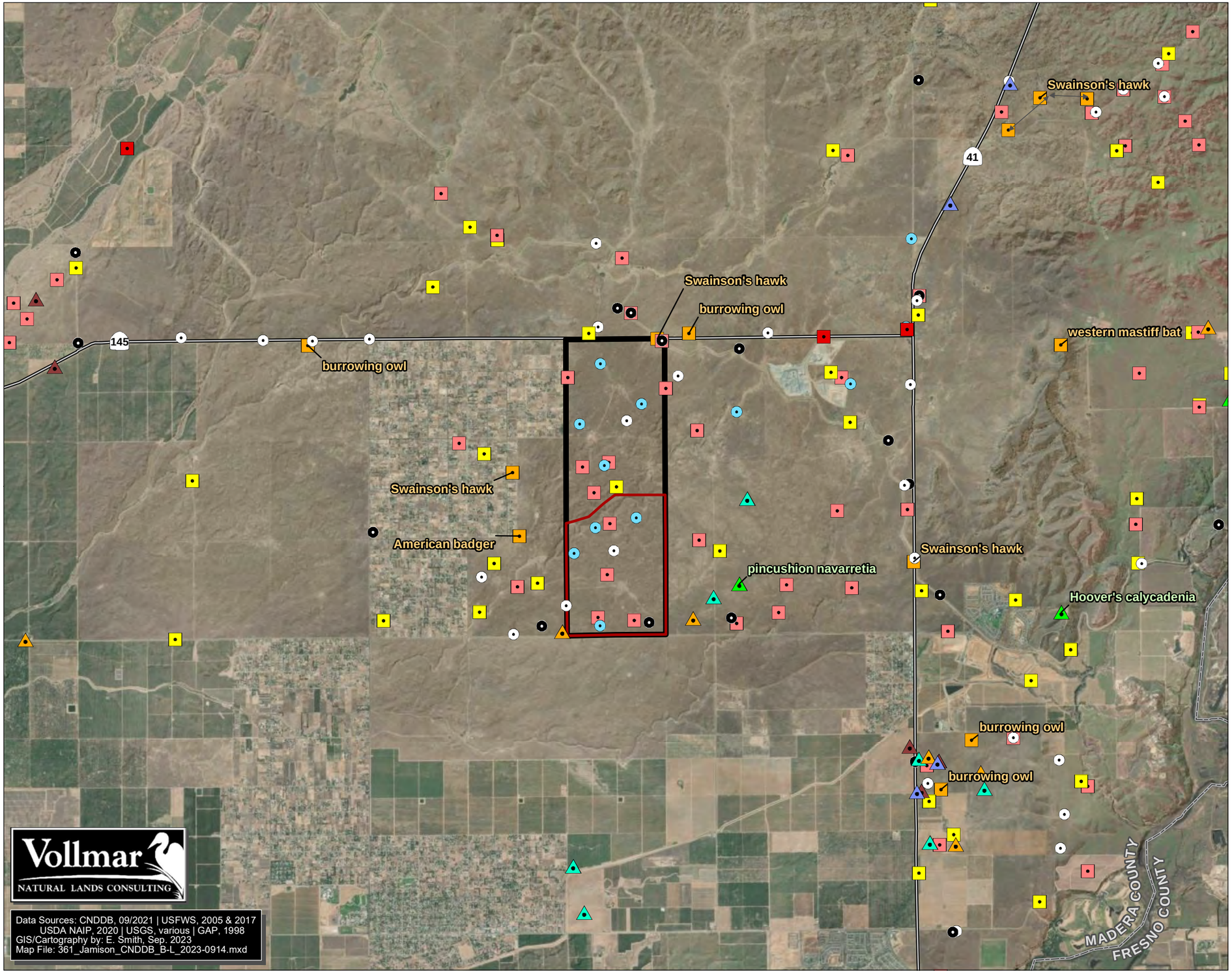
0 0.5 1 2 Mi

Vollmar NATURAL LANDS CONSULTING

Data Sources: CNDDB, 09/2021 | USFWS, 2005 & 2017
USDA NAIP, 2020 | USGS, various | GAP, 1998
GIS/Cartography by: E. Smith, Aug. 2023
Map File: 361_Vista_CNDDB_B-L_2023-0914.mxd

FIGURE 23
Regional Special-Status Species Map

Jamison Ranch
Madera County, California



Vollmar NATURAL LANDS CONSULTING

Data Sources: CNDDB, 09/2021 | USFWS, 2005 & 2017
USDA NAIP, 2020 | USGS, various | GAP, 1998
GIS/Cartography by: E. Smith, Sep. 2023
Map File: 361_Jamison_CNDDB_B-L_2023-0914.mxd

Legend

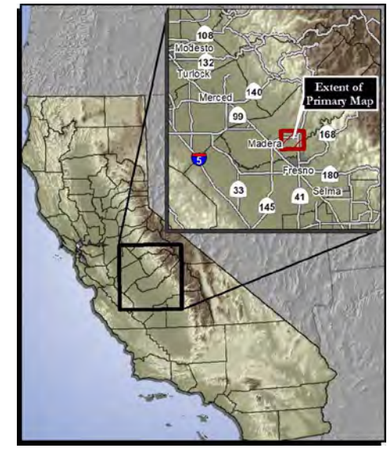
Documented Special-Status Species Occurrence (CNDDB)

Animals

- California Tiger Salamander
- Tricolored Blackbird
- Western Spadefoot
- Vernal Pool Fairy Shrimp
- California Fairy Shrimp
- Midvalley Fairy Shrimp
- Other Special-Status Animal Species (with

Plants

- Succulent Owl's-Clover
- San Joaquin Valley Orcutt Grass
- Hairy Orcutt Grass
- Spiny-Sepaled Button-Celery
- Other Special-Status Plant (with label)
- Highway
- Proposed Preserve (857 ac.)
- Jamison Ranch (1,920 ac.)
- County Boundary



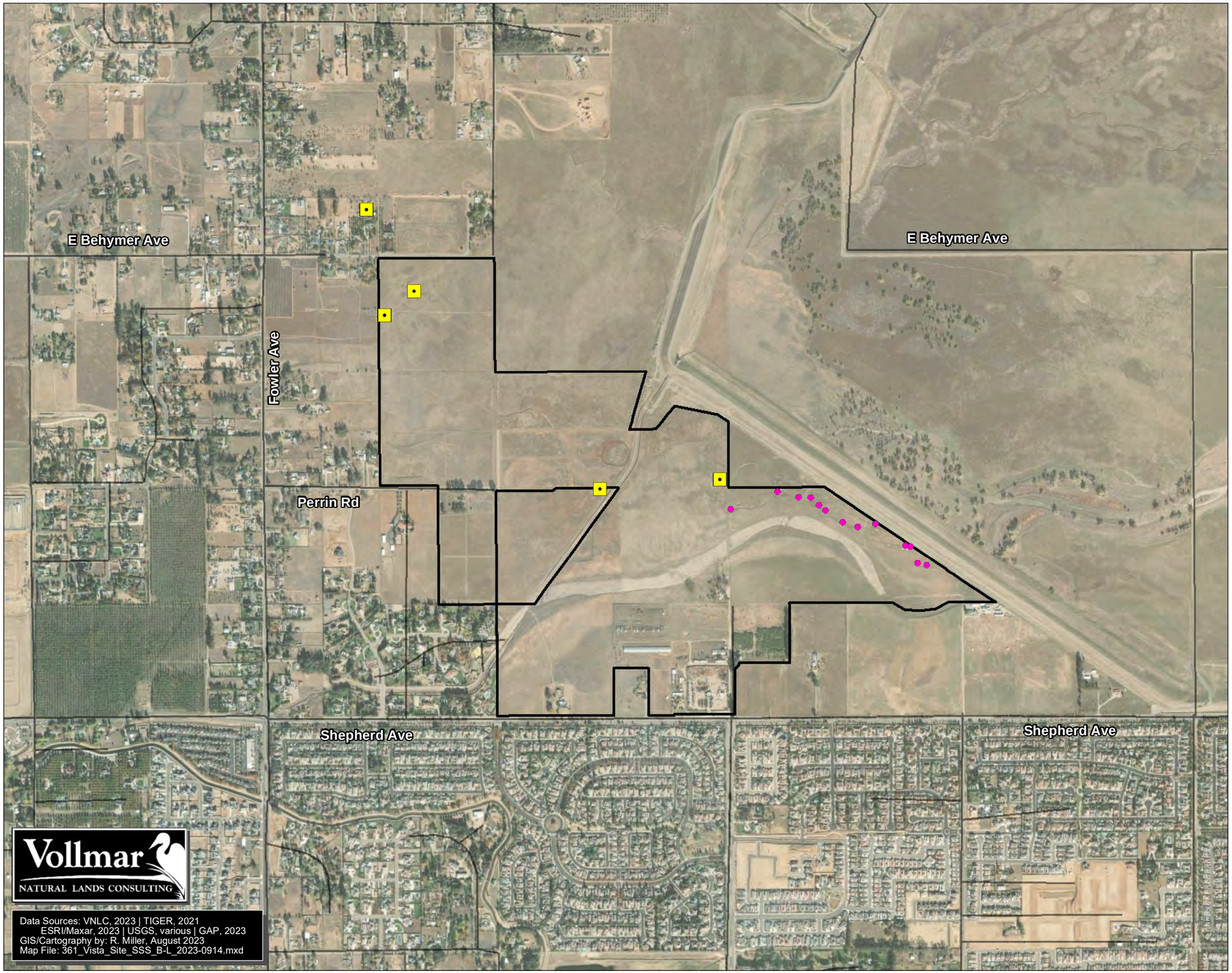
N
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S

1:63,360
(1 in. = 1 mi. at Tabloid Layout)

0 0.5 1 2 Km
0 0.5 1 2 Mi

FIGURE 24
Site Special-Status Species Occurrences

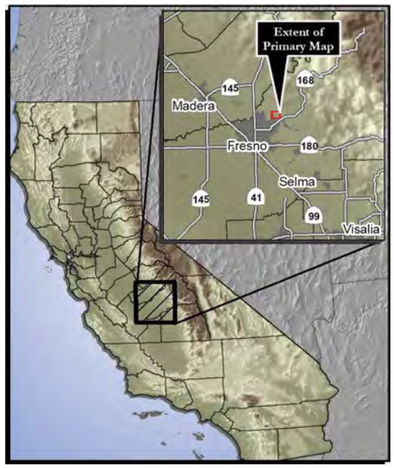
Vista Ranch Project Site
Fresno County, California



Legend

Documented Special-Status Species Occurrences (CNDDB and VNLC)

- CTS
- WSF
- Selected Local Road
- Project Site



N
W E
S

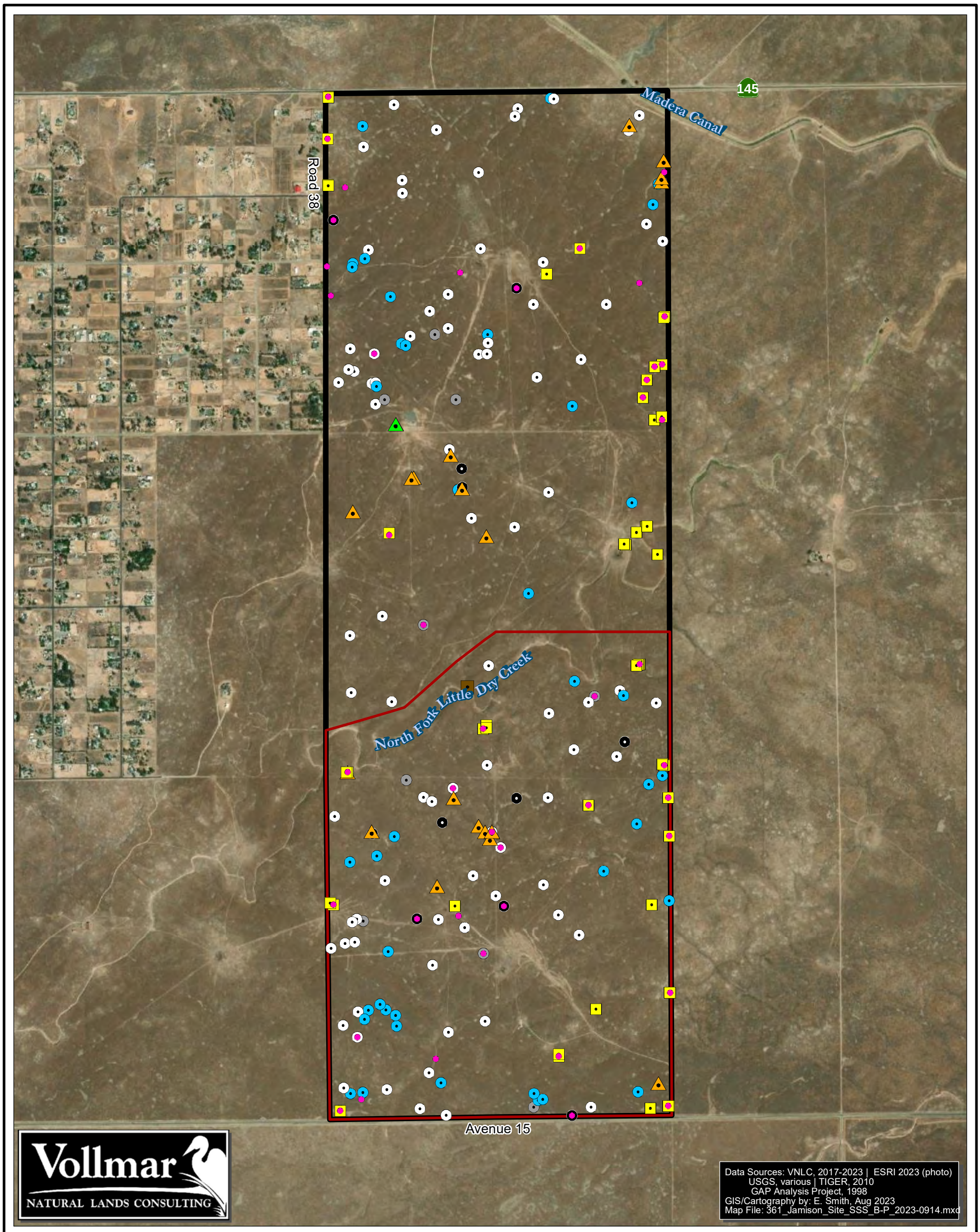
1:13,500
(1 in. = 1,125 feet. at Tabloid Layout)

0 200 400 800 Meters

0 500 1,000 2,000 Feet

Vollmar
NATURAL LANDS CONSULTING

Data Sources: VNLC, 2023 | TIGER, 2021
ESRI/Maxar, 2023 | USGS, various | GAP, 2023
GIS/Cartography by: R. Miller, August 2023
Map File: 361_Vista_Site_SSS_B-L_2023-0914.mxd



Legend

Documented Special-Status Species Occurrences

- CTS (breeding)
- Vernal Pool Fairy Shrimp
- California Fairy Shrimp
- Vernal Pool Fairy Shrimp and California Fairy Shrimp
- Midvalley Fairy Shrimp
- Succulent Owl's-Clover
- Adobe Navarretia and Hogwallow Starfish
- Western Spadefoot (breeding)
- Burrowing Owl
- Proposed Preserve (857 ac.)
- Jamison Ranch (1,920 ac.)

FIGURE 25
Site Special-Status Species Occurrences

Jamison Ranch
Madera County, California

N
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1:18,000
1 inch = 1,500 feet

0 200 400 800 Meters
0 750 1,500 3,000 Feet

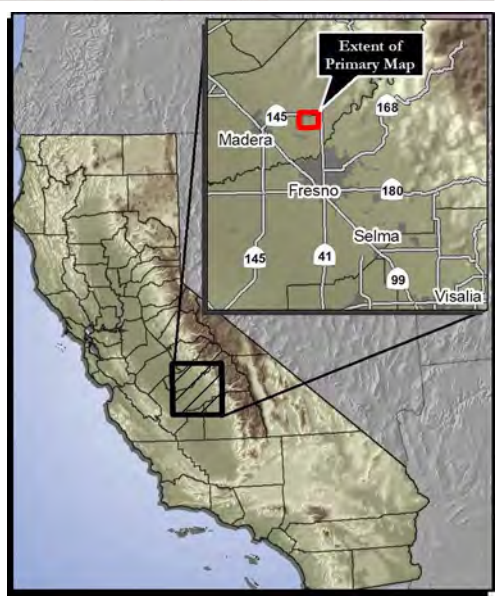
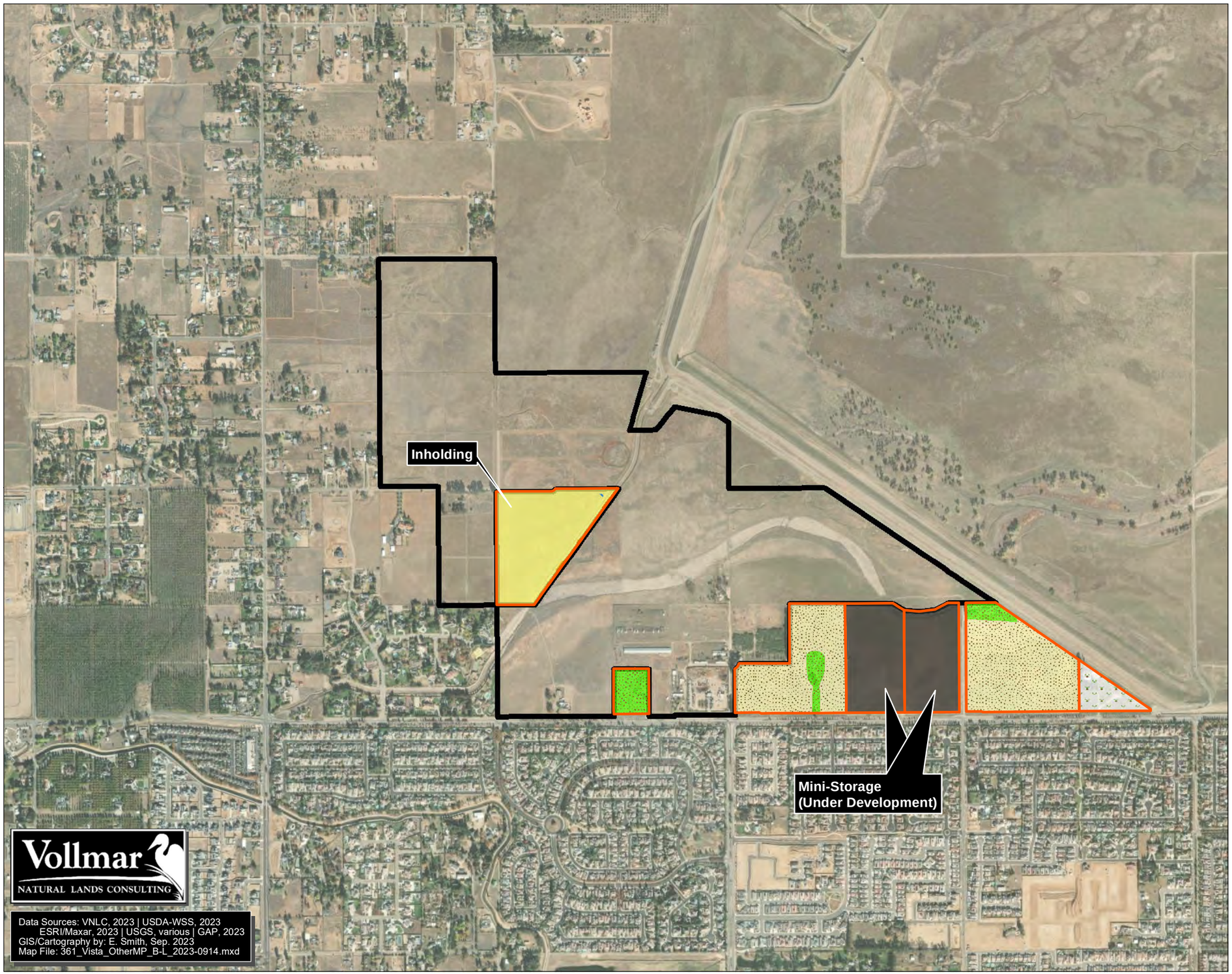


FIGURE 26
Other Master Plan Area Habitats

Vista Ranch Development
Fresno County, California

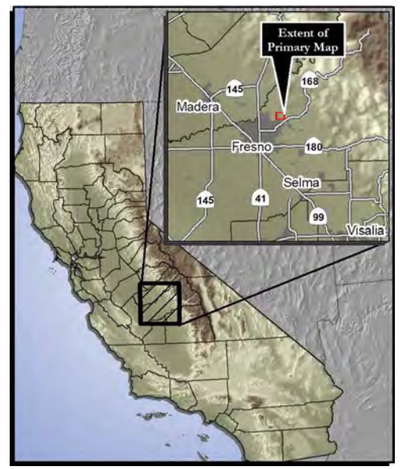


Legend

- Project Site (368 ac.)
- Other Parcel in Master Plan Area

Habitats and Land Covers

- Annual Grassland
- Disturbed/Remnant/Ruderal Grassland
- Developed/Roads
- Low-Density Residential
- Intensive Agriculture
- Canal (Wetland Channel)
- Depressional Wetland Basin



N
W E
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1:13,500
(1 in. = 1,125 feet. at Tabloid Layout)

0 150 300 600 Meters

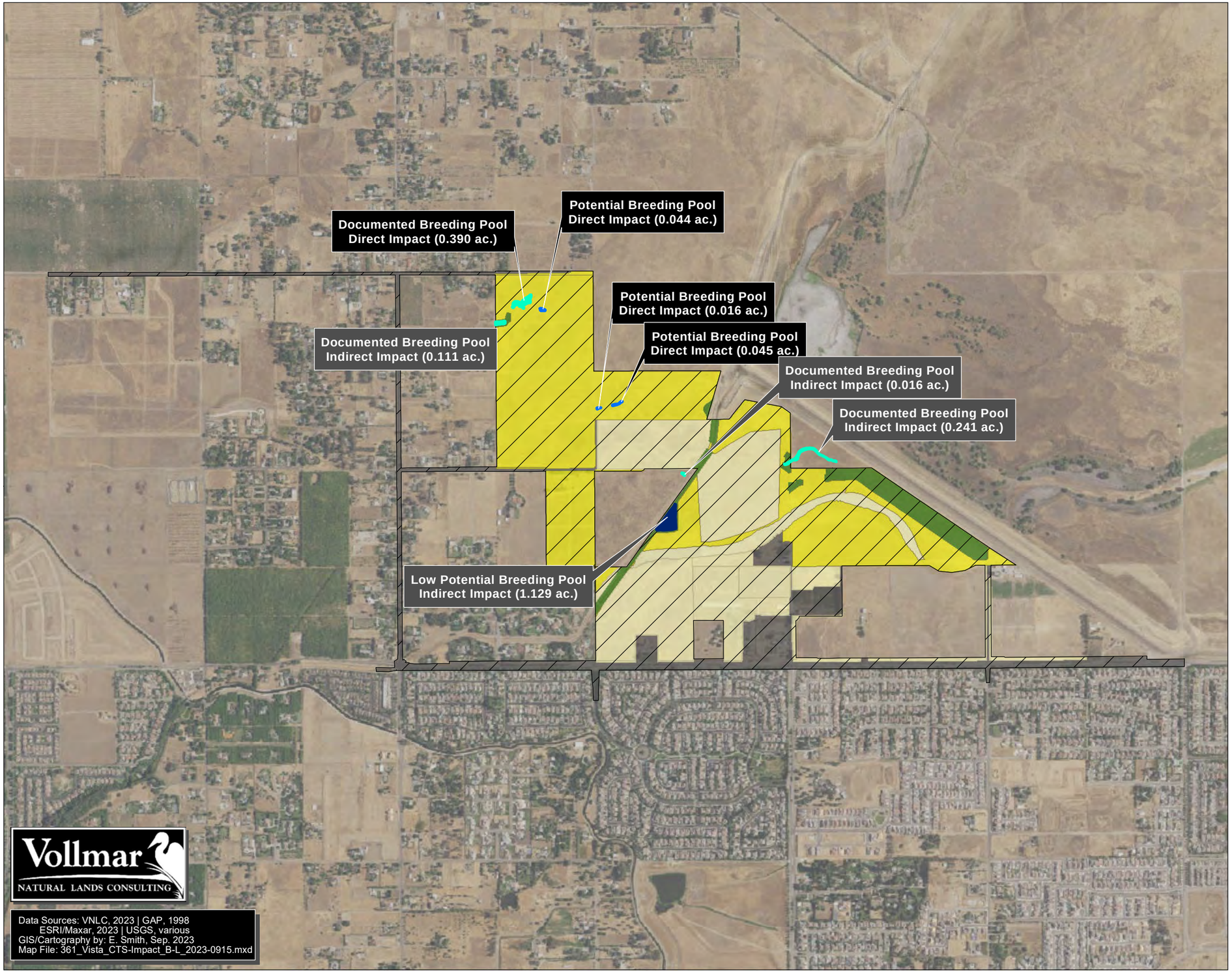
0 750 1,500 3,000 Feet

Vollmar
NATURAL LANDS CONSULTING

Data Sources: VNLC, 2023 | USDA-WSS, 2023
ESRI/Maxar, 2023 | USGS, various | GAP, 2023
GIS/Cartography by: E. Smith, Sep. 2023
Map File: 361_Vista_OtherMP_B-L_2023-0914.mxd

FIGURE 27
CTS Impacts

Vista Ranch Development
Fresno County, California

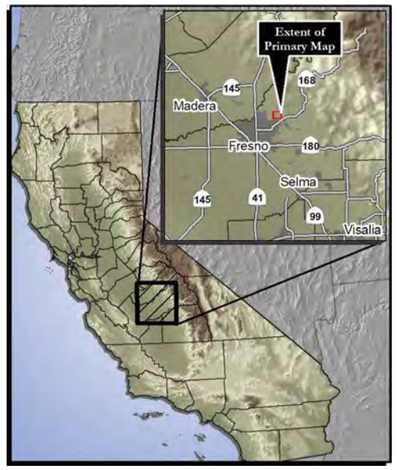


Legend

- Work Area
- Wetland Avoidance Area

CTS Habitat

- Present (Breeding)
- Suitable (Breeding)
- Low Suitability (Breeding)
- Suitable (Upland, Direct Impact)
- Low Suitability (Upland, Direct Impact)
- Not Suitable



N
W E
S

1:16,000
1 in. = 1,333 ft. at Tabloid Layout

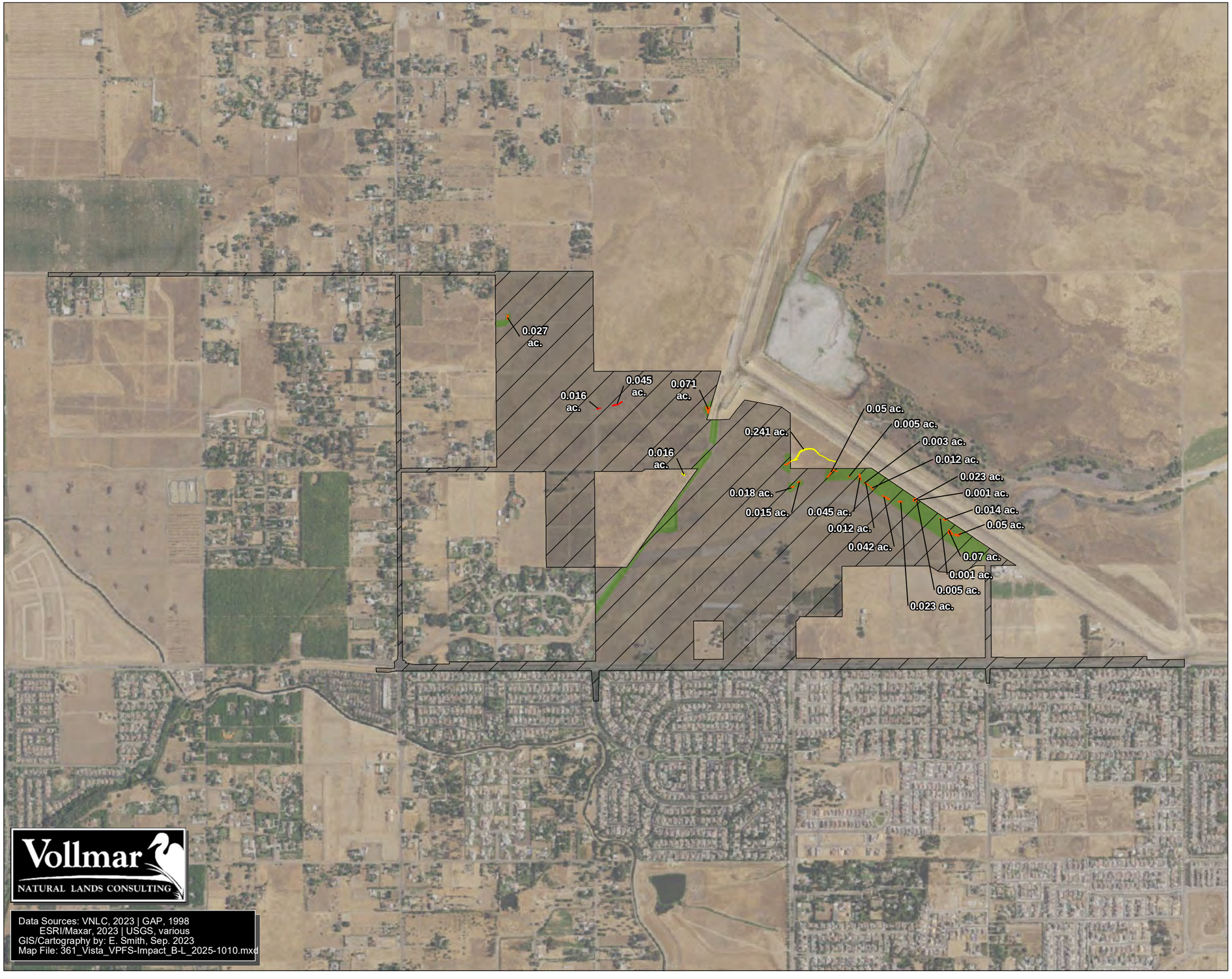
0 150 300 600 Meters
0 750 1,500 3,000 Feet

Vollmar
NATURAL LANDS CONSULTING

Data Sources: VNLC, 2023 | GAP, 1998
ESRI/Maxar, 2023 | USGS, various
GIS/Cartography by: E. Smith, Sep. 2023
Map File: 361_Vista_CTS-Impact_B-L_2023-0915.mxd

FIGURE 28
VPFS Impacts

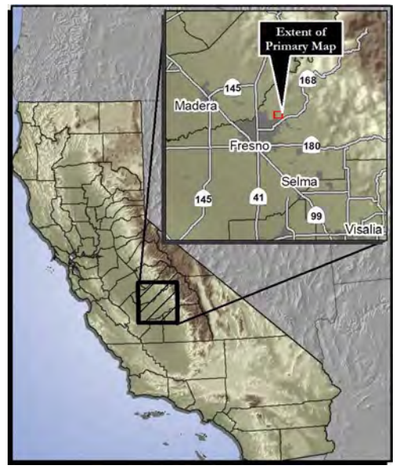
Vista Ranch Development
Fresno County, California



Legend

VPFS Habitat

- Suitable Habitat, Direct Impact
- Suitable Habitat, On-Site Indirect Impact
- Suitable Habitat, Off-Site Indirect Impact
- Not Suitable
- Work Area
- Wetland Avoidance Area



N
W E
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1:16,000
1 in. = 1,333 ft. at Tabloid Layout

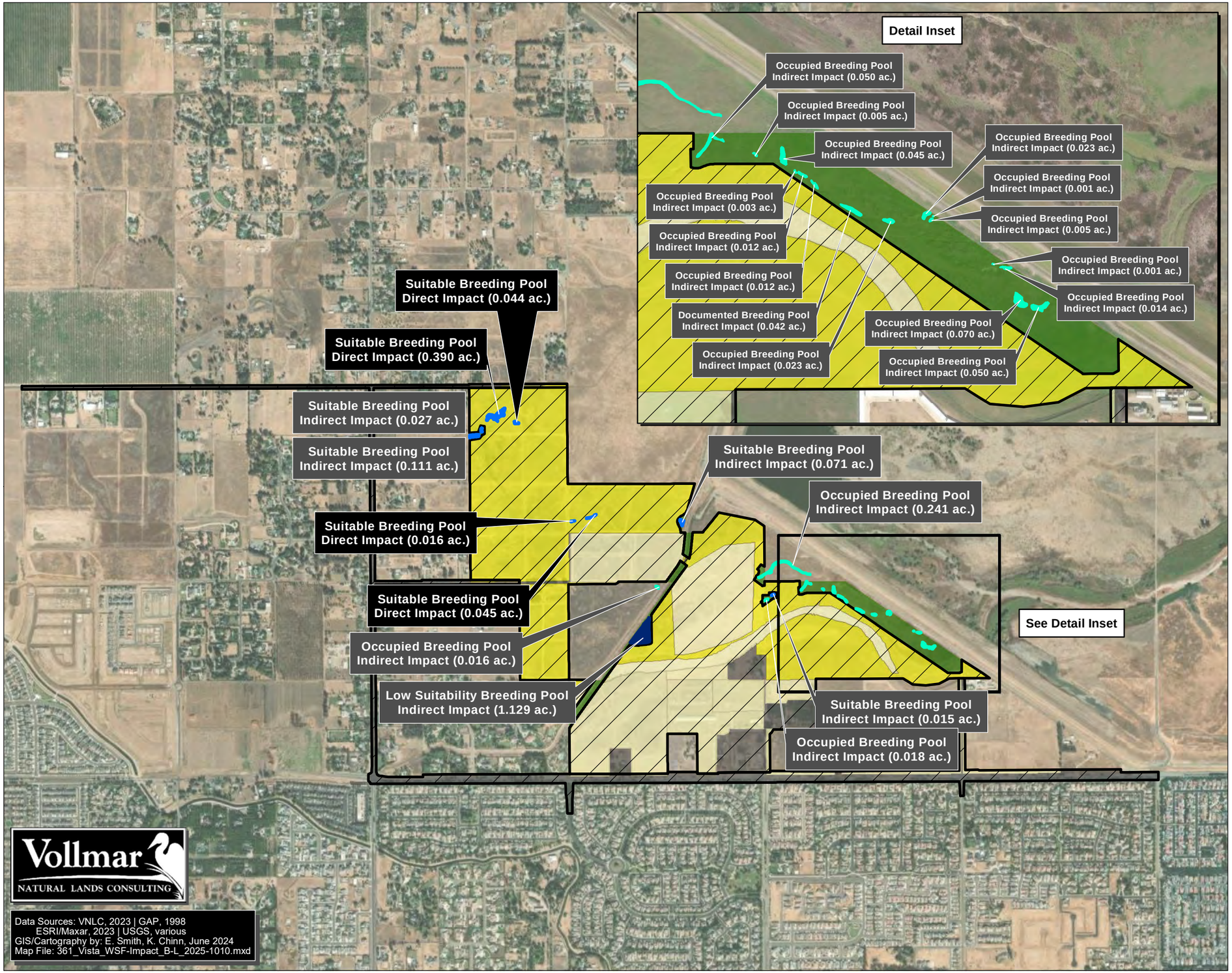
0 150 300 600 Meters
0 750 1,500 3,000 Feet

Vollmar
NATURAL LANDS CONSULTING

Data Sources: VNLC, 2023 | GAP, 1998
ESRI/Maxar, 2023 | USGS, various
GIS/Cartography by: E. Smith, Sep. 2023
Map File: 361_Vista_VPFS-Impact_B-L_2025-1010.mxd

FIGURE 29
Western Spadefoot Impacts

Vista Ranch Development
Fresno County, California

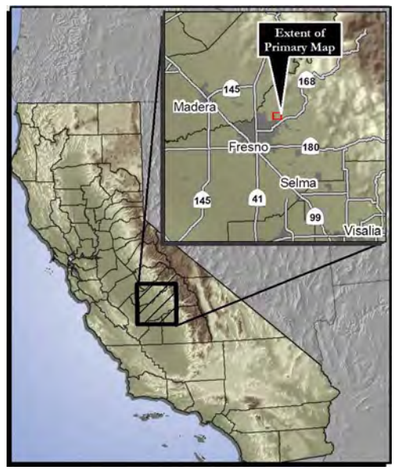


Legend

- Work Area
- Wetland Avoidance Area

Western Spadefoot Habitat

- Present (Breeding)
- Suitable (Breeding)
- Low Suitability (Breeding)
- Suitable (Upland, Direct Impact)
- Low Suitability (Upland, Direct Impact)
- Not Suitable



N
W E
S

1:16,000
1 in. = 1,333 ft. at Tabloid Layout

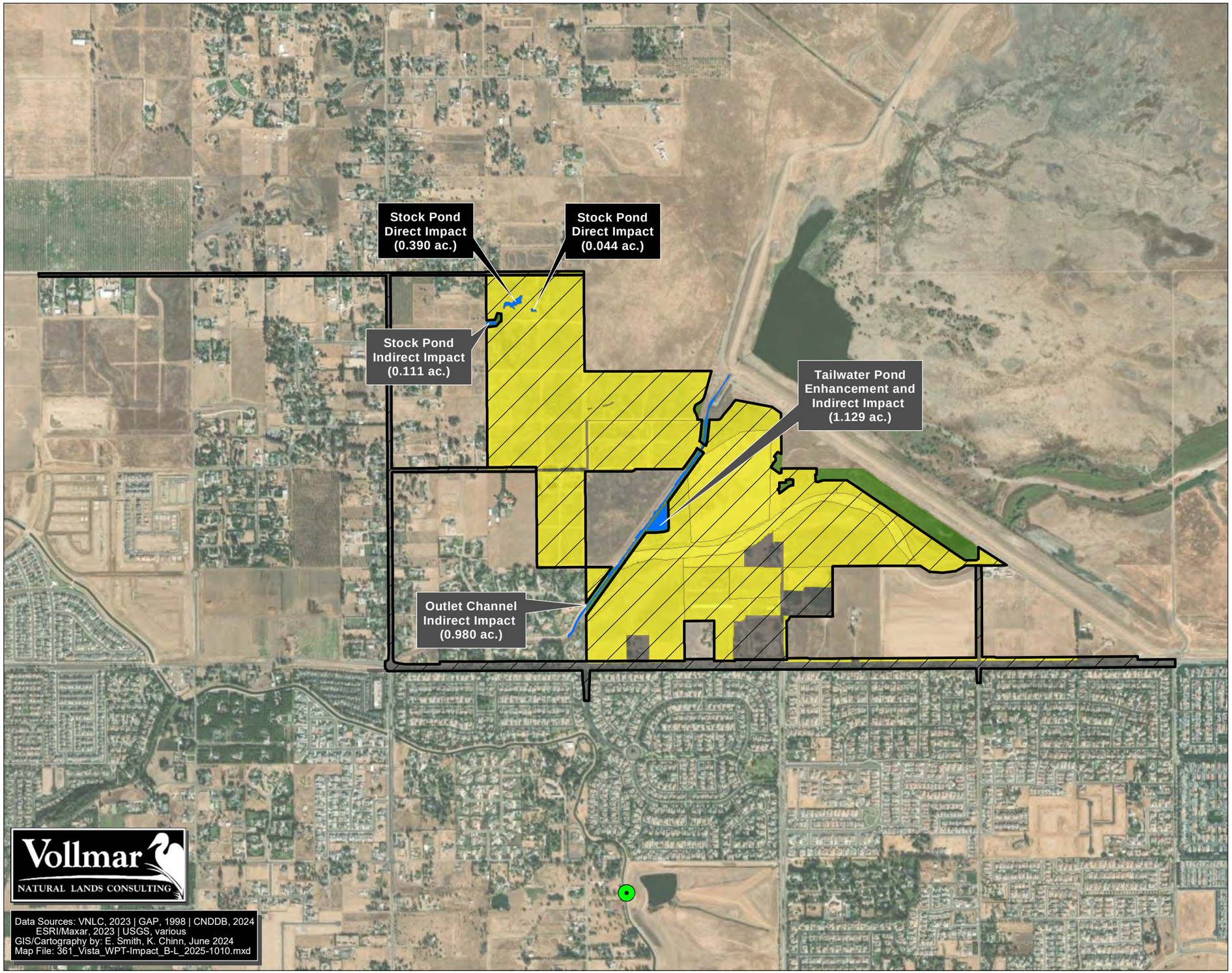
0 150 300 600 Meters
0 750 1,500 3,000 Feet

Vollmar NATURAL LANDS CONSULTING

Data Sources: VNLC, 2023 | GAP, 1998
ESRI/Maxar, 2023 | USGS, various
GIS/Cartography by: E. Smith, K. Chinn, June 2024
Map File: 361_Vista_WSF-Impact_B-L_2025-1010.mxd

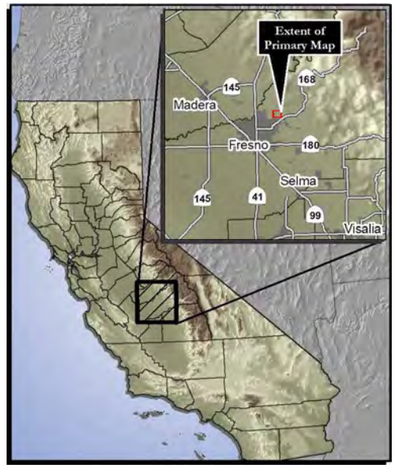
FIGURE 30
Northwestern Pond Turtle Potential Habitat Impacts

Vista Ranch Development
Fresno County, California



Legend

- Northwestern Pond Turtle Locality (CNDDB, 2016)
- Work Area
- Wetland Avoidance Area
- Low-Suitability Aquatic Habitat
- Potential Terrestrial Habitat (Upland, Direct Impact)
- Not Suitable



N
W E
S

1:16,000
1 in. = 1,333 ft. at Tabloid Layout

0 150 300 600 Meters
0 750 1,500 3,000 Feet

Vollmar
NATURAL LANDS CONSULTING

Data Sources: VNLC, 2023 | GAP, 1998 | CNDDB, 2024
ESRI/Maxar, 2023 | USGS, various
GIS/Cartography by: E. Smith, K. Chinn, June 2024
Map File: 361_Vista_WPT-Impact_B-L_2025-1010.mxd

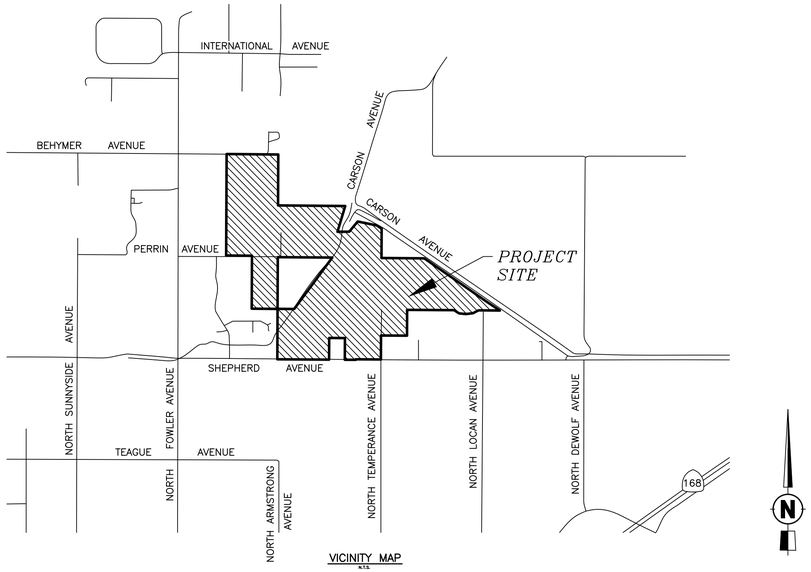
E.1 - C –Tentative Tract Map

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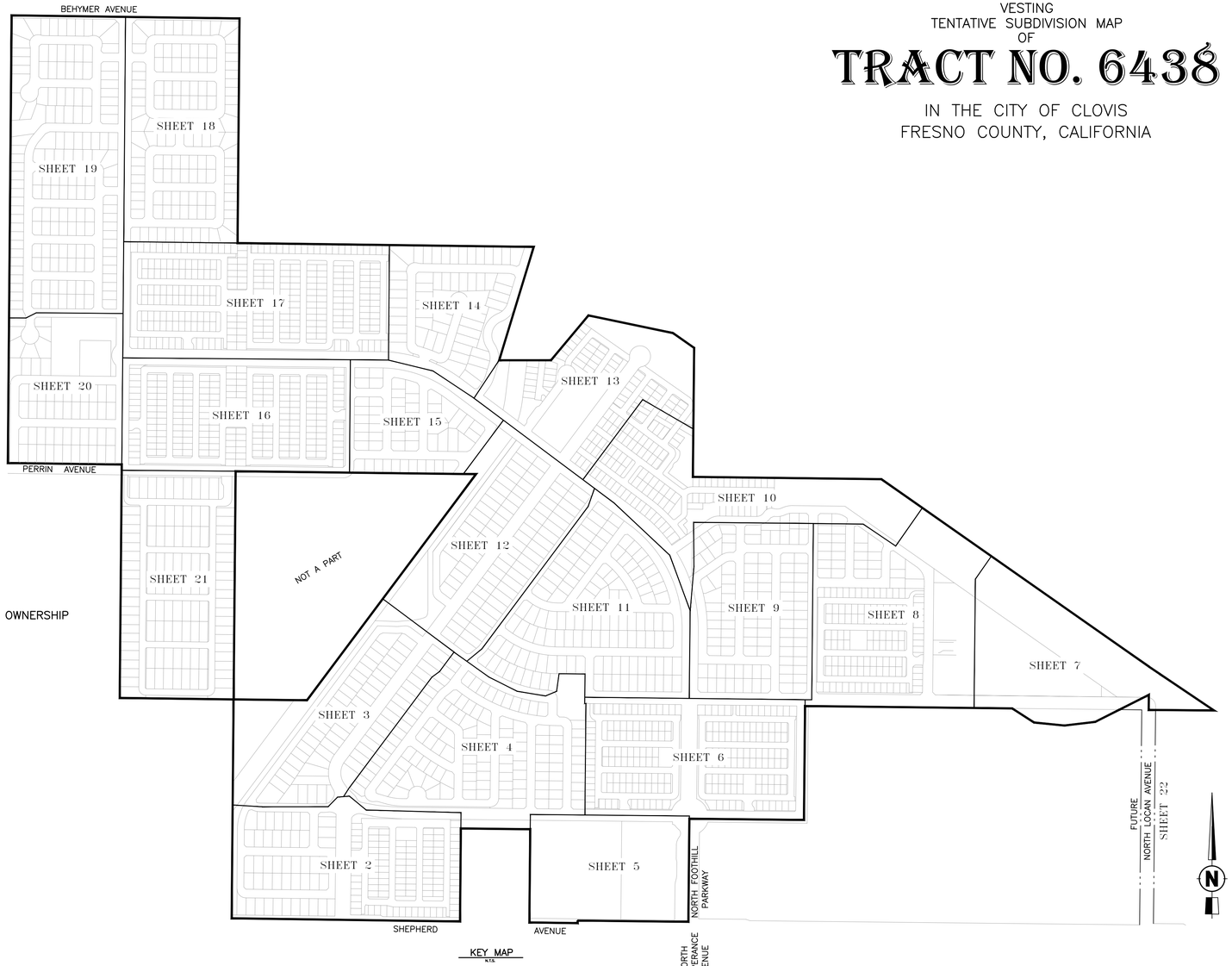
VESTING
TENTATIVE SUBDIVISION MAP
OF

TRACT NO. 6438

IN THE CITY OF CLOVIS
FRESNO COUNTY, CALIFORNIA



VICINITY MAP
N.T.S.



KEY MAP
N.T.S.

LEGAL DESCRIPTION:

APN: 557-031-24

PARCEL 1:
PARCEL 1 OF PARCEL MAP NO. 7598, IN THE COUNTY OF FRESNO, STATE OF CALIFORNIA, ACCORDING TO THE MAP THEREOF RECORDED IN BOOK 57, PAGES 99 AND 100 OF PARCEL MAPS, FRESNO COUNTY RECORDS.
PARCEL 2:
A NON-EXCLUSIVE EASEMENT FOR FACILITIES, INGRESS AND EGRESS AS CONVEYED IN THAT CERTAIN DOCUMENT ENTITLED GRANT OF EASEMENT RECORDED JANUARY 15, 2004 AS DOCUMENT NO. 20040012790 OF OFFICIAL RECORDS.

APN: 557-012-28

THE WEST HALF OF THE SOUTHEAST QUARTER OF THE NORTHEAST QUARTER OF SECTION 21, TOWNSHIP 12 SOUTH, RANGE 21 EAST, MOUNT DIABLO BASE AND MERIDIAN, ACCORDING TO THE OFFICIAL PLAT THEREOF. BEING THE LANDS PURSUANT TO A CERTIFICATE OF WAIVER OF PARCEL MAP NO. 8058 RECORDED OCTOBER 26, 2009 AS DOCUMENT 2009-0147598 OF OFFICIAL RECORDS.

APN: 557-012-02:

THE NORTHEAST QUARTER OF THE NORTHEAST QUARTER OF SECTION 21, TOWNSHIP 12 SOUTH, RANGE 21 EAST, MOUNT DIABLO BASE AND MERIDIAN, IN THE UNINCORPORATED AREA, COUNTY OF FRESNO, STATE OF CALIFORNIA, ACCORDING TO THE OFFICIAL PLAT THEREOF.

APN: 557-031-27:

THE SOUTH HALF OF THE NORTHWEST QUARTER AND THE NORTH HALF OF THE SOUTHWEST QUARTER OF SECTION 22, TOWNSHIP 12 SOUTH, RANGE 21 EAST, MOUNT DIABLO BASE AND MERIDIAN. EXCEPTING THEREFROM ANY PORTION OF THE LAND LYING WITHIN THE BOUNDARIES OF PARCEL MAP NO. 7598 FILED IN THE OFFICE OF THE RECORDER OF THE COUNTY OF FRESNO, STATE OF CALIFORNIA ON JUNE 06, 1997 IN BOOK 57, PAGE 99. ALSO EXCEPTING THEREFROM THAT PORTION DEEDED TO THE FRESNO METROPOLITAN FLOOD CONTROL DISTRICT IN DEED 91039945 RECORDED APRIL 05, 1991 AS FOLLOWS: BEGINNING AT A POINT ON THE EAST LINE OF THE NORTHWEST QUARTER OF SAID. SECTION 22 WHICH BEARS NORTH 0° 06' 59" EAST 747.30 FEET FROM THE CENTER QUARTER CORNER OF SAID SECTION 22; THENCE NORTH 55° 26' 37" WEST A DISTANCE OF 149.39 FEET; THENCE NORTH 78° 38' 43" WEST A DISTANCE OF 500.84 FEET; THENCE SOUTH 39° 26' 39" WEST A DISTANCE OF 338.99 FEET; THENCE SOUTH 89° 31' 53" WEST A DISTANCE OF 300.02 FEET; THENCE NORTH 16° 29' 47" EAST A DISTANCE OF 686.62 FEET TO A POINT ON THE NORTH LINE OF THE SOUTH HALF OF THE NORTHWEST QUARTER OF SAID SECTION 22; THENCE SOUTH 89° 43' 14" EAST ALONG THE NORTH LINE OF THE SOUTH HALF OF THE NORTHWEST QUARTER OF SAID SECTION 22 A DISTANCE OF 935.65 FEET TO THE NORTHEAST CORNER OF THE SOUTH HALF OF THE NORTHWEST QUARTER OF SAID SECTION 22; THENCE SOUTH 0° 06' 59" WEST ALONG THE EAST LINE OF THE NORTHWEST QUARTER OF SAID SECTION 22 A DISTANCE OF 572.90 FEET TO THE POINT OF BEGINNING.

APN: 557-031-37:

THE SOUTHWEST QUARTER OF THE SOUTHWEST QUARTER OF SECTION 22, TOWNSHIP 12 SOUTH, RANGE 21 EAST, MOUNT DIABLO BASE AND MERIDIAN, ACCORDING TO THE UNITED STATES GOVERNMENT TOWNSHIP PLATS. EXCEPTING THEREFROM, THE NORTH 14.00 FEET OF THE SOUTH 34.00 FEET OF THE SOUTHWEST QUARTER OF THE SOUTHWEST QUARTER OF SECTION 22, TOWNSHIP 12 SOUTH, RANGE 21 EAST, MOUNT DIABLO BASE AND MERIDIAN, IN THE COUNTY OF FRESNO, STATE OF CALIFORNIA ACCORDING TO THE OFFICIAL PLAT THEREOF.

APN: 557-012-29:

THE EAST HALF OF THE SOUTHEAST QUARTER OF THE NORTHEAST QUARTER OF SECTION 21, TOWNSHIP 12 SOUTH, RANGE 21 EAST, MOUNT DIABLO BASE AND MERIDIAN, ACCORDING TO THE OFFICIAL PLAT THEREOF PURSUANT TO A CERTIFICATE OF WAIVER OF PARCEL MAP NO. 8058, RECORDED OCTOBER 26, 2009 AS DOCUMENT 2009-0147598 OF OFFICIAL RECORDS.

APN: 557-022-11:

THE EAST HALF OF THE NORTHEAST QUARTER OF THE SOUTHEAST QUARTER OF SECTION 21, TOWNSHIP 12 SOUTH, RANGE 21 EAST, MOUNT DIABLO BASE AND MERIDIAN, ACCORDING TO THE UNITED STATES GOVERNMENT TOWNSHIP PLATS. EXCEPT ONE-HALF OF THE MINERAL RIGHTS IN SAID PROPERTY AS RESERVED IN THE DEED FROM JOHN GHILOTTI, ET UX, DATED DECEMBER 20, 1930, AS RECORDED JANUARY 17, 1931, IN BOOK 1130, PAGE 264 OF OFFICIAL RECORDS.

APN: 557-031-25:

PARCEL 2 OF PARCEL MAP NO. 7598, IN THE COUNTY OF FRESNO, STATE OF CALIFORNIA, ACCORDING TO THE MAP THEREOF RECORDED IN BOOK 57, PAGES 99 AND 100 OF PARCEL MAPS, FRESNO COUNTY RECORDS.

APN: 557-031-35:

THE WEST HALF OF THE SOUTHEAST QUARTER OF THE SOUTHWEST QUARTER OF SECTION 22, TOWNSHIP 12 SOUTH, RANGE 21 EAST, MOUNT DIABLO BASE AND MERIDIAN, ACCORDING TO THE OFFICIAL PLATS THEREOF, FRESNO COUNTY RECORDS. EXCEPTING THEREFROM THE FOLLOWING DESCRIBED LAND: COMMENCING AT A POINT 280 FEET WEST OF THE SOUTHEAST CORNER OF SAID WEST HALF OF THE SOUTHEAST QUARTER OF THE SOUTHWEST QUARTER; THENCE NORTH 589 FEET, TO A POINT WHICH IS 402 FEET EAST OF THE WEST LINE; THENCE WEST 402 FEET; THENCE SOUTH 589 FEET; THENCE EAST 382 FEET TO THE POINT OF COMMENCEMENT.

APN: 557-031-44:

THE EAST HALF OF THE SOUTHEAST QUARTER OF THE SOUTHWEST QUARTER OF SECTION 22, TOWNSHIP 12 SOUTH, RANGE 21 EAST, MOUNT DIABLO BASE AND MERIDIAN. ALSO EXCEPTING THEREFROM AN UNDIVIDED ONE-HALF INTEREST IN AND TO ALL OIL, GAS AND OTHER HYDROCARBONS AND MINERALS THEREIN AND THEREUNDER, TOGETHER WITH ALL EASEMENTS AND RIGHTS NECESSARY OR CONVENIENT FOR THE PRODUCTION, STORAGE AND TRANSPORTATION THEREOF, AND THE EXPLORATION AND TESTING OF THE SAID REAL PROPERTY AND ALSO THE RIGHT TO DRILL FOR, PRODUCE AND USE WATER FROM THE SAID REAL PROPERTY IN CONNECTION WITH DRILLING OR MINING OPERATIONS THEREON, AS RESERVED IN THE DEED DATED AUGUST 8, 1950 FROM L.C. DEAVER AND WIFE, TO DARIUS N. KEATON AND WIFE, RECORDED SEPTEMBER 8, 1950 IN BOOK 2857, PAGE 384 OF OFFICIAL RECORDS, FRESNO COUNTY RECORDS.

APN: 557-031-05:

LOT 13 OF DEVONSHIRE TRACT SUBDIVISION NO. 1, ACCORDING TO THE MAP RECORDED IN BOOK 5, PAGE 42 OF RECORD OF SURVEYS, RECORDS OF SAID COUNTY, EXCEPTING THEREFROM 1/2 OF ALL OIL, GAS, AND OTHER HYDROCARBONS AND MINERALS AS RESERVED BY L. C. DEAVER, ET US, IN DEED RECORDED SEPTEMBER 8, 1950, IN BOOK 2857, PAGE 384, DOCUMENT NO. 48776.

APNS: 557-031-23 AND 558-010-25:

THE NORTH HALF OF THE SOUTHEAST QUARTER OF SECTION 22 AND THE NORTH HALF OF THE SOUTHWEST OF SECTION 23, TOWNSHIP 12 SOUTH, RANGE 20 EAST, MOUNT DIABLO BASE AND MERIDIAN, IN THE COUNTY OF FRESNO, STATE OF CALIFORNIA, ACCORDING TO THE OFFICIAL PLAT THEREOF AND SHOWN ON THE MAP OF DEVONSHIRE TRACT ACCORDING TO THE MAP RECORDED IN BOOK 5, PAGE 42 OF RECORDS OF SURVEY, FRESNO COUNTY RECORDS. EXCEPTING THEREFROM THAT PORTION CONDEMNED IN FEE TO THE FRESNO METROPOLITAN FLOOD CONTROL DISTRICT, A PUBLIC CORPORATION IN INSTRUMENT MAY 19, 1994 AS DOCUMENT NO. 94085027

ASSESSOR'S PARCEL NUMBER, SITE ADDRESS, USE & OWNERSHIP

APN: 557-012-02
SITE ADDRESS: N/A
OWNER: PRITAM S. & RANJIT K. BADESHA, SURINDER P. DHILLON
MAILING ADDRESS: 2541 W. LAKE VAN NESS CIR., FRESNO, CA 93711
USE: VACANT
COUNTY OF FRESNO

APN: 557-012-28
SITE ADDRESS: N/A
OWNER: PACIFIC PREMIER TRUST
MAILING ADDRESS: P.O. BOX 173859, DENVER, CO 80217
USE:AGRICULTURAL
COUNTY OF FRESNO

APN: 557-012-29
SITE ADDRESS: N/A
OWNER: SURINDER P. DHILLON
MAILING ADDRESS: 7523 N. ANTIOCH AVE., FRESNO, CA 93722
USE: AGRICULTURAL
COUNTY OF FRESNO

APN: 557-022-11
SITE ADDRESS: 5931 E. PERRIN RD., CLOVIS, CA 93619
OWNER: BAHADAR S. & BAKSHO JOHAL
MAILING ADDRESS: 10091 N. MAPLE AVE., FRESNO, CA 93730
USE: VACANT
COUNTY OF FRESNO

APN: 557-031-23
SITE ADDRESS: N/A
OWNER: HARLAN LAND CO.
MAILING ADDRESS: 9010 TOLLHOUSE RD, CLOVIS, CA 93619
USE: PASTURE
COUNTY OF FRESNO

APN: 558-010-25
SITE ADDRESS: N/A
OWNER: HARLAN LAND CO.
MAILING ADDRESS: 9010 TOLLHOUSE RD, CLOVIS, CA 93619
USE: PASTURE
COUNTY OF FRESNO

APN: 557-031-24
SITE ADDRESS: N/A
OWNER: SURINDER P. DHILLON & PENSCO TRUST COMPANY
MAILING ADDRESS: 2541 W. LAKE VAN NESS CIR, FRESNO, CA 93711
USE: PASTURE
COUNTY OF FRESNO

APN: 557-031-25
SITE ADDRESS: N/A
OWNER: SURINDER P. DHILLON & PENSCO TRUST COMPANY
MAILING ADDRESS: 21 DUNFIRTH DR., HAYWARD, CA 94542
USE: PASTURE
COUNTY OF FRESNO

APN: 557-031-27
SITE ADDRESS: 9255 N. TEMPERANCE AVE., CLOVIS, CA 93619
OWNER: C.C. BROWN DEVELOPERS INC.
MAILING ADDRESS: 5901 S. BELVEDERE AVE., TUCSON, AZ 85706
USE: PASTURE
COUNTY OF FRESNO

APN: 557-031-35
SITE ADDRESS: N/A
OWNER: LORAINE G. RODDA-FOX & RONALD M. MAIKOVICH
MAILING ADDRESS: 12022 AVONETTE CT., SAN DIEGO, CA 92131
USE: POULTRY FARM
COUNTY OF FRESNO

APN: 557-031-44
SITE ADDRESS: 6374 E. SHEPHERD AVE., CLOVIS, CA 93619
OWNER: LORAINE G. RODDA-FOX & RONALD M. MAIKOVICH
MAILING ADDRESS: 12022 AVONETTE CT., SAN DIEGO, CA 92131
USE: POULTRY FARM
COUNTY OF FRESNO

APN: 557-031-05
SITE ADDRESS: N/A
OWNER: LORAINE G. RODDA-FOX & RONALD M. MAIKOVICH
MAILING ADDRESS: 12022 AVONETTE CT., SAN DIEGO, CA 92131
USE: AGRICULTURAL
COUNTY OF FRESNO

APN: 557-031-37
SITE ADDRESS: 6120 E. SHEPHERD AVE., CLOVIS, CA 93619
OWNER: BOB G. CAMPBELL & JANE E. METTEE
MAILING ADDRESS: SAME AS SITE ADDRESS
USE: RURAL RESIDENTIAL
COUNTY OF FRESNO

SOURCE OF DATA
RECORD INFORMATION

EXISTING BUILDINGS
ALL EXISTING BUILDINGS & STRUCTURES TO BE REMOVED

EXISTING TREES
EXISTING TREES TO BE REMOVED AS NEEDED

PROPOSED ZONING
R-1-MD/MPC, R-2/MPC, C-1/MPC, C-2/MPC
R-4/MPC, O/MPC

EXISTING ZONING
AE-20

PROPOSED GENERAL PLAN LAND USE
MEDIUM DENSITY RESIDENTIAL, VERY HIGH DENSITY RESIDENTIAL, GATEWAY NEIGHBORHOOD COMMERCIAL, COMMUNITY RECREATION, ADMINISTRATIVE AND PROFESSIONAL OFFICE, & PARK/OPEN SPACE

SOURCE OF WATER
CITY OF CLOVIS

SOURCE OF SEWAGE DISPOSAL
CITY OF CLOVIS

SOURCE OF WASTE DISPOSAL
CITY OF CLOVIS

SOURCE OF ELECTRICITY
PG&E

SOURCE OF GAS
N/A

SOURCE OF CABLE T.V.
COMCAST

SOURCE OF TELEPHONE
AT&T

SITE AREA
367.60 AC. (GROSS)
295.91 AC. (NET)

NUMBER OF LOTS
2,171 LOTS & 187 OUTLOTS

DENSITY
7.34 D.U./AC.

AVERAGE LOT SIZE
3,697 S.F.

NOTES:

1. THIS AREA IS SUBJECT TO FLOODZONE X (UNSHADED) AND FLOODZONE A (SHADED).

2. ALL IMPROVEMENTS SHALL BE AS REQUIRED BY THE CITY OF CLOVIS TO CITY STANDARDS, AND SHALL INCLUDE SANITARY SEWER, DOMESTIC WATER, UNDERGROUND POWER, TELEPHONE, GAS, CONCRETE CURBS, GUTTERS, SIDEWALKS, PERMANENT STREET PAVEMENT STREET LIGHTS, ETC.

3. THERE SHALL BE NO GRADE DIFFERENTIALS OF GREATER THAN 6" WITHIN 200 FEET OF THE SITE UNLESS APPROVED BY THE CITY OF CLOVIS DEVELOPMENT DEPARTMENT.

4. ALL EXISTING ABOVE GROUND USES OR STRUCTURES SUCH AS BUILDINGS, WATER WELLS, POWER LINES, TOWERS, ETC., WITHIN THE PROPOSED SUBDIVISION ARE TO BE REMOVED.

5. ALL UNDERGROUND FEATURES SUCH AS WELLS, CESSPOOLS, SEWERS, CULVERTS, STORM DRAINS, DUMP SITES AND OTHER UNDERGROUND STRUCTURES WITHIN THE PROPOSED SUBDIVISION ARE TO BE REMOVED AND ABANDONED.

6. THE DESIGN OF THE PROPOSED SUBDIVISION SHALL PROVIDE TO THE EXTENT FEASIBLE FOR FUTURE PASSIVE OR NATURAL HEATING OR COOLING OPPORTUNITIES AND OTHER MEASURES THAT CONSERVE NONRENEWABLE ENERGY RESOURCES AS PROVIDED IN THE SUBDIVISION MAP ACT.

7. THE PROJECT WILL BE DEVELOPED IN PHASES.

COVER SHEET

TENTATIVE TRACT MAP

SUBDIVIDER
Wilson Premier Homes, Inc.
7550 N. PALM AVENUE
FRESNO, CA 93711
559-224-7550

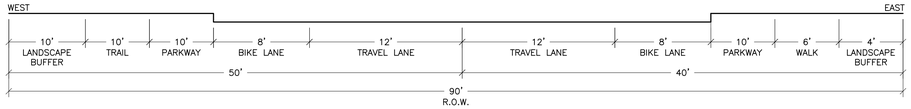
Harbour & Associates
Civil Engineers
389 Clovis Avenue, Suite 300 • Clovis, California 93612
(559) 325-7676 • Fax (559) 325-7699 • e-mail:lorrens@harbour-engineering.com

REVISIONS

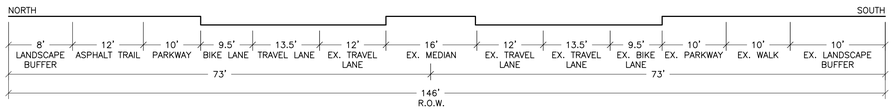
SHEET NO. 1 OF 22

DATE: 9-10-25
DRAWN BY: SDH

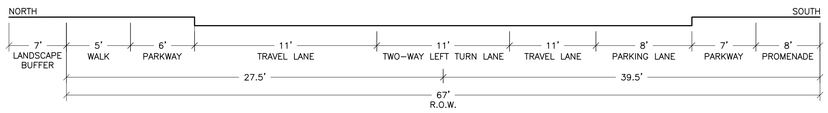
W.O. #20-010



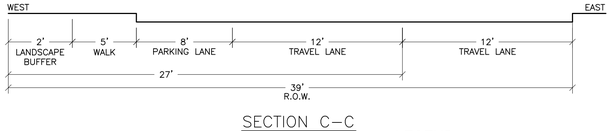
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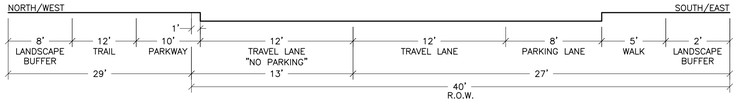
SECTION D–D
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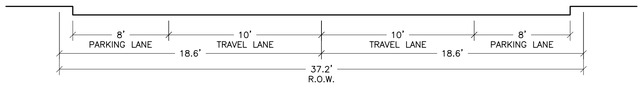
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N.T.S.



SECTION C–C
N.T.S.



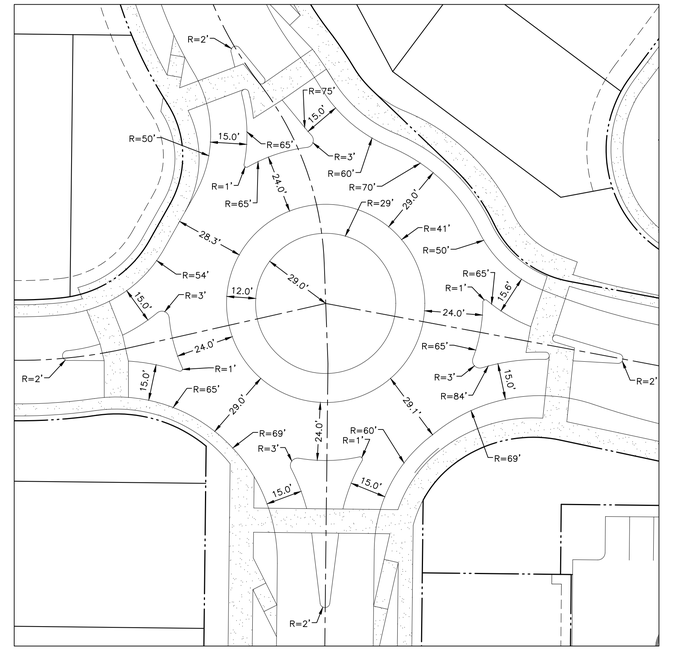
SECTION E–E
N.T.S.



TYPICAL INTERIOR PRIVATE STREET
N.T.S.
NOTE: NO PARALLEL PARKING ON SIDE OF STREET WHERE 90° PARKING STALLS ARE PROPOSED

LEGEND:

Ⓐ	INDICATES STREETS PREVIOUSLY DEDICATED FOR PUBLIC USE
	PUBLIC STREET EASEMENT NOW OFFERED FOR DEDICATION FOR PUBLIC USE
LE	LANDSCAPE EASEMENT NOW OFFERED FOR DEDICATION FOR PUBLIC USE
PUE	PUBLIC UTILITY EASEMENT NOW OFFERED FOR DEDICATION FOR PUBLIC USE
Ⓐ	OUTLOT IDENTIFIER
	EXISTING EASEMENT GRANTED TO F.M.F.C.D. RECORDED AS DOCUMENT NO. 95039627, O.R.F.C.
	EXISTING EASEMENT GRANTED TO THE STATE OF CALIFORNIA RECORDED AS DOCUMENT NO. 85068990, O.R.F.C.
	FLOODZONE 'A'
	PROPOSED 6" CONCRETE SIDEWALK
	RELINQUISHMENT OF ACCESS ALONG DOUBLE FRONTAGE LOTS
E.D.	ENTRY DETAIL THIS SHEET
	INDICATES FIRE LANE MARKINGS PER CITY FIRE DEPT. STD. #1.1
Ⓕ	INDICATES FIRE HYDRANT LOCATION PER THE CITY OF CLOVIS FIRE DEPARTMENT.

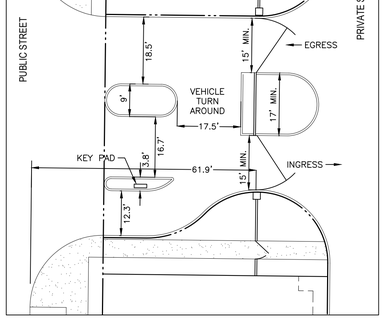


ROUNDABOUT DETAIL
SCALE: 1"=30'

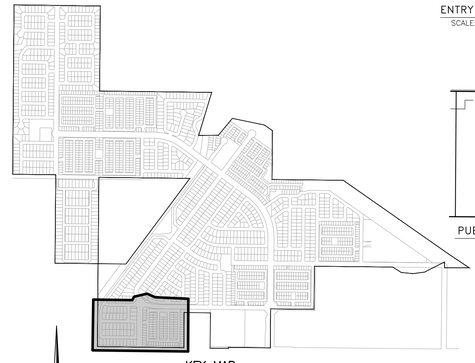
OUTLOT SCHEDULE:

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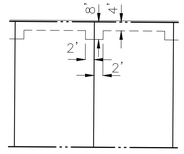




ENTRY DETAIL
SCALE: 1"=20'



KEY MAP



PUE DETAIL (LOTS 1–111)
N.T.S.

SCALE: 1" = 60'
GRAPHIC SCALE
0 30' 60' 120'

TENTATIVE TRACT MAP

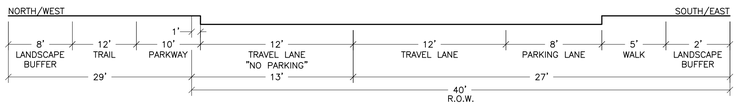
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Harbour & Associates
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389 Clovis Avenue, Suite 300 • Clovis, California 93612
(559) 325-7676 • Fax (559) 325 - 7699 • e-mail:lorrens@harbour-engineering.com

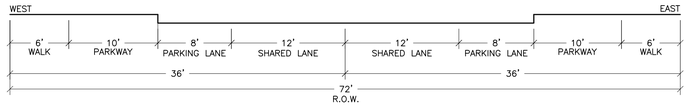
REVISIONS	SHEET NO.
	2 OF 22

DATE: 9-10-25 | SCALE: 1"= 60' | DRAWN BY: SDH

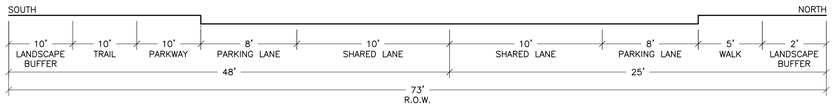
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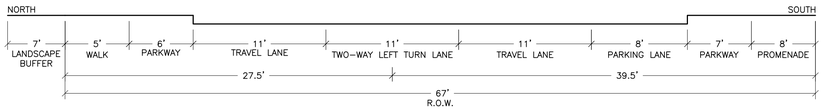
SECTION A–A
N.T.S.



SECTION B–B
N.T.S.



SECTION C–C
N.T.S.



SECTION D–D
N.T.S.

RECORDED AS DOCUMENT No. 9553621, O.R.F.C.

APN: 557-031-26
USE: VACANT
COUNTY OF FRESNO

EX. PARCEL LINE (TYP.)

REMAINDER
83,937 SF

APN: 557-052-12
USE: SFR
COUNTY OF FRESNO

APN: 557-052-11
USE: SFR
COUNTY OF FRESNO

PROP. CURB, GUTTER & WALK (TYP.)

PROP. RIGHT OF WAY (TYP.)

PROP. CENTER LINE (TYP.)

SEE SHEET 12

SEE SHEET 4

SEE SHEET 2

NORTH RANGELAND AVENUE

MOONLIGHT AVENUE

VISTA RANCH PARKWAY

PRESIDIO AVENUE

PROVINCE AVENUE

NORTH MAIN AVENUE

NOR

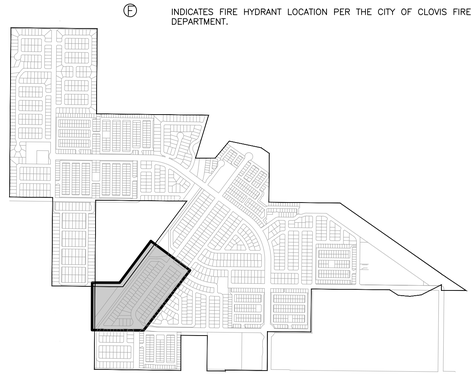
168 8,534 SF
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170 5,350 SF
171 5,350 SF
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177 5,350 SF
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184 5,350 SF
185 5,489 SF
186 7,812 SF
187 9,930 SF
188 10,301 SF
189 8,878 SF
190 6,050 SF
191 6,050 SF
192 6,039 SF
193 7,459 SF
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207 5,600 SF
208 5,987 SF
209 6,375 SF
210 C 7,012 SF
211 4,400 SF
212 4,000 SF
213 4,330 SF
214 4,209 SF
215 4,000 SF
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227 4,000 SF
228 4,001 SF
229 4,488 SF
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148 6,050 SF
149 5,450 SF
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151 5,626 SF
152 5,002 SF
153 5,000 SF
154 5,500 SF
155 5,000 SF
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161 5,000 SF
162 5,500 SF
163 5,000 SF
164 5,000 SF
165 5,000 SF
166 5,500 SF
167 5,000 SF
253 4,324 SF
252 4,543 SF
246 4,484 SF
245 4,324 SF
277 4,809 SF
277 4,52

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LEGEND:

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- FLOODZONE 'A'
- PROPOSED 6' CONCRETE SIDEWALK
- RELINQUISHMENT OF ACCESS ALONG DOUBLE FRONTAGE LOTS
- WETLANDS TO REMAIN
- (P) INDICATES FIRE HYDRANT LOCATION PER THE CITY OF CLOVIS FIRE DEPARTMENT.



KEY MAP

SCALE: 1" = 60'

GRAPHIC SCALE
0 30' 60' 120'

TENTATIVE TRACT MAP

SUBDIVIDER
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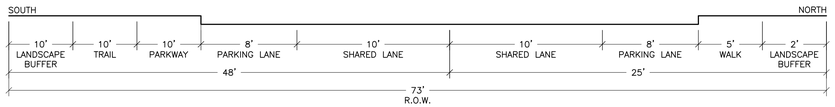
REVISIONS

SHEET NO. 3 OF 22

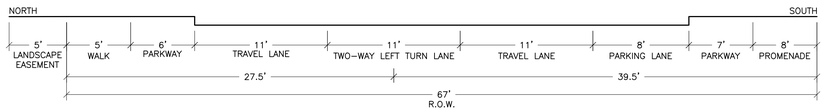
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W.O. #22-031

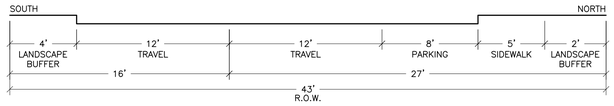
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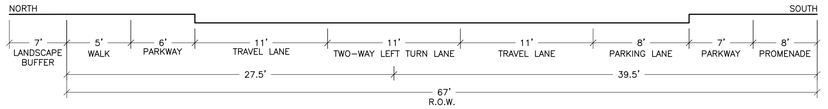
SECTION A–A
N.T.S.



SECTION B–B
N.T.S.



SECTION C–C
N.T.S.



SECTION D–D
N.T.S.

SEE SHEET 11

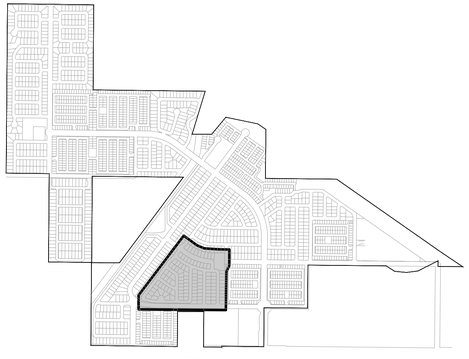


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- PUBLIC STREET EASEMENT NOW OFFERED FOR DEDICATION FOR PUBLIC USE
- PUE PUBLIC UTILITY EASEMENT NOW OFFERED FOR DEDICATION FOR PUBLIC USE
- (A) OUTLOT IDENTIFIER
- PROPOSED 6' CONCRETE SIDEWALK
- RELINQUISHMENT OF ACCESS ALONG DOUBLE FRONTAGE LOTS
- LE LANDSCAPE EASEMENT
- PE PEDESTRIAN EASEMENT NOW OFFERED FOR DEDICATION FOR PUBLIC USE
- (F) INDICATES FIRE HYDRANT LOCATION PER THE CITY OF CLOVIS FIRE DEPARTMENT.



KEY MAP

SCALE: 1" = 60'

GRAPHIC SCALE
0 30' 60' 120'

TENTATIVE TRACT MAP

SUBDIVIDER
Wilson Premier Homes, Inc.
7590 N. PALM AVENUE
FRESNO, CA. 93711
559-224-7550

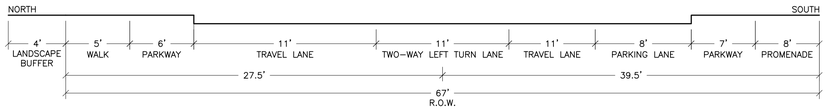
Harbour & Associates
Civil Engineers
389 Clovis Avenue, Suite 300 • Clovis, California 93612
(559) 325 -7676 • Fax (559) 325 - 7699 • e-mail:tkmms@harbour-engineering.com

REVISIONS

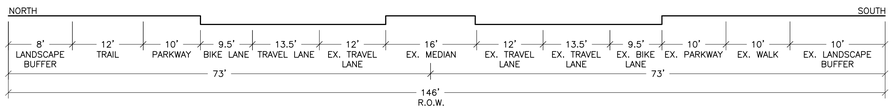
SHEET NO. 4 OF 22

DATE: 9-10-25 | SCALE: 1"= 60' | DRAWN BY: SDH

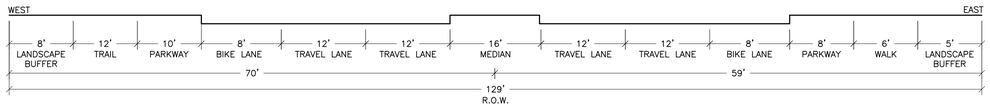
W.O. #20-010



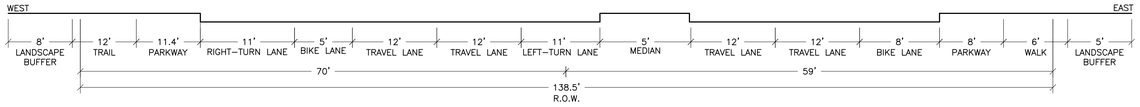
SECTION B–B
N.T.S.



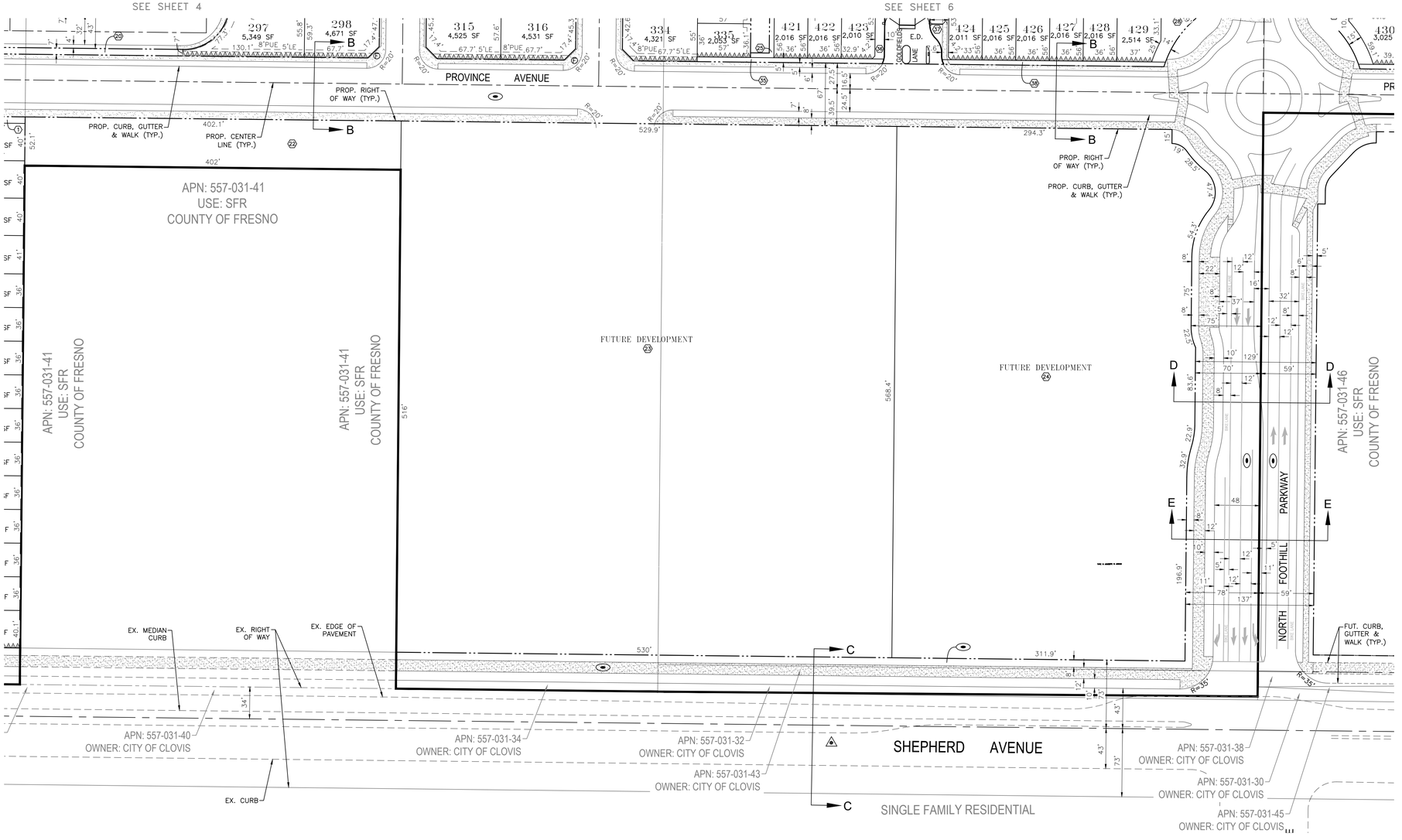
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N.T.S.

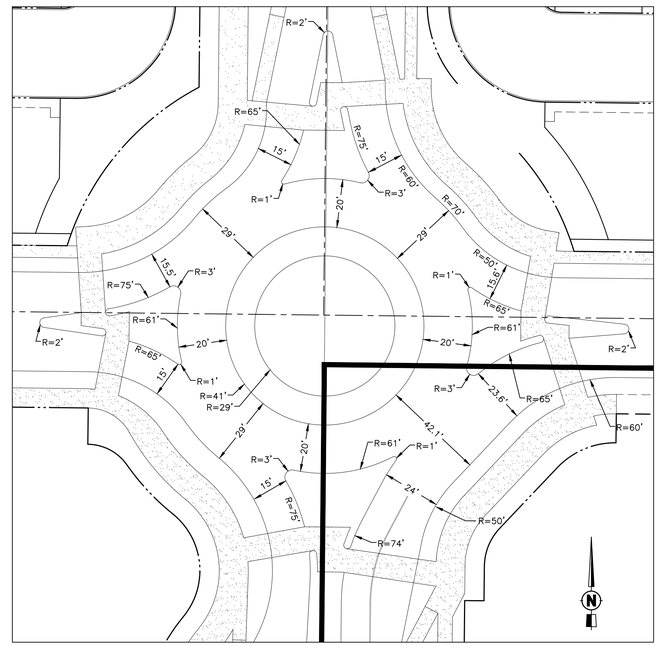


SECTION D–D
N.T.S.



SECTION E–E
N.T.S.





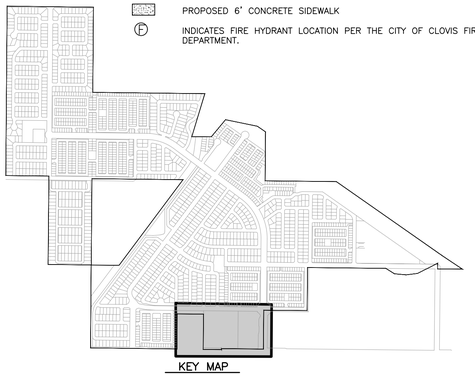
ROUNDABOUT DETAIL
SCALE: 1"=30'

OUTLOT SCHEDULE:

- OUTLOTS 12, 39, 55, 74, 102, 103, 105, 139, 169, & 186 ARE FOR PRIVATE STREET AND PUBLIC UTILITY PURPOSES.
- OUTLOT 12 IS FOR PRIVATE STREET, PRIVATE PARKING, PRIVATE LANDSCAPE, & PUBLIC UTILITY PURPOSES.
- OUTLOTS 6, 32, 54, 75, 127 & 153 ARE FOR PRIVATE PARK AREA AND PUBLIC UTILITY PURPOSES.
- OUTLOTS 21, 56 & 171 ARE FOR PUBLIC PARK SPACE.
- OUTLOTS 3, 5, 30, 34, 65, 70, 72, 79, 81, 83, 86, 87, 95, 146, 147, 148, 149, 150, 151, 152, 154, 159, 160, 162, 163, 164 & 165 ARE FOR PRIVATE PARKING, PRIVATE LANDSCAPE AND PUBLIC UTILITY.
- OUTLOTS 2, 9, 10, 26, 37, 43, 53, 61, 63, 89, 91, 93, 116, 136, 142, 167 & 173 ARE FOR PRIVATE LANDSCAPE, PRIVATE PEDESTRIAN AND PUBLIC UTILITY PURPOSES.
- OUTLOTS 1, 4, 7, 8, 11, 25, 27, 28, 29, 31, 33, 36, 38, 40, 42, 45, 46, 47, 48, 49, 50, 51, 52, 62, 66, 67, 68, 69, 71, 73, 76, 78, 82, 84, 85, 88, 90, 92, 94, 96, 97, 98, 99, 100, 101, 106, 115, 118, 119, 120, 121, 122, 123, 124, 125, 126, 128, 129, 130, 131, 132, 133, 134, 135, 137, 140, 141, 143, 144, 145, 155, 156, 157, 158, 161, 166, 168, 174, 175, 176, 177, 178, 179, 180, 181, 182, 183 & 184 ARE FOR PRIVATE LANDSCAPE AND PUBLIC UTILITY PURPOSES.
- OUTLOTS 13, 14, 15, 18, 19, 20, 35, 41, 44, 57, 58, 60, 64, 77, 80, 104, 107, 109, 110, 111, 112, 113, 114, 117, 138, 170 & 172 ARE FOR PUBLIC OPEN SPACE PURPOSES.
- OUTLOT 16 IS FOR PUBLIC TRAIL PURPOSES.
- OUTLOTS 17 & 108 ARE FOR CANAL PURPOSES.
- OUTLOTS 22, 23, 24, & 59 ARE FOR FUTURE DEVELOPMENT PURPOSES.
- OUTLOT 185 IS FOR PRIVATE LANDSCAPING PURPOSES.

LEGEND:

- INDICATES STREETS PREVIOUSLY DEDICATED FOR PUBLIC USE
- PUBLIC STREET EASEMENT NOW OFFERED FOR DEDICATION FOR PUBLIC USE
- OUTLOT IDENTIFIER
- PROPOSED 6' CONCRETE SIDEWALK
- INDICATES FIRE HYDRANT LOCATION PER THE CITY OF CLOVIS FIRE DEPARTMENT.



KEY MAP

TENTATIVE TRACT MAP

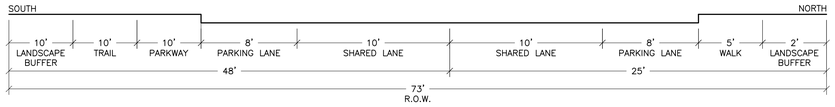
SUBDIVIDER
Wilson Premier Homes, Inc.
7550 N. PALM AVENUE
FRESNO, CA. 93711
559-224-7550

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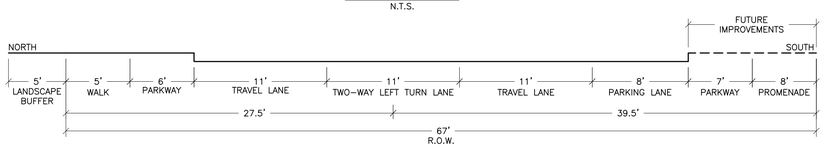
REVISIONS	SHEET NO.
	5 OF 22

DATE: 9-10-25 | SCALE: 1"= 60' | DRAWN BY: SDH

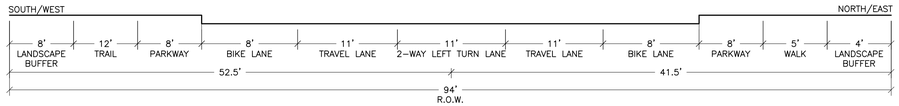
W.O. #20-010



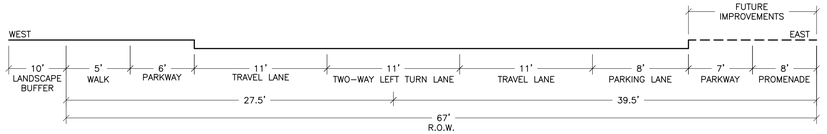
SECTION A–A
N.T.S.



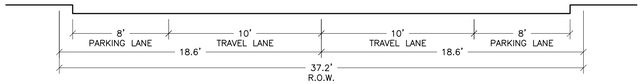
SECTION B–B
N.T.S.



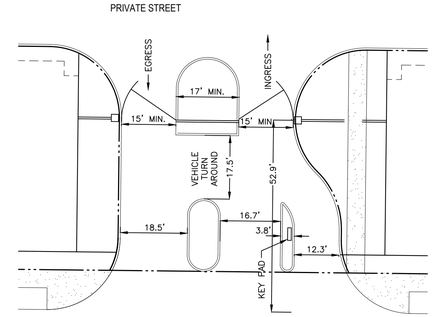
SECTION C–C
N.T.S.



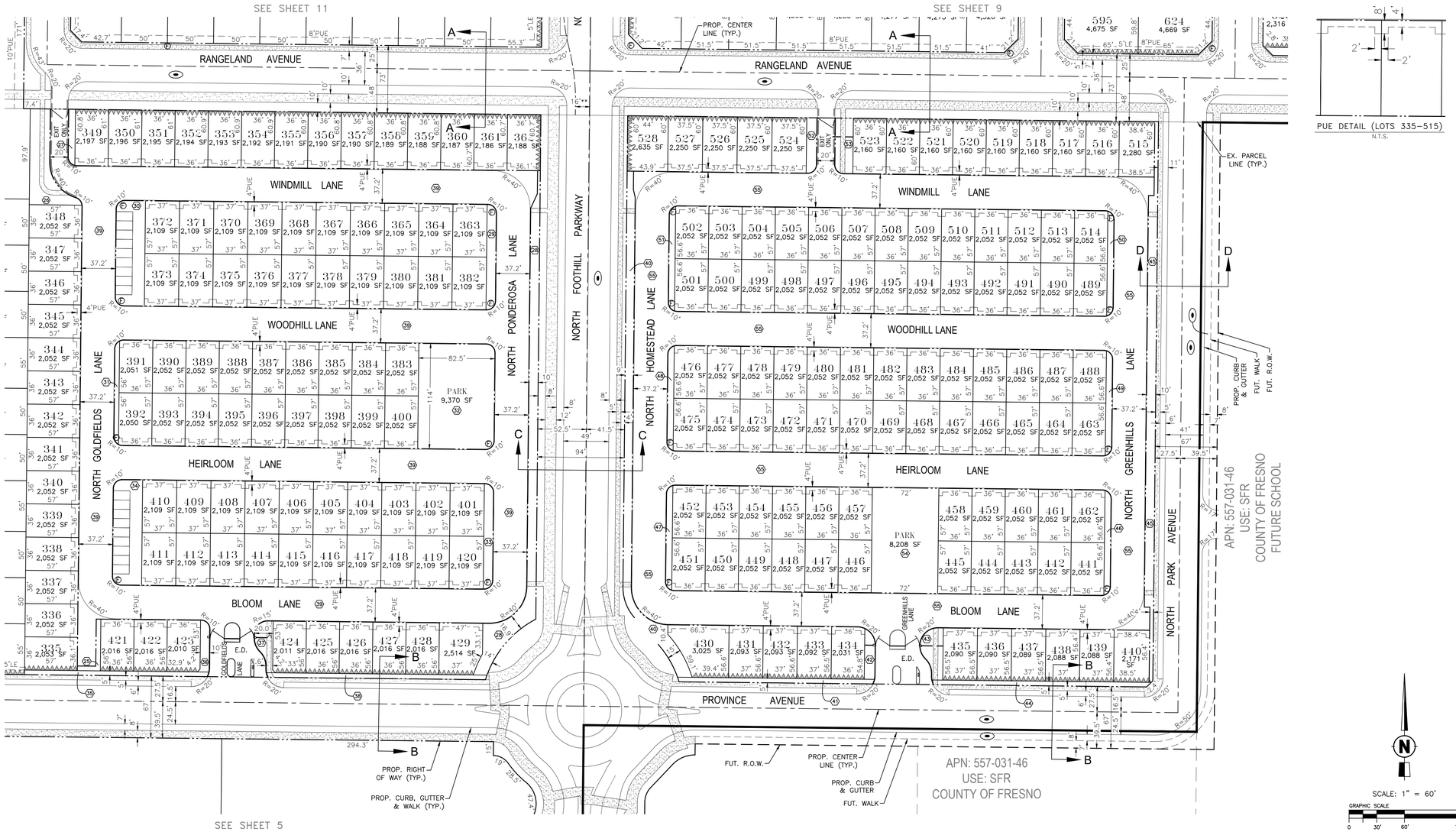
SECTION D–D
N.T.S.



TYPICAL INTERIOR PRIVATE STREET
N.T.S.
NOTE: NO PARALLEL PARKING ON SIDE OF STREET
WHERE 90° PARKING STALLS ARE PROPOSED



ENTRY DETAIL
SCALE: 1"=20'



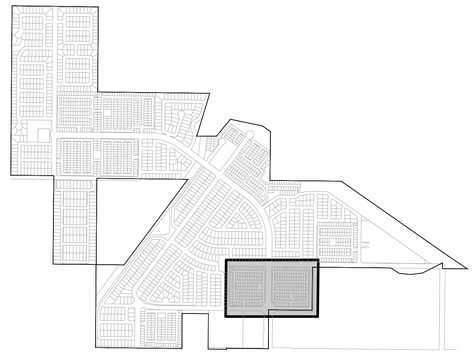
PUE DETAIL (LOTS 335–515)
N.T.S.

OUTLOT SCHEDULE:

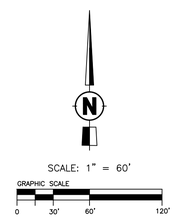
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- OUTLOTS 22, 23, 24, & 59 ARE FOR FUTURE DEVELOPMENT PURPOSES.
- OUTLOT 185 IS FOR PRIVATE LANDSCAPING PURPOSES.

LEGEND:

- PUBLIC STREET EASEMENT NOW OFFERED FOR DEDICATION FOR PUBLIC USE
- PUE — PUBLIC UTILITY EASEMENT NOW OFFERED FOR DEDICATION FOR PUBLIC USE
- (A) — OUTLOT IDENTIFIER
- PROPOSED 6' CONCRETE SIDEWALK
- RELINQUISHMENT OF ACCESS ALONG DOUBLE FRONTAGE LOTS
- ** — EXISTING 30' EASEMENT TO CITY OF CLOVIS FOR RECYCLED WATER TRANSMISSION MAINS PER DOC. NO. 2009-0031334
- E.D. — ENTRY DETAIL THIS SHEET
- INDICATES FIRE LANE MARKINGS PER CITY FIRE DEPT. STD. #1.1
- (F) — INDICATES FIRE HYDRANT LOCATION PER THE CITY OF CLOVIS FIRE DEPARTMENT.



KEY MAP



TENTATIVE TRACT MAP

SUBDIVIDER
Wilson Premier Homes, Inc.
7550 N. PALM AVENUE
FRESNO, CA. 93711
559-224-7550

Harbour & Associates
Civil Engineers
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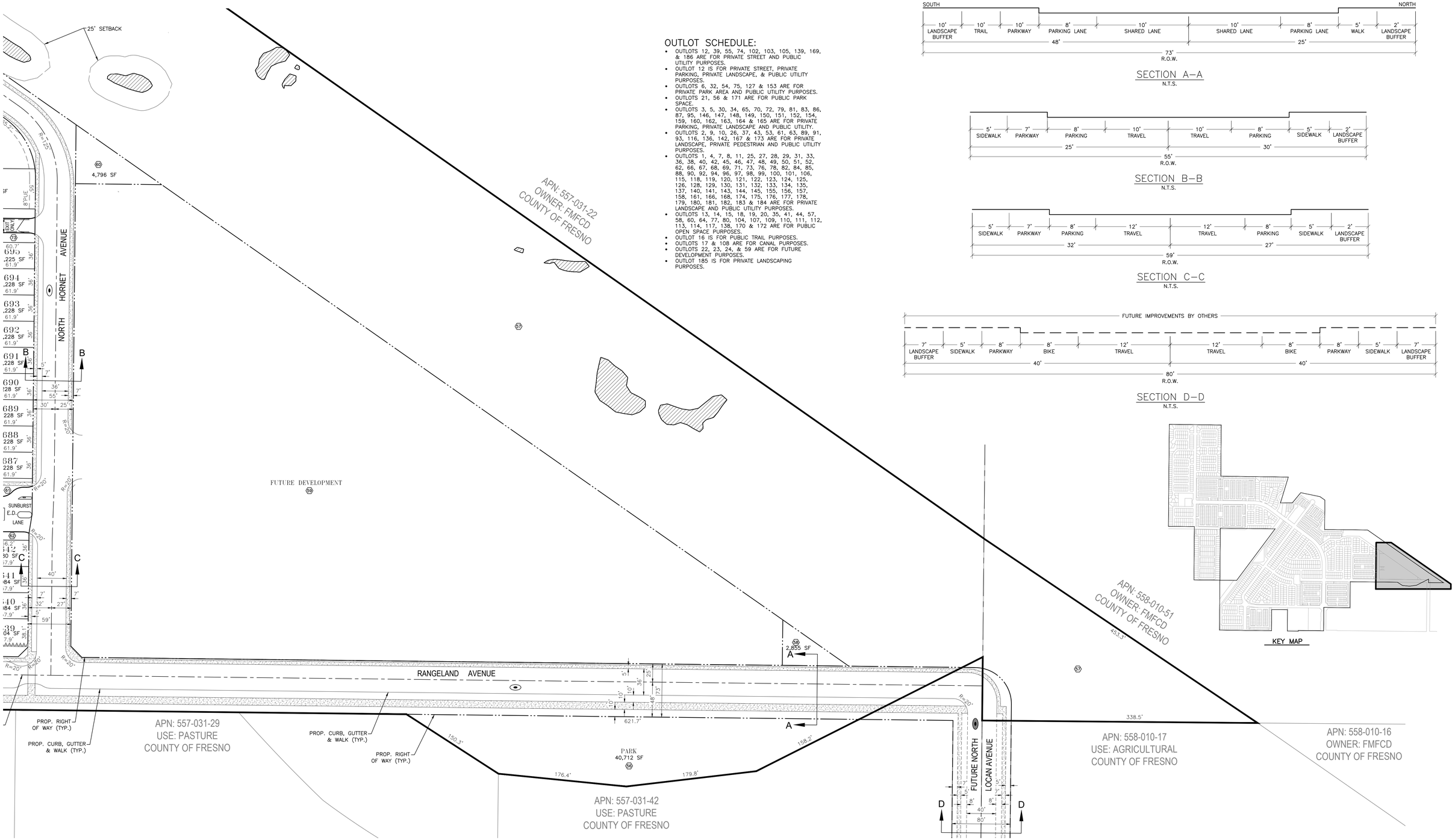
REVISIONS	SHEET NO.
	6 OF 22

DATE: 9-10-25 | SCALE: 1"= 60' | DRAWN BY: SDH

W.O. #20-010

OUTLOT SCHEDULE:

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SOUTH — NORTH

10' LANDSCAPE BUFFER	10' TRAIL	10' PARKWAY	8' PARKING LANE	10' SHARED LANE	10' SHARED LANE	8' PARKING LANE	5' WALK	2' LANDSCAPE BUFFER

48' | 25'

73' R.O.W.

SECTION A–A
N.T.S.

5' SIDEWALK	7' PARKWAY	8' PARKING	10' TRAVEL	10' TRAVEL	8' PARKING	5' SIDEWALK	2' LANDSCAPE BUFFER

25' | 30'

55' R.O.W.

SECTION B–B
N.T.S.

5' SIDEWALK	7' PARKWAY	8' PARKING	12' TRAVEL	12' TRAVEL	8' PARKING	5' SIDEWALK	2' LANDSCAPE BUFFER

32' | 27'

59' R.O.W.

SECTION C–C
N.T.S.

FUTURE IMPROVEMENTS BY OTHERS

7' LANDSCAPE BUFFER	5' SIDEWALK	8' PARKWAY	8' BIKE	12' TRAVEL	12' TRAVEL	8' BIKE	8' PARKWAY	5' SIDEWALK	7' LANDSCAPE BUFFER

40' | 40'

80' R.O.W.

SECTION D–D
N.T.S.

KEY MAP

LEGEND:

- PUBLIC STREET RIGHT OF WAY BY OTHERS.
- PUBLIC STREET EASEMENT NOW OFFERED FOR DEDICATION FOR PUBLIC USE
- PUE — PUBLIC UTILITY EASEMENT NOW OFFERED FOR DEDICATION FOR PUBLIC USE
- LE — LANDSCAPE EASEMENT NOW OFFERED FOR DEDICATION FOR PUBLIC USE
- (A) — OUTLOT IDENTIFIER
- PROPOSED 6' CONCRETE SIDEWALK
- RELINQUISHMENT OF ACCESS ALONG DOUBLE FRONTAGE LOTS
- WETLANDS TO REMAIN
- INDICATES FIRE LANE MARKINGS PER CITY FIRE DEPT. STD. #1.1

SCALE: 1" = 60'

GRAPHIC SCALE 0 30' 60' 120'

TENTATIVE TRACT MAP

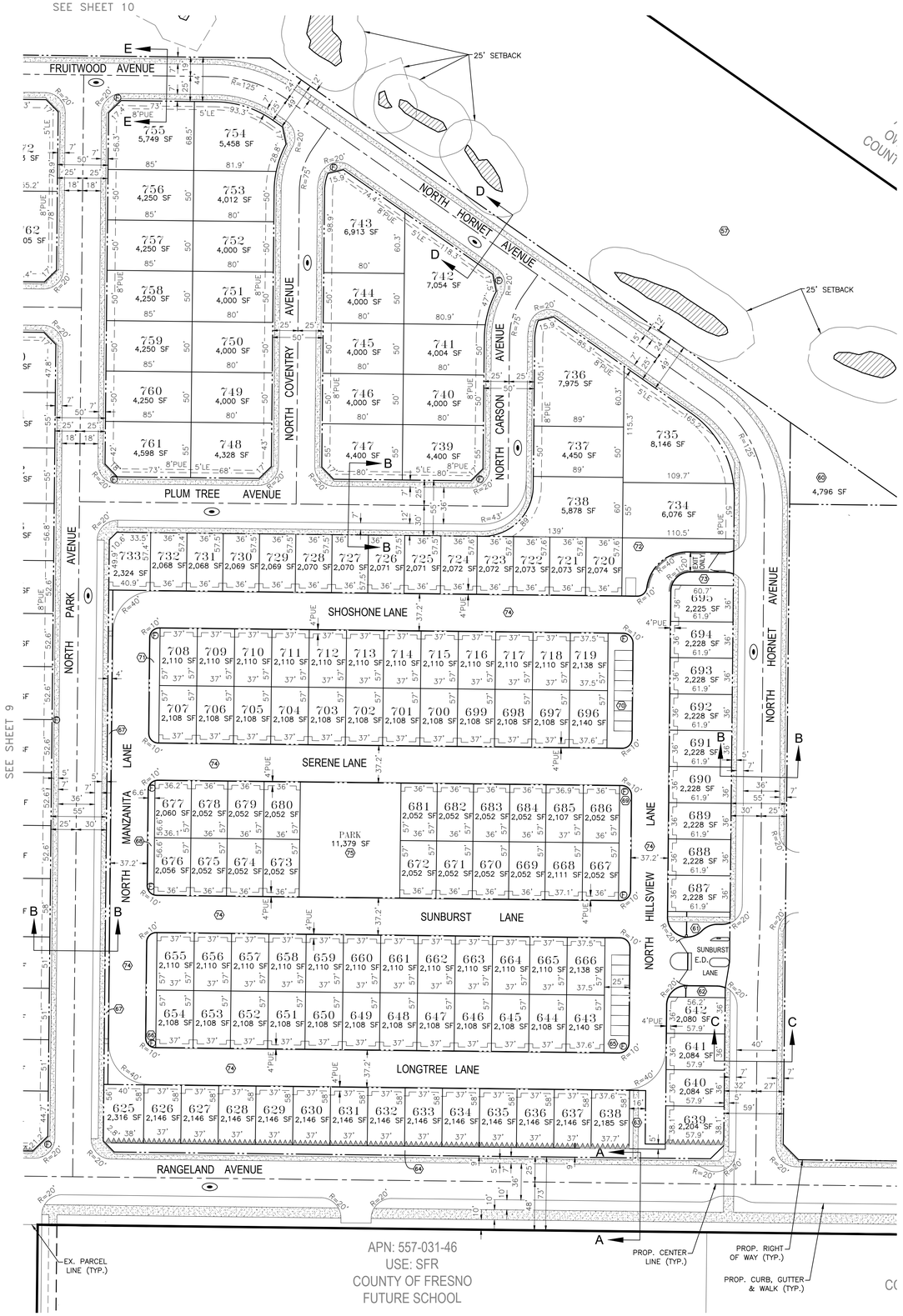
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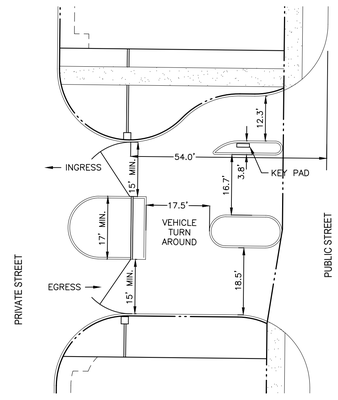
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REVISIONS	SHEET NO.
	7 OF 22

DATE: 9-10-25 | SCALE: 1"= 60' | DRAWN BY: SDH

W.O. #20-010





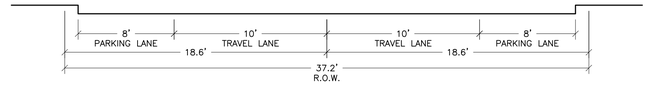
ENTRY DETAIL
SCALE: 1"=20'

OUTLOT SCHEDULE:

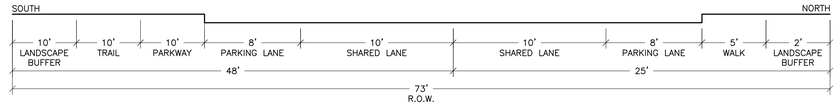
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LEGEND:

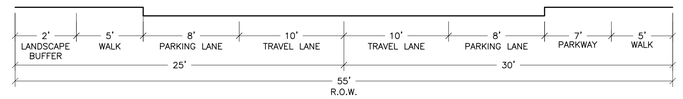
(E)	PUBLIC STREET EASEMENT NOW OFFERED FOR DEDICATION FOR PUBLIC USE
LE	LANDSCAPE EASEMENT NOW OFFERED FOR DEDICATION FOR PUBLIC USE
PUE	PUBLIC UTILITY EASEMENT NOW OFFERED FOR DEDICATION FOR PUBLIC USE
(A)	OUTLOT IDENTIFIER
	PROPOSED 6' CONCRETE SIDEWALK
	RELINQUISHMENT OF ACCESS ALONG DOUBLE FRONTAGE LOTS
	WETLANDS TO REMAIN
E.D.	ENTRY DETAIL THIS SHEET
	INDICATES FIRE LANE MARKINGS PER CITY FIRE DEPT. STD. #1.1
(F)	INDICATES FIRE HYDRANT LOCATION PER THE CITY OF CLOVIS FIRE DEPARTMENT.



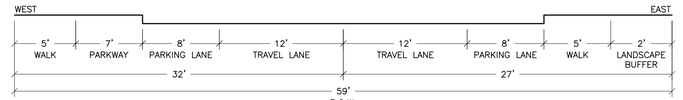
TYPICAL INTERIOR PRIVATE STREET
N.T.S.
NOTE: NO PARALLEL PARKING ON SIDE OF STREET WHERE 90° PARKING STALLS ARE PROPOSED



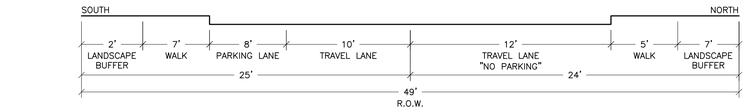
SECTION A–A
N.T.S.



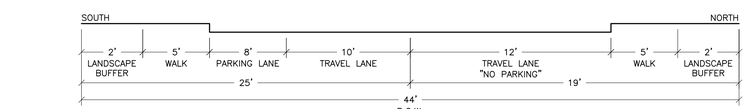
SECTION B–B
N.T.S.



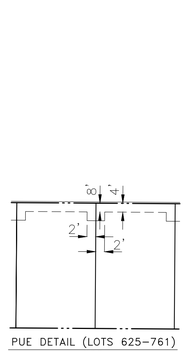
SECTION C–C
N.T.S.



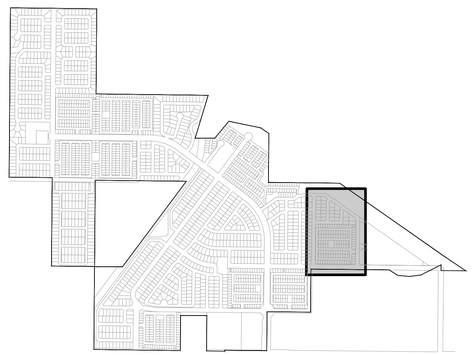
SECTION D–D
N.T.S.



SECTION E–E
N.T.S.



PUE DETAIL (LOTS 625–761)
N.T.S.



KEY MAP

SCALE: 1" = 60'

GRAPHIC SCALE
0 30' 60' 120'

TENTATIVE TRACT MAP

SUBDIVIDER
Wilson Premier Homes, Inc.
7550 N. PALM AVENUE
FRESNO, CA. 93711
559-224-7550

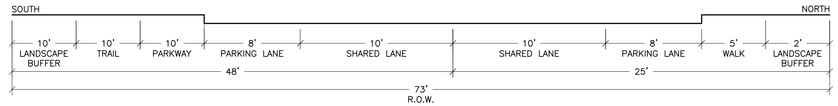
Harbour & Associates
Civil Engineers
389 Clovis Avenue, Suite 300 • Clovis, California 93612
(559) 325-7676 • Fax (559) 325-7699 • e-mail ltorrens@harbour-engineering.com

REVISIONS	SHEET NO.
	8 OF 22

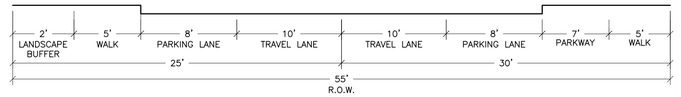
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W.O. #20-010

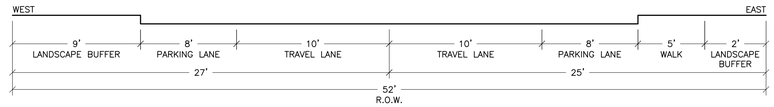




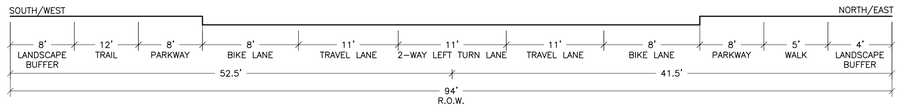
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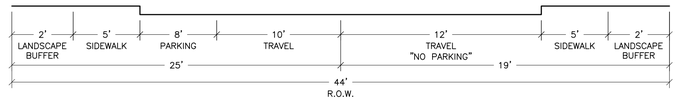
SECTION B–B
N.T.S.



SECTION C–C
N.T.S.



SECTION D–D
N.T.S.



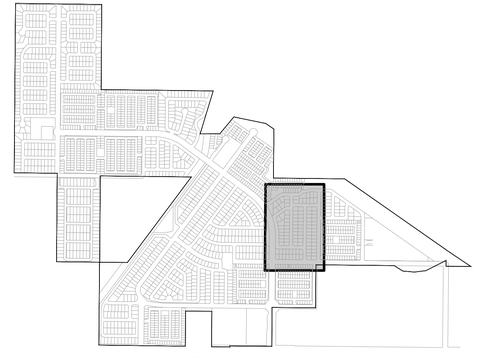
SECTION E–E
N.T.S.

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LEGEND:

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- LE — LANDSCAPE EASEMENT NOW OFFERED FOR DEDICATION FOR PUBLIC USE
- PUE — PUBLIC UTILITY EASEMENT NOW OFFERED FOR DEDICATION FOR PUBLIC USE
- PROPOSED 6' CONCRETE SIDEWALK
- RELINQUISHMENT OF ACCESS ALONG DOUBLE FRONTAGE LOTS
- ** — EXISTING 30' EASEMENT TO CITY OF CLOVIS FOR RECYCLED WATER TRANSMISSION MAINS PER DOC. NO. 2009–0031334
- WETLANDS TO REMAIN
- INDICATES FIRE LANE MARKINGS PER CITY FIRE DEPT. STD. #1.1
- (F) — INDICATES FIRE HYDRANT LOCATION PER THE CITY OF CLOVIS FIRE DEPARTMENT.



KEY MAP

SCALE: 1" = 60'

GRAPHIC SCALE
0 30' 60' 120'

TENTATIVE TRACT MAP

SUBDIVIDER
Wilson Premier Homes, Inc.
7560 N. PALM AVENUE
FRESNO, CA. 93711
559-224-7550

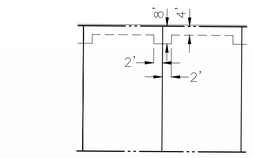
Harbour & Associates
Civil Engineers
389 Clovis Avenue, Suite 300 • Clovis, California 93612
(559) 325 -7676 • Fax (559) 325 - 7699 • e-mail:tomms@harbour-engineering.com

REVISIONS

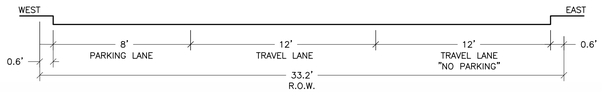
SHEET NO. 9 OF 22

DATE: 9-10-25 | SCALE: 1"= 60' | DRAWN BY: SDH

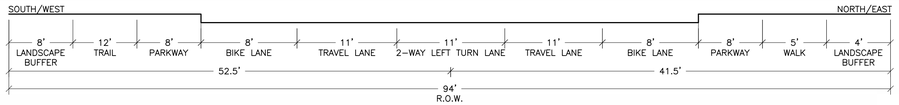
W.O. #20-010



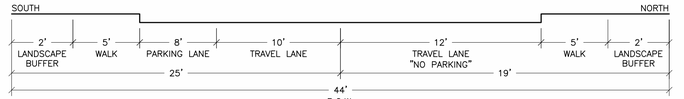
PUE DETAIL (LOTS 773–796, 804–833, & 864–938)
N.T.S.



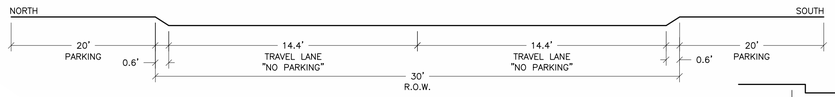
SECTION A–A (PRIVATE)
N.T.S.



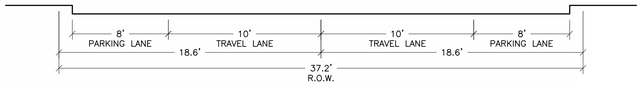
SECTION D–D
N.T.S.



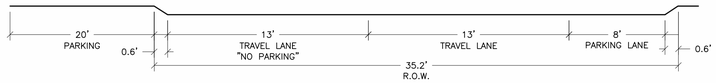
SECTION E–E
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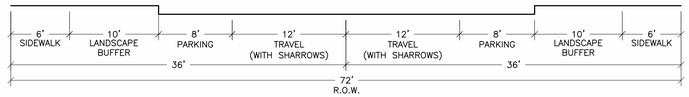
SECTION C–C
N.T.S.



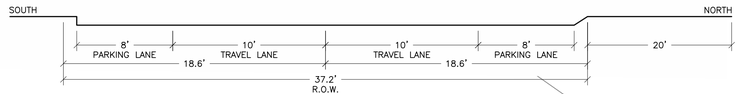
TYPICAL INTERIOR PRIVATE STREET
N.T.S.
NOTE: NO PARALLEL PARKING ON SIDE OF STREET WHERE 90° PARKING STALLS ARE PROPOSED



SECTION F–F (PRIVATE)
N.T.S.



SECTION G–G
N.T.S.



SECTION H–H
N.T.S.

LEGEND:

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- LE — LANDSCAPE EASEMENT NOW OFFERED FOR DEDICATION FOR PUBLIC USE
- PUE — PUBLIC UTILITY EASEMENT NOW OFFERED FOR DEDICATION FOR PUBLIC USE
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- WETLANDS TO REMAIN
- INDICATES FIRE LANE MARKINGS PER CITY FIRE DEPT. STD. #1.1
- (F) — INDICATES FIRE HYDRANT LOCATION PER THE CITY OF CLOVIS FIRE DEPARTMENT.

APN: 557-031-19
OWNER: FMFCD
COUNTY OF FRESNO

APN: 557-031-19
OWNER: FMFCD
COUNTY OF FRESNO

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KEY MAP

SCALE: 1" = 60'
GRAPHIC SCALE
0 30' 60' 120'

TENTATIVE TRACT MAP

SUBDIVIDER
Wilson Premier Homes, Inc.
7590 N. FRESNO AVENUE
FRESNO, CA. 93711
559-224-7550

Harbour & Associates
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389 Clovis Avenue, Suite 300 • Clovis, California 93612
(559) 325 -7676 • Fax (559) 325 - 7699 • e-mail:tomms@harbour-engineering.com

REVISIONS	SHEET NO.
	10 OF 22

DATE: 9–10–25 | SCALE: 1"= 60' | DRAWN BY: SDH

W.O. #20–010



SOUTH — NORTH

10' LANDSCAPE BUFFER	10' TRAIL	10' PARKWAY	8' PARKING LANE	10' SHARED LANE	10' SHARED LANE	8' PARKING LANE	5' WALK	2' LANDSCAPE BUFFER

48' — 25'

73' R.O.W.

SECTION A–A
N.T.S.

SOUTH/WEST — NORTH/EAST

8' LANDSCAPE BUFFER	12' TRAIL	8' PARKWAY	8' BIKE LANE	11' TRAVEL LANE	11' 2-WAY LEFT TURN LANE	11' TRAVEL LANE	8' BIKE LANE	8' PARKWAY	5' WALK	4' LANDSCAPE BUFFER

52.5' — 41.5'

94' R.O.W.

SECTION C–C
N.T.S.

SOUTHWEST — NORTHEAST

2' LANDSCAPE BUFFER	5' WALK	8' PARKING	12' TRAVEL	12' TRAVEL	8' PARKING	7' LANDSCAPE BUFFER

25' — 25'

50' R.O.W.

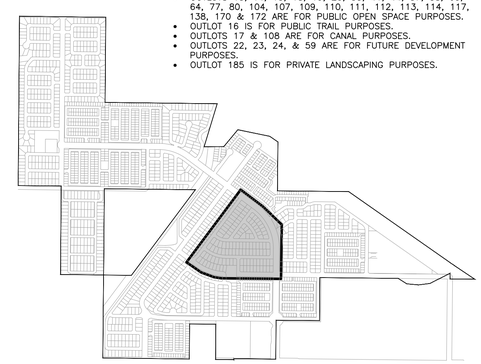
SECTION B–B
N.T.S.

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KEY MAP

N

SCALE: 1" = 60'

GRAPHIC SCALE
0 30' 60' 120'

TENTATIVE TRACT MAP

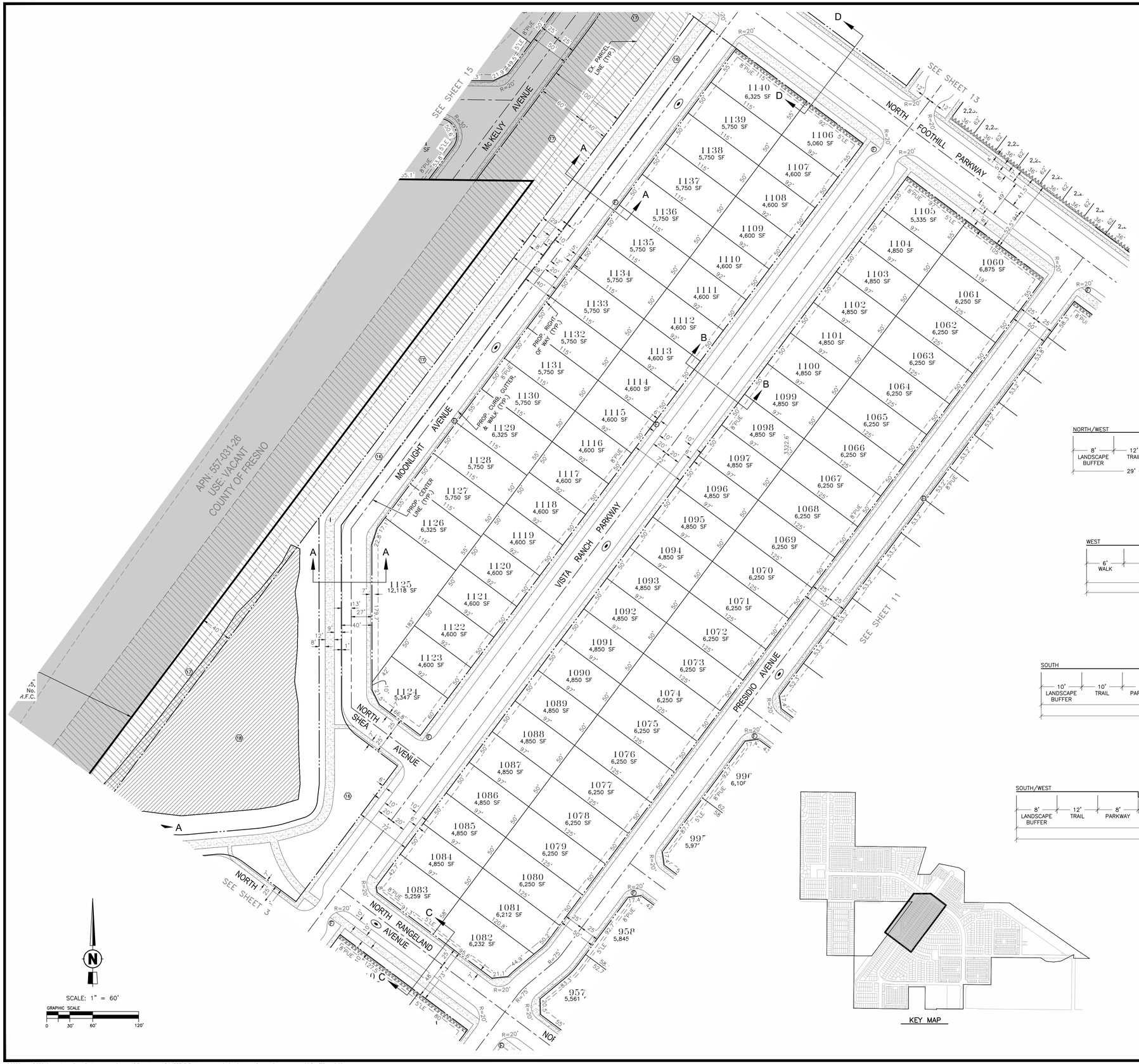
SUBDIVIDER
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REVISIONS	SHEET NO.
	11 OF 22

DATE: 9-10-25 | SCALE: 1"= 60' | DRAWN BY: SDH

W.O. #20-010

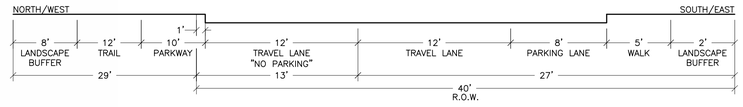


OUTLOT SCHEDULE:

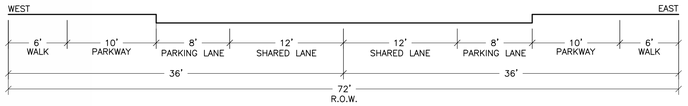
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LEGEND:

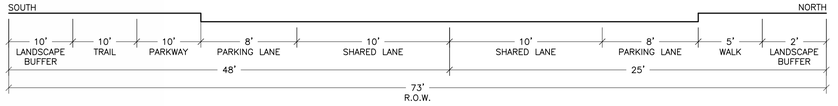
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- PUE — PUBLIC UTILITY EASEMENT NOW OFFERED FOR DEDICATION FOR PUBLIC USE
- (A) — OUTLOT IDENTIFIER
- EXISTING EASEMENT GRANTED TO THE STATE OF CALIFORNIA RECORDED AS DOCUMENT NO. 85068990, O.R.F.C.
- FLOODZONE 'A'
- PROPOSED 6' CONCRETE SIDEWALK
- RELINQUISHMENT OF ACCESS ALONG DOUBLE FRONTAGE LOTS
- WETLANDS TO REMAIN
- (F) — INDICATES FIRE HYDRANT LOCATION PER THE CITY OF CLOVIS FIRE DEPARTMENT.



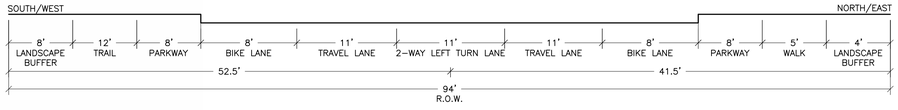
SECTION A–A
N.T.S.



SECTION B–B
N.T.S.



SECTION C–C
N.T.S.



SECTION D–D
N.T.S.

KEY MAP

TENTATIVE TRACT MAP

SUBDIVIDER
Wilson Premier Homes, Inc.
7550 N. PALM AVENUE
FRESNO, CA. 93711
559-224-7550

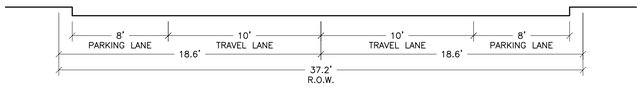
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Civil Engineers
389 Clovis Avenue, Suite 300 • Clovis, California 93612
(559) 325-7676 • Fax (559) 325-7699 • e-mail:tomrns@harbour-engineering.com

REVISIONS

SHEET NO. 12 OF 22

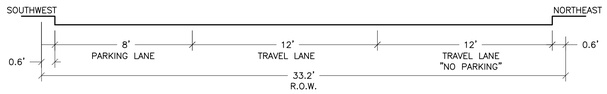
DATE: 9-10-25 | SCALE: 1"= 60' | DRAWN BY: SDH

W.O. #20-010

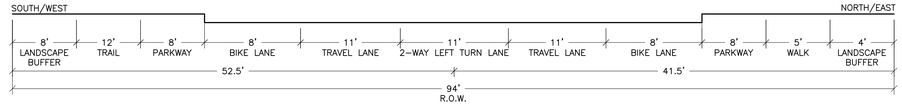


TYPICAL INTERIOR PRIVATE STREET
N.T.S.

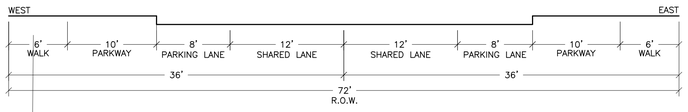
NOTE: NO PARALLEL PARKING ON SIDE OF STREET WHERE 90° PARKING STALLS ARE PROPOSED



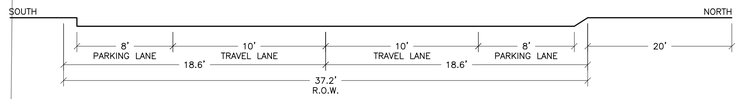
SECTION A–A (PRIVATE)
N.T.S.



SECTION D–D
N.T.S.



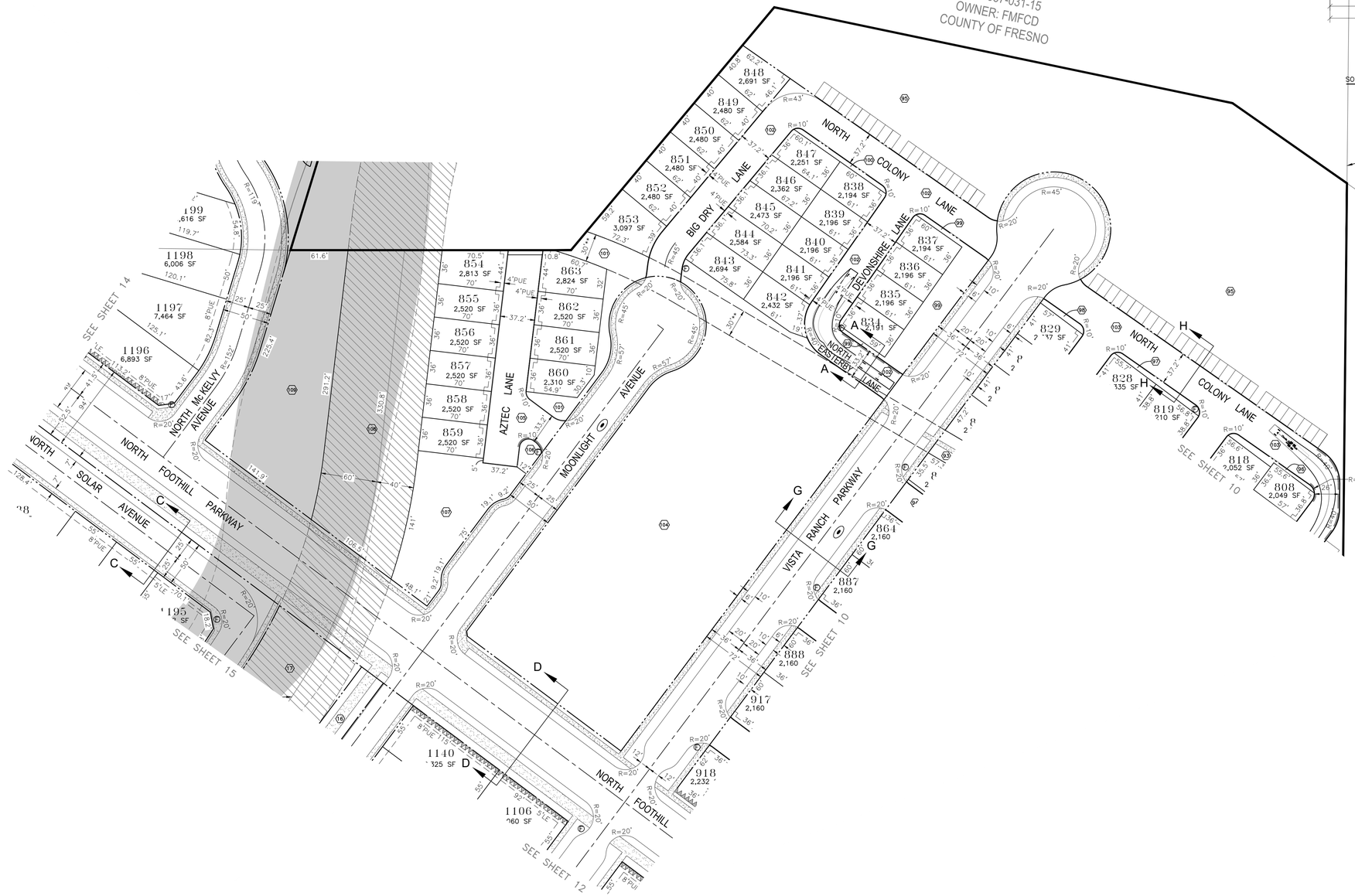
SECTION G–G
N.T.S.



SECTION H–H (PRIVATE)
N.T.S.

EX. PARCEL LINE (TYP.)

APN: 557-031-15
OWNER: FMFCD
COUNTY OF FRESNO

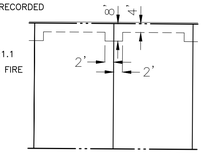


OUTLOT SCHEDULE:

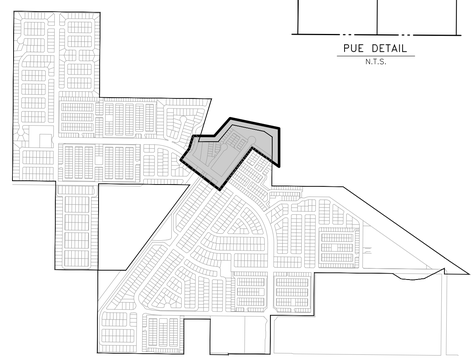
- OUTLOTS 12, 39, 55, 74, 102, 103, 105, 139, 169, & 186 ARE FOR PRIVATE STREET AND PUBLIC UTILITY PURPOSES.
- OUTLOT 12 IS FOR PRIVATE STREET, PRIVATE PARKING, PRIVATE LANDSCAPE, & PUBLIC UTILITY PURPOSES.
- OUTLOTS 6, 32, 54, 75, 127 & 153 ARE FOR PRIVATE PARK AREA AND PUBLIC UTILITY PURPOSES.
- OUTLOTS 21, 56 & 171 ARE FOR PUBLIC PARK SPACE.
- OUTLOTS 3, 5, 30, 34, 65, 70, 72, 79, 81, 83, 86, 87, 95, 146, 147, 148, 149, 150, 151, 152, 154, 159, 160, 162, 163, 164 & 165 ARE FOR PRIVATE PARKING, PRIVATE LANDSCAPE AND PUBLIC UTILITY.
- OUTLOTS 2, 9, 10, 26, 37, 43, 53, 61, 63, 89, 91, 93, 116, 136, 142, 167 & 173 ARE FOR PRIVATE LANDSCAPE, PRIVATE PEDESTRIAN AND PUBLIC UTILITY PURPOSES.
- OUTLOTS 1, 4, 7, 8, 11, 25, 27, 28, 29, 31, 33, 36, 38, 40, 42, 45, 46, 47, 48, 49, 50, 51, 52, 62, 66, 67, 68, 69, 71, 73, 76, 78, 82, 84, 85, 88, 90, 92, 94, 96, 97, 98, 99, 100, 101, 106, 115, 118, 119, 120, 121, 122, 123, 124, 125, 126, 128, 129, 130, 131, 132, 133, 134, 135, 137, 140, 141, 143, 144, 145, 155, 156, 157, 158, 161, 166, 168, 174, 175, 176, 177, 178, 179, 180, 181, 182, 183 & 184 ARE FOR PRIVATE LANDSCAPE AND PUBLIC UTILITY PURPOSES.
- OUTLOTS 13, 14, 15, 18, 19, 20, 35, 41, 44, 57, 58, 60, 64, 77, 80, 104, 107, 109, 110, 111, 112, 113, 114, 117, 138, 170 & 172 ARE FOR PUBLIC OPEN SPACE PURPOSES.
- OUTLOT 16 IS FOR PUBLIC TRAIL PURPOSES.
- OUTLOTS 17 & 108 ARE FOR CANAL PURPOSES.
- OUTLOTS 22, 23, 24, & 59 ARE FOR FUTURE DEVELOPMENT PURPOSES.
- OUTLOT 185 IS FOR PRIVATE LANDSCAPING PURPOSES.

LEGEND:

- PUBLIC STREET EASEMENT NOW OFFERED FOR DEDICATION FOR PUBLIC USE
- PUE — PUBLIC UTILITY EASEMENT NOW OFFERED FOR DEDICATION FOR PUBLIC USE
- (A) — OUTLOT IDENTIFIER
- PROPOSED 6' CONCRETE SIDEWALK
- RELINQUISHMENT OF ACCESS ALONG DOUBLE FRONTAGE LOTS
- ** — EXISTING 30' EASEMENT TO CITY OF CLOVIS FOR RECYCLED WATER TRANSMISSION MAINS PER DOC. NO. 2009-0031334
- EXISTING EASEMENT GRANTED TO THE STATE OF CALIFORNIA RECORDED AS DOCUMENT NO. 85068990, O.R.F.C.
- FLOODZONE 'A'
- INDICATES FIRE LANE MARKINGS PER CITY FIRE DEPT. STD. #1.1
- (F) — INDICATES FIRE HYDRANT LOCATION PER THE CITY OF CLOVIS FIRE DEPARTMENT.



PUE DETAIL
N.T.S.



KEY MAP

SCALE: 1" = 60'

GRAPHIC SCALE
0 30' 60' 120'

TENTATIVE TRACT MAP

SUBDIVIDER
Wilson Premier Homes, Inc.
7560 N. PALM AVENUE
FRESNO, CA. 93711
559-224-7550

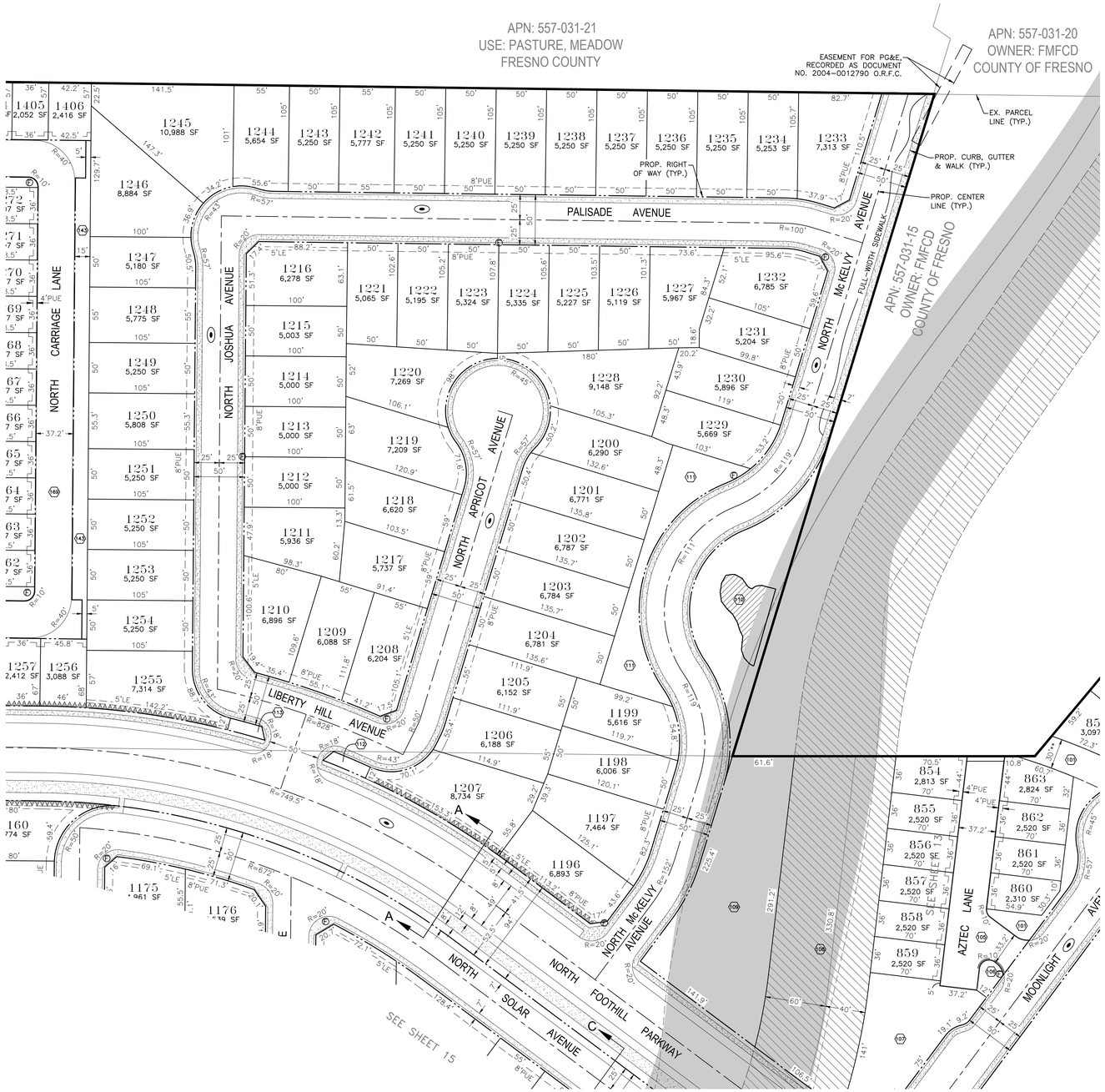
Harbour & Associates
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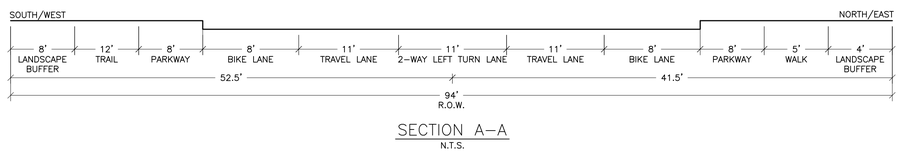
REVISIONS

SHEET NO. 13 OF 22

DATE: 9-10-25 | SCALE: 1"= 60' | DRAWN BY: SDH

W.O. #20-010





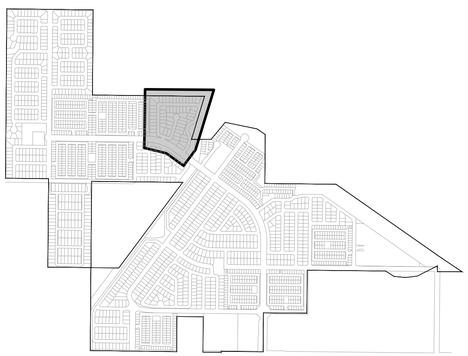
SECTION A–A
N.T.S.

OUTLOT SCHEDULE:

- OUTLOTS 12, 39, 55, 74, 102, 103, 105, 139, 169, & 186 ARE FOR PRIVATE STREET AND PUBLIC UTILITY PURPOSES.
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- OUTLOTS 17 & 108 ARE FOR CANAL PURPOSES.
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- OUTLOT 185 IS FOR PRIVATE LANDSCAPING PURPOSES.

LEGEND:

- PUBLIC STREET EASEMENT NOW OFFERED FOR DEDICATION FOR PUBLIC USE
- LE — LANDSCAPE EASEMENT NOW OFFERED FOR DEDICATION FOR PUBLIC USE
- PUE — PUBLIC UTILITY EASEMENT NOW OFFERED FOR DEDICATION FOR PUBLIC USE
- (A) — OUTLOT IDENTIFIER
- EXISTING EASEMENT GRANTED TO THE STATE OF CALIFORNIA RECORDED AS DOCUMENT NO. 85068990, O.R.F.C.
- FLOODZONE 'A'
- PROPOSED 6' CONCRETE SIDEWALK
- RELINQUISHMENT OF ACCESS ALONG DOUBLE FRONTAGE LOTS
- WETLANDS TO REMAIN
- (F) — INDICATES FIRE HYDRANT LOCATION PER THE CITY OF CLOVIS FIRE DEPARTMENT.



KEY MAP

SCALE: 1" = 60'

GRAPHIC SCALE
0 30' 60' 120'

TENTATIVE TRACT MAP

SUBDIVIDER
Wilson Premier Homes, Inc.
7550 N. PALM AVENUE
FRESNO, CA. 93711
559-224-7550

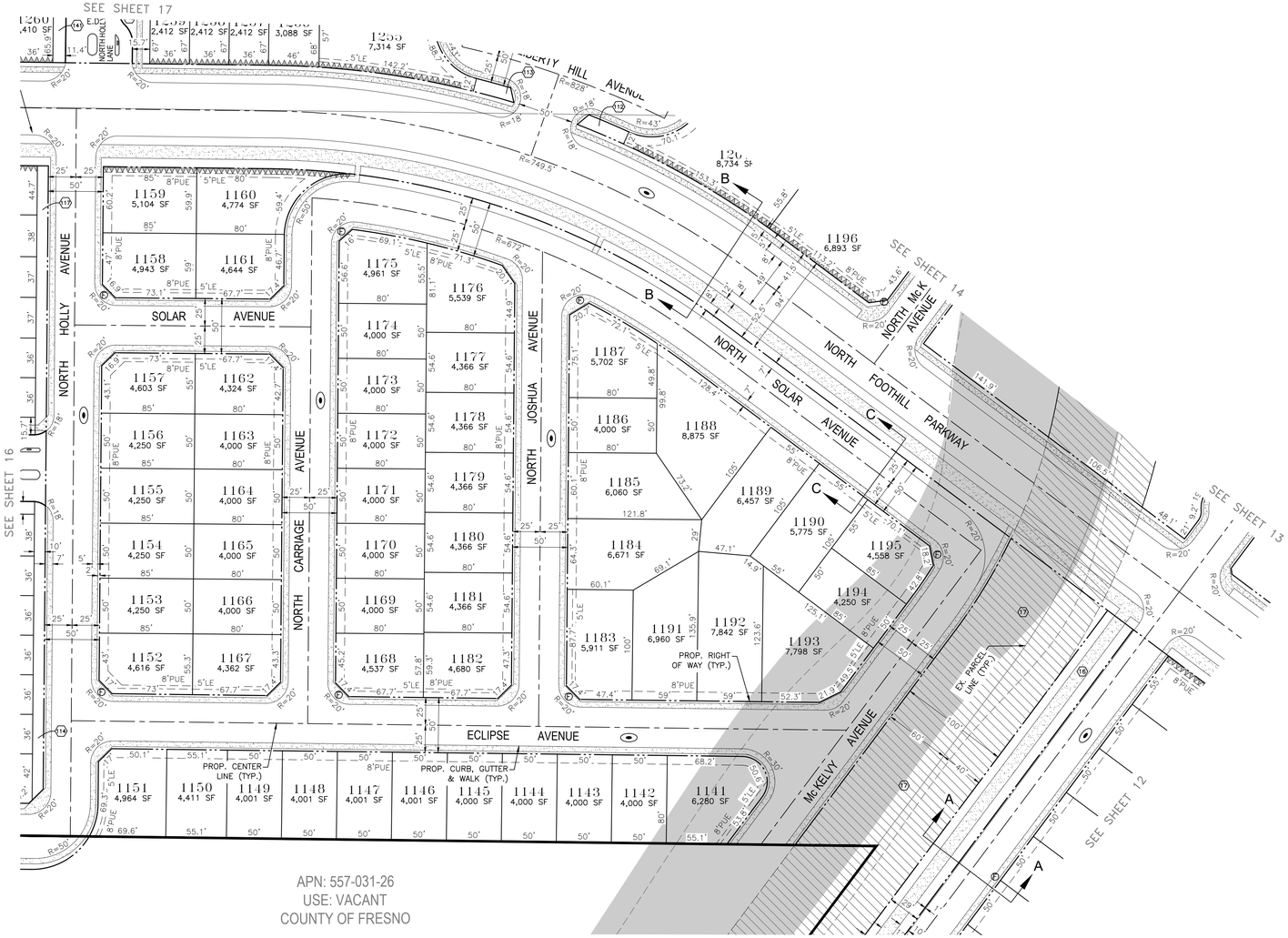
Harbour & Associates
Civil Engineers
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(559) 325-7676 • Fax (559) 325-7699 • e-mail:lorrens@harbour-engineering.com

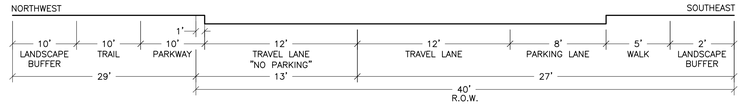
REVISIONS

SHEET NO. 14 OF 22

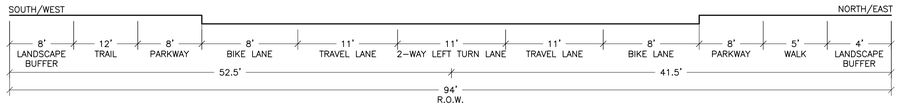
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W.O. #20-010

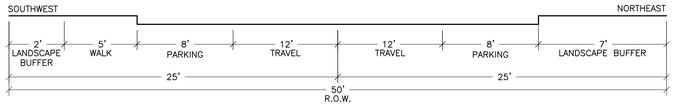




SECTION A–A
N.T.S.



SECTION B–B
N.T.S.



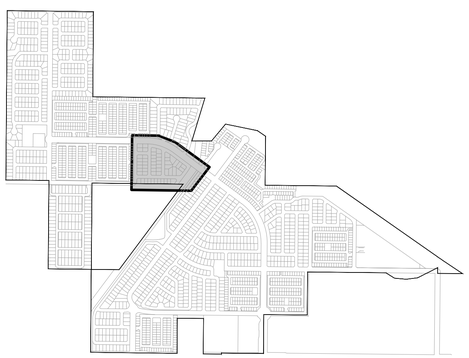
SECTION C–C
N.T.S.

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- OUTLOTS 12, 39, 55, 74, 102, 103, 105, 139, 169, & 186 ARE FOR PRIVATE STREET AND PUBLIC UTILITY PURPOSES.
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LEGEND:

⬭	PUBLIC STREET EASEMENT NOW OFFERED FOR DEDICATION FOR PUBLIC USE
LE	LANDSCAPE EASEMENT NOW OFFERED FOR DEDICATION FOR PUBLIC USE
PUE	PUBLIC UTILITY EASEMENT NOW OFFERED FOR DEDICATION FOR PUBLIC USE
Ⓐ	OUTLOT IDENTIFIER
▨	EXISTING EASEMENT GRANTED TO THE STATE OF CALIFORNIA RECORDED AS DOCUMENT NO. 85068990, O.R.F.C.
▩	FLOODZONE 'A'
▭	PROPOSED 6' CONCRETE SIDEWALK
▲▲▲▲	RELINQUISHMENT OF ACCESS ALONG DOUBLE FRONTAGE LOTS
Ⓕ	INDICATES FIRE HYDRANT LOCATION PER THE CITY OF CLOVIS FIRE DEPARTMENT.



KEY MAP

N

SCALE: 1" = 60'

GRAPHIC SCALE
0 30' 60' 120'

TENTATIVE TRACT MAP

SUBDIVIDER
Wilson Premier Homes, Inc.
7550 N. PALM AVENUE
FRESNO, CA. 93711
559-224-7550

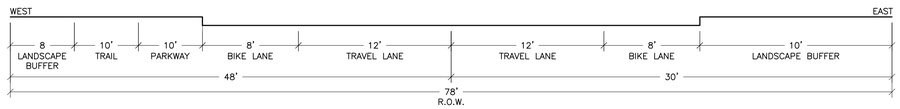
Harbour & Associates
Civil Engineers
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(559) 325-7676 • Fax (559) 325-7699 • e-mail:tomms@harbour-engineering.com

REVISIONS

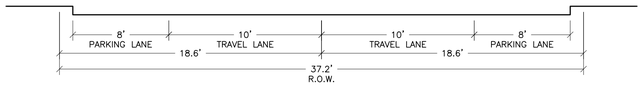
SHEET NO. 15 OF 22

DATE: 9-10-25 | SCALE: 1"= 60' | DRAWN BY: SDH

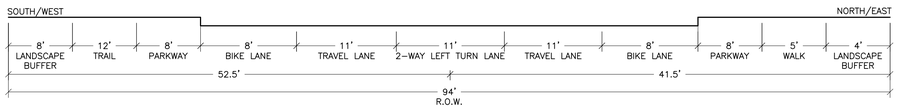
W.O. #20-010



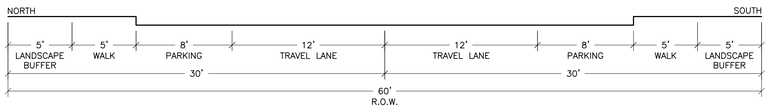
SECTION A–A
N.T.S.



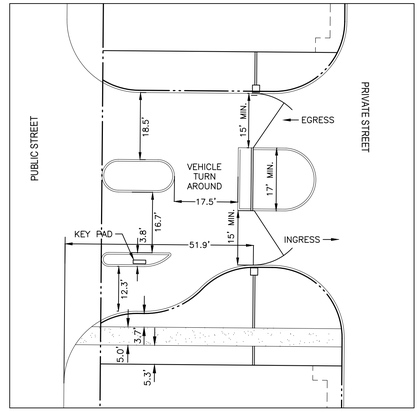
TYPICAL INTERIOR PRIVATE STREET
N.T.S.



SECTION C–C
N.T.S.

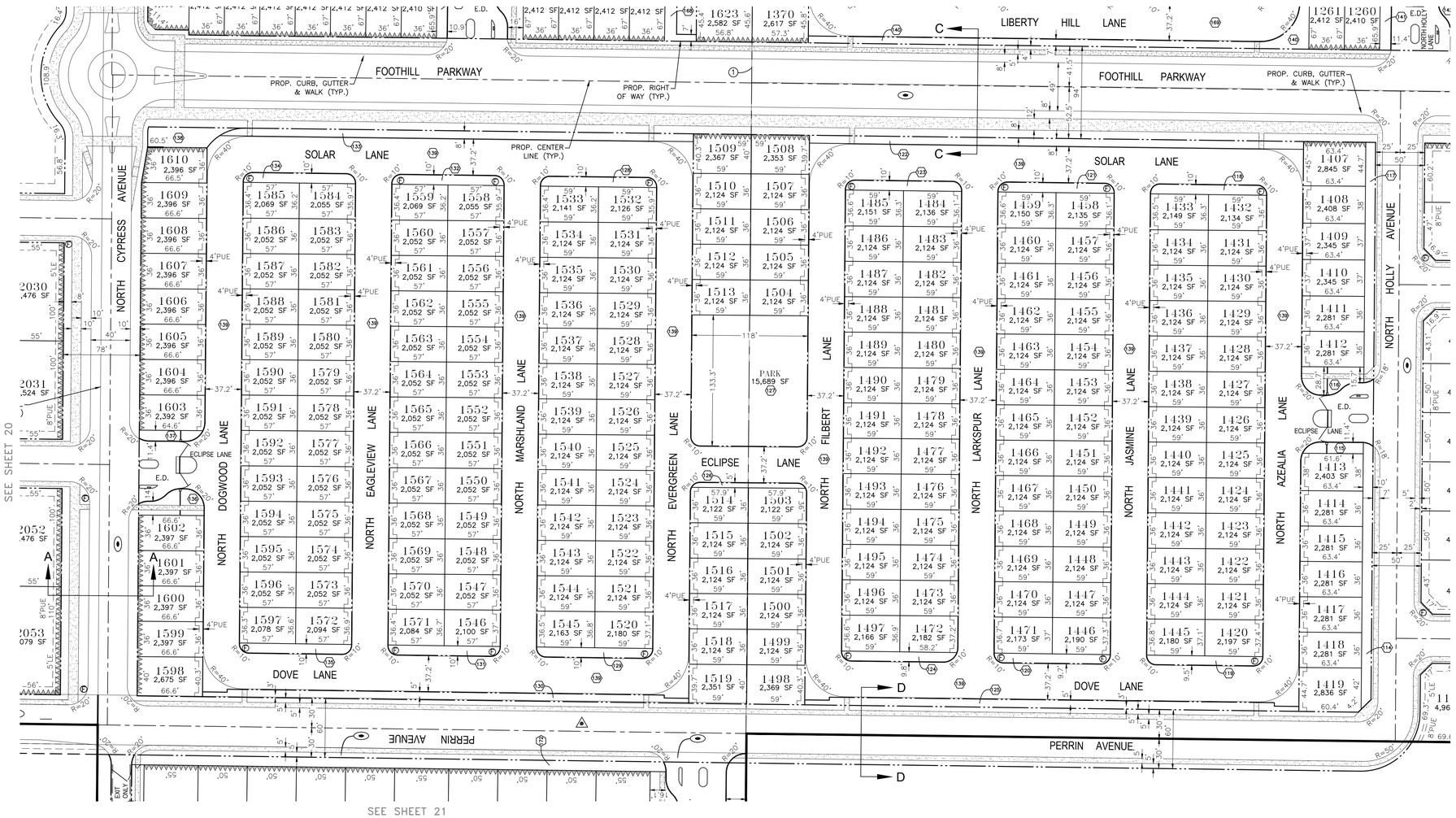


SECTION D–D
N.T.S.



ENTRY DETAIL
SCALE: 1"=20'

SEE SHEET 17



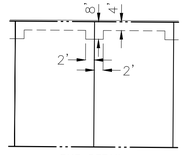
SEE SHEET 20
SEE SHEET 15
SEE SHEET 21

OUTLOT SCHEDULE:

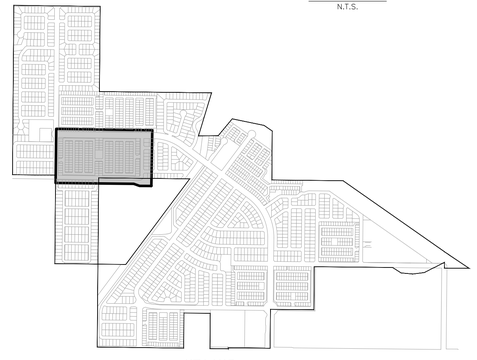
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LEGEND:

- PUBLIC STREET EASEMENT NOW OFFERED FOR DEDICATION FOR PUBLIC USE
- PUE — PUBLIC UTILITY EASEMENT NOW OFFERED FOR DEDICATION FOR PUBLIC USE
- (A) — OUTLOT IDENTIFIER
- PROPOSED 6' CONCRETE SIDEWALK
- RELINQUISHMENT OF ACCESS ALONG DOUBLE FRONTAGE LOTS
- E.D. — ENTRY DETAIL THIS SHEET
- (F) — INDICATES FIRE HYDRANT LOCATION PER THE CITY OF CLOVIS FIRE DEPARTMENT.



PUE DETAIL
N.T.S.



KEY MAP

SCALE: 1" = 60'

GRAPHIC SCALE
0 30' 60' 120'

TENTATIVE TRACT MAP

SUBDIVIDER
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FRESNO, CA. 93711
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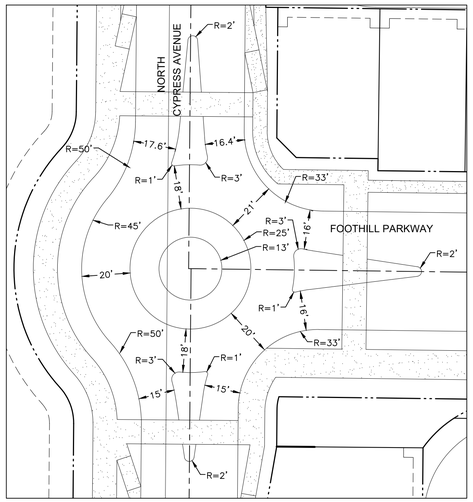
Harbour & Associates
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REVISIONS

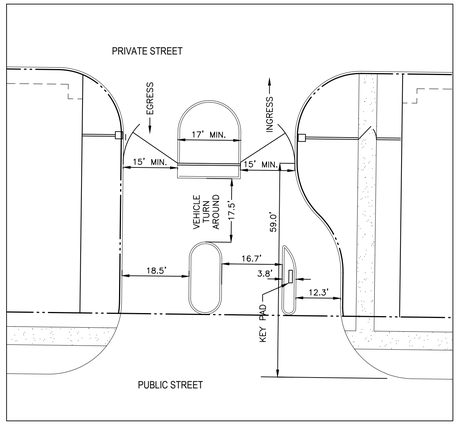
SHEET NO. 16 OF 22

DATE: 9-10-25 | SCALE: 1"= 60' | DRAWN BY: SDH

W.O. #20-010



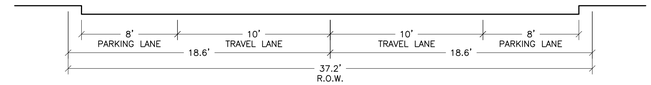
ROUNDABOUT DETAIL
SCALE: 1"=30'



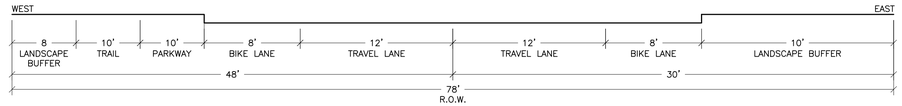
ENTRY DETAIL
SCALE: 1"=20'

OUTLOT SCHEDULE:

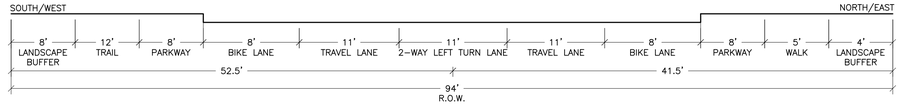
- OUTLOTS 12, 39, 55, 74, 102, 103, 105, 139, 169, & 186 ARE FOR PRIVATE STREET AND PUBLIC UTILITY PURPOSES.
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- OUTLOTS 21, 56 & 171 ARE FOR PUBLIC PARK SPACE.
- OUTLOTS 3, 5, 30, 34, 65, 70, 72, 79, 81, 83, 86, 87, 95, 146, 147, 148, 149, 150, 151, 152, 154, 159, 160, 162, 163, 164 & 165 ARE FOR PRIVATE PARKING, PRIVATE LANDSCAPE AND PUBLIC UTILITY.
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- OUTLOTS 17 & 108 ARE FOR CANAL PURPOSES.
- OUTLOTS 22, 23, 24, & 59 ARE FOR FUTURE DEVELOPMENT PURPOSES.
- OUTLOT 185 IS FOR PRIVATE LANDSCAPING PURPOSES.



TYPICAL INTERIOR PRIVATE STREET
N.T.S.
NOTE: NO PARALLEL PARKING ON SIDE OF STREET WHERE 90° PARKING STALLS ARE PROPOSED



SECTION A–A
N.T.S.



SECTION C–C
N.T.S.

SEE SHEET 18

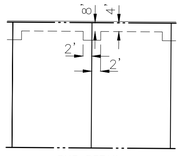
APN: 557-031-21
USE: PASTURE, MEADOW
FRESNO COUNTY

SEE SHEET 19
SEE SHEET 20
SEE SHEET 14
SEE SHEET 16
SEE SHEET 15

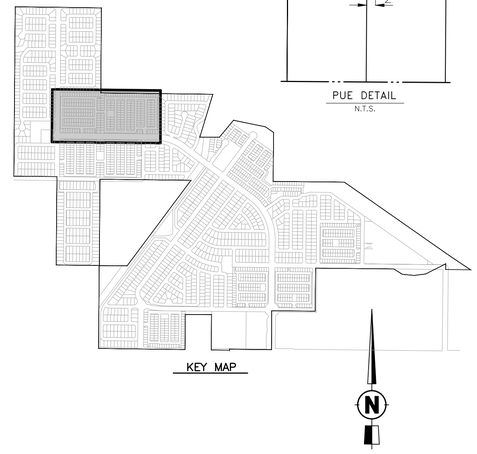
NORTH CYPRESS AVENUE
VIOLET LANE
GRANADA LANE
HONEYSUCKLE LANE
LIBERTY HILL LANE
FOOTHILL PARKWAY
SOLAR LANE
EVERGREEN LANE
FILBERT LANE
LARKSPUR LANE
JASMINE LANE
AZALEA LANE
CARRIAGE LANE
HOLLY LANE
DOGWOOD LANE
EAGLEVIEW LANE
NORTH HOLLY LANE
PARK 12,642 SF
E.D.
PROP. CURB, GUTTER & WALK (TYP.)
PROP. RIGHT OF WAY (TYP.)
PROP. CENTER LINE (TYP.)

LEGEND:

- PUBLIC STREET EASEMENT NOW OFFERED FOR DEDICATION FOR PUBLIC USE
- PUE — PUBLIC UTILITY EASEMENT NOW OFFERED FOR DEDICATION FOR PUBLIC USE
- (A) — OUTLOT IDENTIFIER
- PROPOSED 6' CONCRETE SIDEWALK
- RELINQUISHMENT OF ACCESS ALONG DOUBLE FRONTAGE LOTS
- EXCLUSIVE EASEMENT FOR FMFCD, RECORDED AS DOC. NO. 2009-0143912 O.R.F.C.
- (1) — EASEMENT FOR DITCH EXTENDING NORTH FROM DRY CREEK, POSITION AMBIGUOUS, RECORDED IN BOOK 427, PAGE 335 O.R.F.C.
- WETLANDS TO BE REMOVED
- E.D. — ENTRY DETAIL THIS SHEET
- (F) — INDICATES FIRE HYDRANT LOCATION PER THE CITY OF CLOVIS FIRE DEPARTMENT.



PUE DETAIL
N.T.S.



KEY MAP

SCALE: 1" = 60'
GRAPHIC SCALE
0 30' 60' 120'

TENTATIVE TRACT MAP

SUBDIVIDER
Wilson Premier Homes, Inc.
7550 N. PALM AVENUE
FRESNO, CA. 93711
559-224-7500

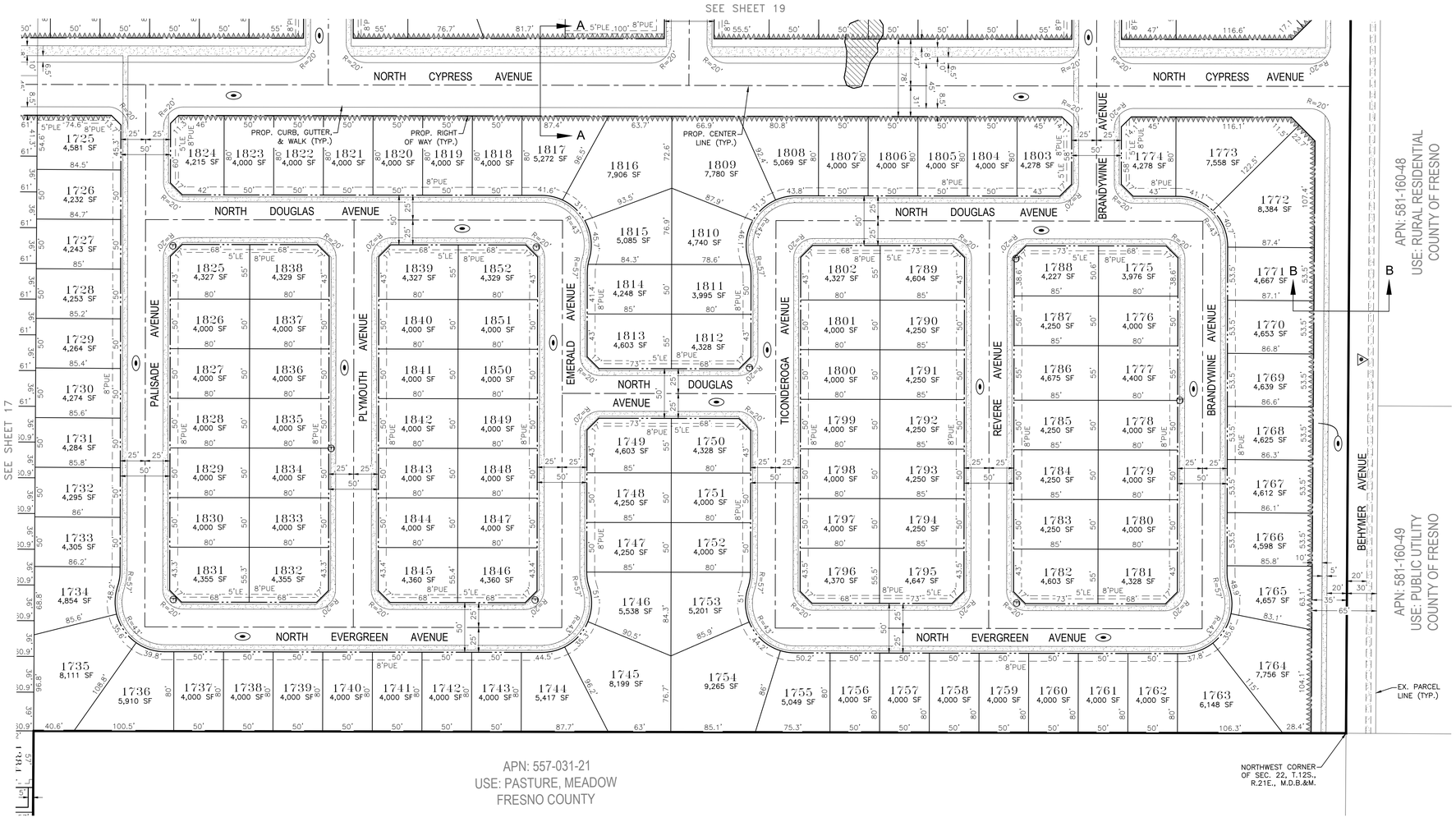
Harbour & Associates
Civil Engineers
389 Clovis Avenue, Suite 300 • Clovis, California 93612
(559) 325-7676 • Fax (559) 325-7699 • e-mail:tomns@harbour-engineering.com

REVISIONS

SHEET NO. 17 OF 22

DATE: 9-10-25 | SCALE: 1"= 60' | DRAWN BY: SDH

W.O. #20-010

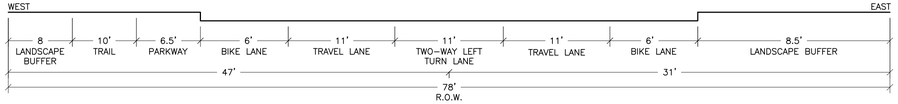


OUTLOT SCHEDULE:

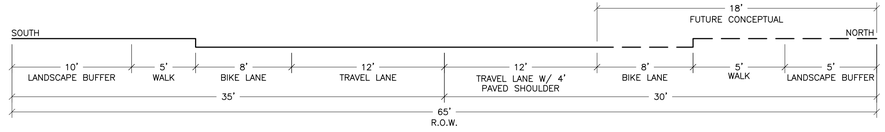
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- OUTLOT 185 IS FOR PRIVATE LANDSCAPING PURPOSES.

LEGEND:

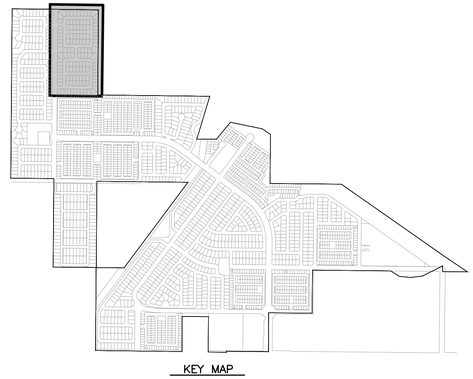
- INDICATES STREETS PREVIOUSLY DEDICATED FOR PUBLIC USE
- PUBLIC STREET EASEMENT NOW OFFERED FOR DEDICATION FOR PUBLIC USE
- LE — LANDSCAPE EASEMENT NOW OFFERED FOR DEDICATION FOR PUBLIC USE
- PUE — PUBLIC UTILITY EASEMENT NOW OFFERED FOR DEDICATION FOR PUBLIC USE
- PROPOSED 6' CONCRETE SIDEWALK
- RELINQUISHMENT OF ACCESS ALONG DOUBLE FRONTAGE LOTS
- WETLANDS TO BE REMOVED
- (F) INDICATES FIRE HYDRANT LOCATION PER THE CITY OF CLOVIS FIRE DEPARTMENT.



SECTION A–A
N.T.S.



SECTION B–B
N.T.S.



KEY MAP

SCALE: 1" = 60'

GRAPHIC SCALE
0 30' 60' 120'

TENTATIVE TRACT MAP

SUBDIVIDER
Wilson Premier Homes, Inc.
7550 N. PALM AVENUE
FRESNO, CA. 93711
559-224-7550

Harbour & Associates
Civil Engineers
389 Clovis Avenue, Suite 300 • Clovis, California 93612
(559) 325-7676 • Fax (559) 325-7699 • e-mail:lomms@harbour-engineering.com

REVISIONS

SHEET NO. 18 OF 22

DATE: 9-10-25 | SCALE: 1"= 60' | DRAWN BY: SDH

W.O. #20-010

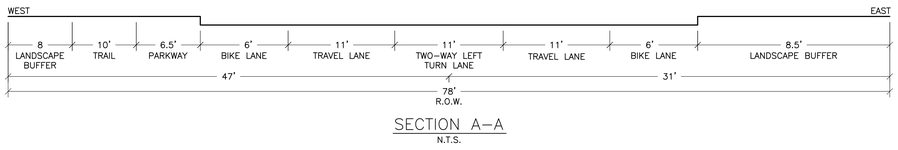
APN: 557-012-18
USE: SFR
COUNTY OF FRESNO

APN: 557-012-31
USE: VACANT
COUNTY OF FRESNO

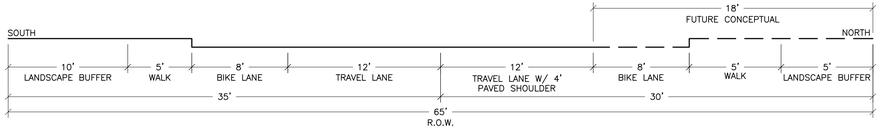
APN: 557-012-30
USE: SFR
COUNTY OF FRESNO

APN: 581-160-47
USE: SFR
COUNTY OF FRESNO





SECTION A–A
N.T.S.



SECTION B–B
N.T.S.

OUTLOT SCHEDULE:

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LEGEND:

⚠	INDICATES STREETS PREVIOUSLY DEDICATED FOR PUBLIC USE
⬭	PUBLIC STREET EASEMENT NOW OFFERED FOR DEDICATION FOR PUBLIC USE
LE	LANDSCAPE EASEMENT NOW OFFERED FOR DEDICATION FOR PUBLIC USE
PUE	PUBLIC UTILITY EASEMENT NOW OFFERED FOR DEDICATION FOR PUBLIC USE
	PROPOSED 6' CONCRETE SIDEWALK
	RELINQUISHMENT OF ACCESS ALONG DOUBLE FRONTAGE LOTS
	EXCLUSIVE EASEMENT FOR FMFCD, RECORDED AS DOC. NO. 2009-0143912 O.R.F.C.
	WETLANDS TO REMAIN
	WETLANDS TO BE REMOVED
Ⓕ	INDICATES FIRE HYDRANT LOCATION PER THE CITY OF CLOVIS FIRE DEPARTMENT.



KEY MAP

N

SCALE: 1" = 60'

GRAPHIC SCALE
0 30' 60' 120'

TENTATIVE TRACT MAP

SUBDIVIDER
Wilson Premier Homes, Inc.
7550 N. PALM AVENUE
FRESNO, CA. 93711
559-224-7550

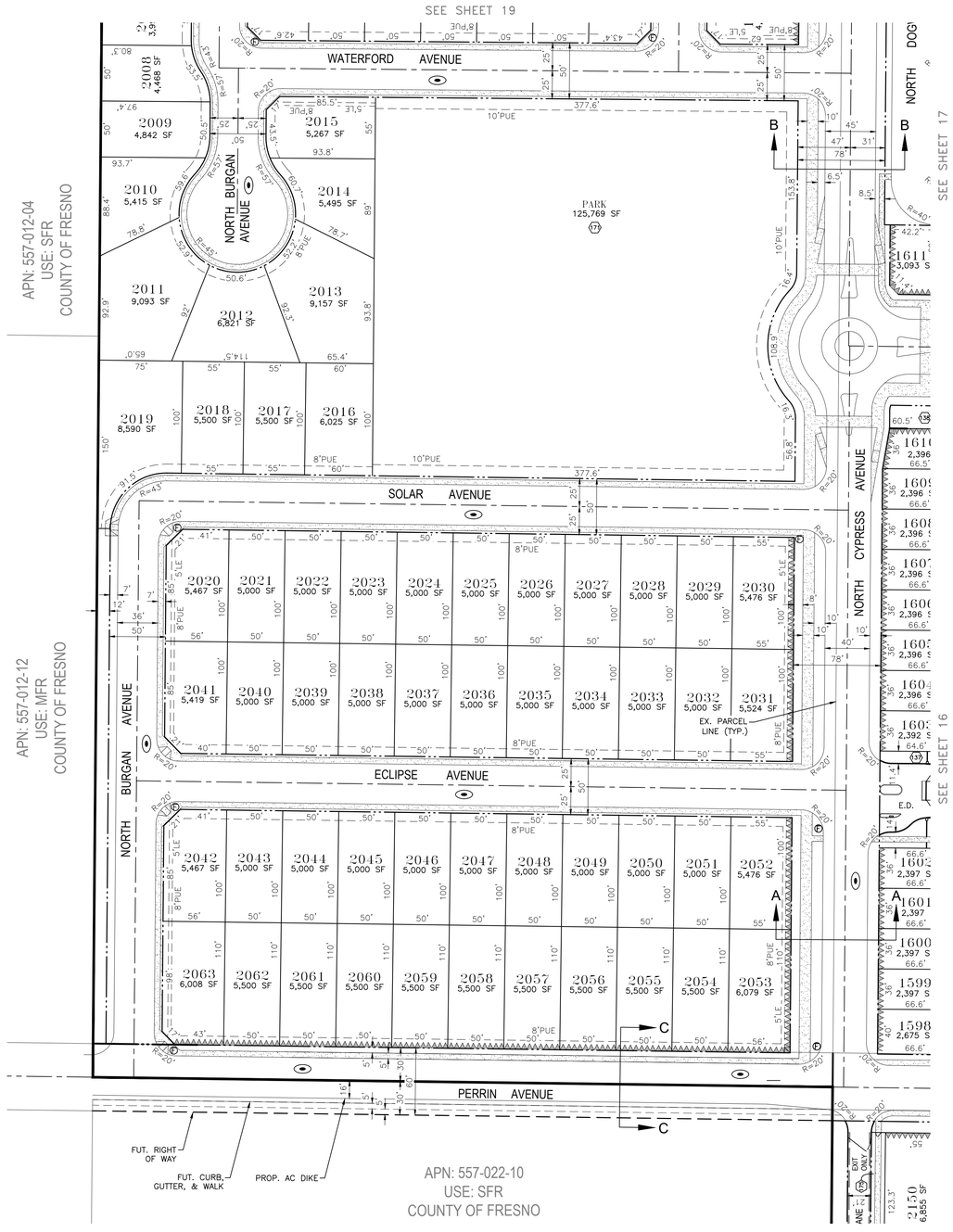
Harbour & Associates
Civil Engineers
389 Clovis Avenue, Suite 300 • Clovis, California 93612
(559) 325-7676 • Fax (559) 325-7699 • e-mail:tomm@harbour-engineering.com

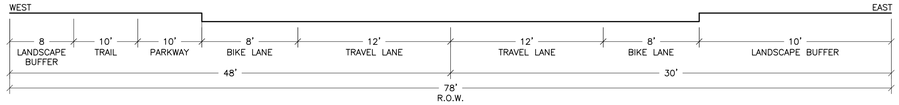
REVISIONS

SHEET NO. 19 OF 22

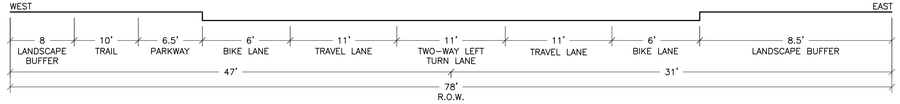
DATE: 9-10-25 | SCALE: 1"= 60' | DRAWN BY: SDH

W.O. #20-010

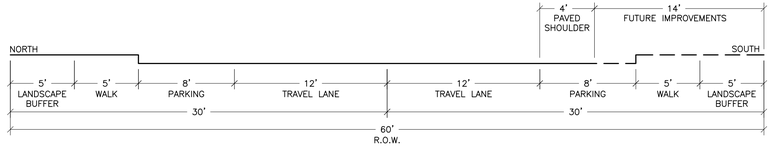




SECTION A–A
N.T.S.



SECTION B–B
N.T.S.



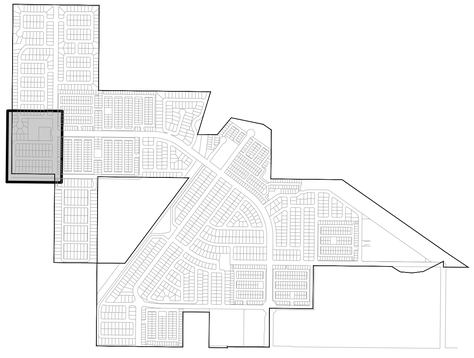
SECTION C–C
N.T.S.

OUTLOT SCHEDULE:

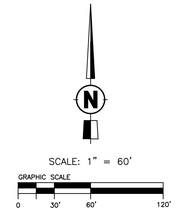
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LEGEND:

Ⓐ	INDICATES STREETS PREVIOUSLY DEDICATED FOR PUBLIC USE
⬭	PUBLIC STREET EASEMENT NOW OFFERED FOR DEDICATION FOR PUBLIC USE
LE	LANDSCAPE EASEMENT NOW OFFERED FOR DEDICATION FOR PUBLIC USE
PUE	PUBLIC UTILITY EASEMENT NOW OFFERED FOR DEDICATION FOR PUBLIC USE
(A)	OUTLOT IDENTIFIER
	PROPOSED 6' CONCRETE SIDEWALK
	RELINQUISHMENT OF ACCESS ALONG DOUBLE FRONTAGE LOTS
Ⓕ	INDICATES FIRE HYDRANT LOCATION PER THE CITY OF CLOVIS FIRE DEPARTMENT.



KEY MAP



TENTATIVE TRACT MAP

SUBDIVIDER
Wilson Premier Homes, Inc.
7550 N. PALM AVENUE
FRESNO, CA. 93711
559-224-7550

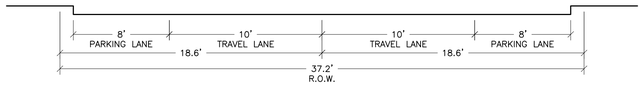
Harbour & Associates
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REVISIONS

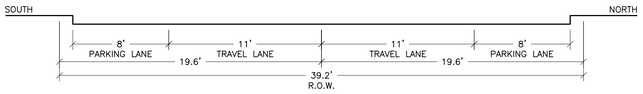
SHEET NO. 20 OF 22

DATE: 9-10-25 | SCALE: 1"= 60' | DRAWN BY: SDH

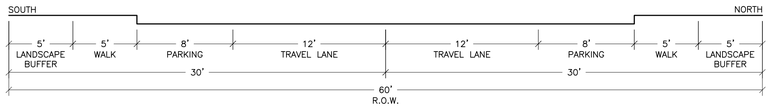
W.O. #20-010



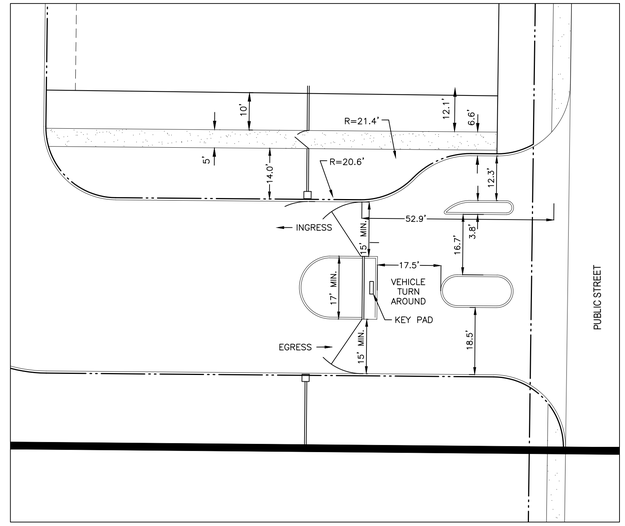
TYPICAL INTERIOR PRIVATE STREET
N.T.S.



SECTION A–A (PRIVATE)
N.T.S.



SECTION D–D
N.T.S.



ENTRY DETAIL
SCALE: 1"=20'

APN: 557-022-10
USE: SFR
COUNTY OF FRESNO

APPROXIMATE LOCATION OF PG&E EASEMENT AS DEPICTED ON EXHIBIT "A", RECORDED AS DOCUMENT No. 95071245, O.R.F.C.

APN: 557-052-14
USE: SFR
COUNTY OF FRESNO

APN: 557-052-13
USE: SFR
COUNTY OF FRESNO

APN: 557-031-26
USE: VACANT
COUNTY OF FRESNO

NORTH DOGWOOD LANE

NORTH EVERGREEN LANE

WINDMILL LANE

MERLOT LANE

SUMMERSET LANE

PLUM TREE LANE

FRUITWOOD LANE

PERRIN AVENUE

DOVE LANE

SYRAH LANE

NORTH EVERGREEN LANE

FUT. CURB, GUTTER, & WALK

FUT. R.O.W.

PROP. RIGHT OF WAY (TYP.)

PROP. CURB & GUTTER (TYP.)

EXIT ONLY

E.D.

SEE SHEET 16

OUTLOT SCHEDULE:

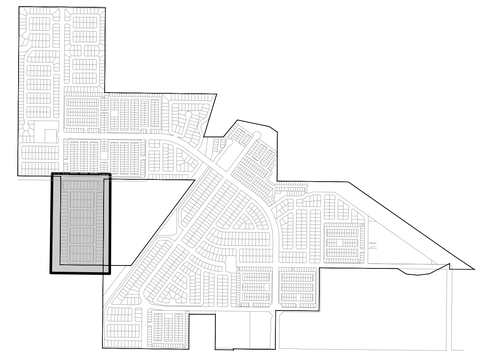
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- OUTLOTS 21, 56 & 171 ARE FOR PUBLIC PARK SPACE.
- OUTLOTS 3, 5, 30, 34, 65, 70, 72, 79, 81, 83, 86, 87, 95, 146, 147, 148, 149, 150, 151, 152, 154, 159, 160, 162, 163, 164 & 165 ARE FOR PRIVATE PARKING, PRIVATE LANDSCAPE AND PUBLIC UTILITY.
- OUTLOTS 2, 9, 10, 26, 37, 43, 53, 61, 63, 89, 91, 93, 116, 136, 142, 167 & 173 ARE FOR PRIVATE LANDSCAPE, PRIVATE PEDESTRIAN AND PUBLIC UTILITY PURPOSES.
- OUTLOTS 1, 4, 7, 8, 11, 25, 27, 28, 29, 31, 33, 36, 38, 40, 42, 45, 46, 47, 48, 49, 50, 51, 52, 62, 66, 67, 68, 69, 71, 73, 76, 78, 82, 84, 85, 88, 90, 92, 94, 96, 97, 98, 99, 100, 101, 106, 115, 118, 119, 120, 121, 122, 123, 124, 125, 126, 128, 129, 130, 131, 132, 133, 134, 135, 137, 140, 141, 143, 144, 145, 155, 156, 157, 158, 161, 166, 168, 174, 175, 176, 177, 178, 179, 180, 181, 182, 183 & 184 ARE FOR PRIVATE LANDSCAPE AND PUBLIC UTILITY PURPOSES.
- OUTLOTS 13, 14, 15, 18, 19, 20, 35, 41, 44, 57, 58, 60, 64, 77, 80, 104, 107, 109, 110, 111, 112, 113, 114, 117, 138, 170 & 172 ARE FOR PUBLIC OPEN SPACE PURPOSES.
- OUTLOT 16 IS FOR PUBLIC TRAIL PURPOSES.
- OUTLOTS 17 & 108 ARE FOR CANAL PURPOSES.
- OUTLOTS 22, 23, 24, & 59 ARE FOR FUTURE DEVELOPMENT PURPOSES.
- OUTLOT 185 IS FOR PRIVATE LANDSCAPING PURPOSES.

LEGEND:

- INDICATES STREETS PREVIOUSLY DEDICATED FOR PUBLIC USE
- PUBLIC STREET EASEMENT NOW OFFERED FOR DEDICATION FOR PUBLIC USE
- PUE — PUBLIC UTILITY EASEMENT NOW OFFERED FOR DEDICATION FOR PUBLIC USE
- (A) — OUTLOT IDENTIFIER
- PROPOSED 6' CONCRETE SIDEWALK
- RELINQUISHMENT OF ACCESS ALONG DOUBLE FRONTAGE LOTS
- (1) — APPROXIMATE LOCATION FOR EASEMENT FOR PG&E, RECORDED IN BOOK 2267 PAGE 42, O.R.F.C. (NOT PROVIDED IN PTR ORDER No. 141101753-LR
- E.D. — ENTRY DETAIL THIS SHEET
- INDICATES FIRE LANE MARKINGS PER CITY FIRE DEPT. STD. #1.1
- (F) — INDICATES FIRE HYDRANT LOCATION PER THE CITY OF CLOVIS FIRE DEPARTMENT.

NOTE:

- PARCEL 557-022-11 CONTAINS A BLANKET EASEMENT FOR PG&E RECORDED AS DOC. NO. 87016356 O.R.F.C. WHICH COVERS THE WHOLE PARCEL.



KEY MAP

SCALE: 1" = 60'

GRAPHIC SCALE
0 30' 60' 120'

TENTATIVE TRACT MAP

SUBDIVIDER
Wilson Premier Homes, Inc.
7550 N. PALM AVENUE
FRESNO, CA. 93711
559-224-7550

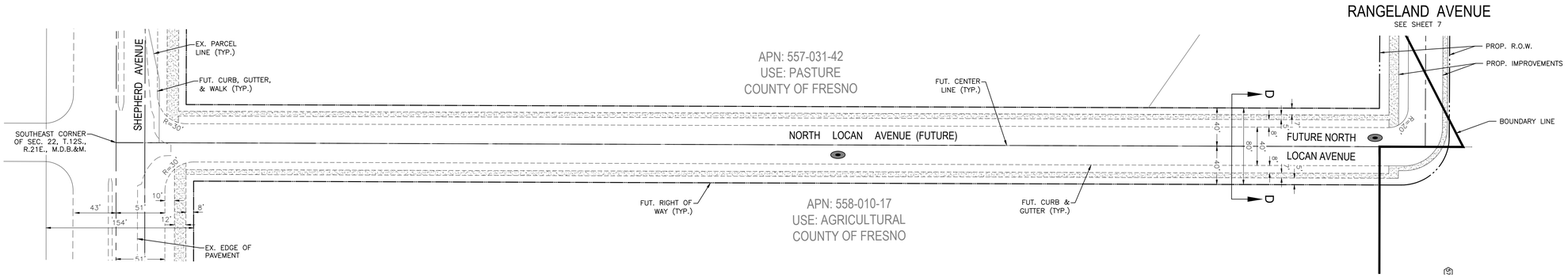
Harbour & Associates
Civil Engineers
389 Clovis Avenue, Suite 300 • Clovis, California 93612
(559) 325-7676 • Fax (559) 325-7689 • e-mail:tomsn@harbour-engineering.com

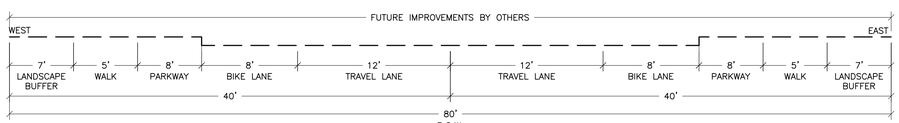
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SHEET NO. 21 OF 22

DATE: 9-10-25 | SCALE: 1"= 60' | DRAWN BY: SDH

W.O. #20-010





SECTION D–D
N.T.S.

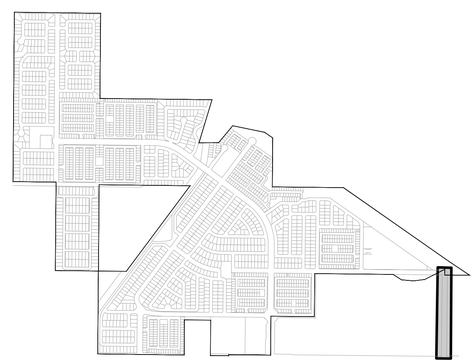
OUTLOT SCHEDULE:

- OUTLOTS 12, 39, 55, 74, 102, 103, 105, 139, 169, & 186 ARE FOR PRIVATE STREET AND PUBLIC UTILITY PURPOSES.
- OUTLOT 12 IS FOR PRIVATE STREET, PRIVATE PARKING, PRIVATE LANDSCAPE, & PUBLIC UTILITY PURPOSES.
- OUTLOTS 6, 32, 54, 75, 127 & 153 ARE FOR PRIVATE PARK AREA AND PUBLIC UTILITY PURPOSES.
- OUTLOTS 21, 56 & 171 ARE FOR PUBLIC PARK SPACE.
- OUTLOTS 3, 5, 30, 34, 65, 70, 72, 79, 81, 83, 86, 87, 95, 146, 147, 148, 149, 150, 151, 152, 154, 159, 160, 162, 163, 164 & 165 ARE FOR PRIVATE PARKING, PRIVATE LANDSCAPE AND PUBLIC UTILITY.
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- OUTLOT 185 IS FOR PRIVATE LANDSCAPING PURPOSES.

LEGEND:

PUBLIC STREET RIGHT OF WAY BY OTHERS.

PROPOSED 6' CONCRETE SIDEWALK



KEY MAP

SCALE: 1" = 60'

GRAPHIC SCALE
0 30' 60' 120'

TENTATIVE TRACT MAP

SUBDIVIDER
Wilson Premier Homes, Inc.
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559-224-7550

Harbour & Associates
Civil Engineers
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REVISIONS

SHEET NO. 22 OF 22

DATE: 9-10-25 | SCALE: 1"= 60' | DRAWN BY: SDH

W.O. #20-010

E.1 - D – ECORP Biological Resources Assessment

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Biological Resources Assessment
for the
Triangle Property Project

Fresno County, California

Prepared For:

Wilson Premier Homes
7550 North. Palm Avenue, Suite 102
Fresno, California 93711

Prepared By:

ECORP Consulting, Inc.
ENVIRONMENTAL CONSULTANTS
2525 Warren Drive
Rocklin, California 95677

January 23, 2023 (Revised)

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LIST OF ACRONYMS AND ABBREVIATIONS

Term	Description
BA	Biological Assessment
BCC	Birds of Conservation Concern
BO	Biological Opinion
BRA	Biological Resources Assessment
CDFW	California Department of Fish and Wildlife
CEQA	California Environmental Quality Act
City	City of Clovis
CFR	Code of Federal Regulations
CNDDB	California Natural Diversity Database

LIST OF ACRONYMS AND ABBREVIATIONS

Term	Description
CNPS	California Native Plant Society
CRPR	California Rare Plant Ranks
CWA	Clean Water Act
ESA	Endangered Species Act
HCP	Habitat Conservation Plan
MBTA	Migratory Bird Treaty Act
MSL	Mean sea level
NMFS	National Marine Fisheries Service
NPDES	National Pollutant Discharge Elimination System
NPPA	Native Plant Protection Act
NRCS	Natural Resources Conservation Service
Project	Triangle Property
RWQCB	Regional Water Quality Control Board
SSC	Species of Special Concern
USACE	U.S. Army Corps of Engineers
USC	U.S. Code
USFWS	U.S. Fish and Wildlife Service
USGS	U.S. Geological Survey

1.0 INTRODUCTION

At the request of Wilson Premier Homes, ECORP Consulting, Inc. conducted a Biological Resources Assessment (BRA) for the proposed Triangle Property Project (Project) located in Fresno County, California. The purpose of the assessment was to collect information on the biological resources present within the Study Area and to determine any potential biological constraints to Project activities.

1.1 Study Area Location

The approximately 398.4-acre Study Area for the Project is generally located north of East Shepherd Avenue, west of North Carson Avenue, east of North Fowler Avenue, and south of East Behymer Avenue and is just north of the city of Clovis in unincorporated Fresno County, California (Figure 1). The Study Area corresponds to Sections 21 through 23 and 26 through 28; Township 12 South, Range 21 East (Mount Diablo Base and Meridian) of the "Clovis, California" and "Friant, California" 7.5-minute quadrangles (U.S. Geological Survey [USGS] 1964a, 1964b, photorevised 1981; Figure 1). The approximate center of the Study Area is located at 36.872799° North and -119.670887° West within the Upper Dry Watershed (Hydrologic Unit Code #18030009; Natural Resources Conservation Service [NRCS] et al. 2016).

1.2 Project Description

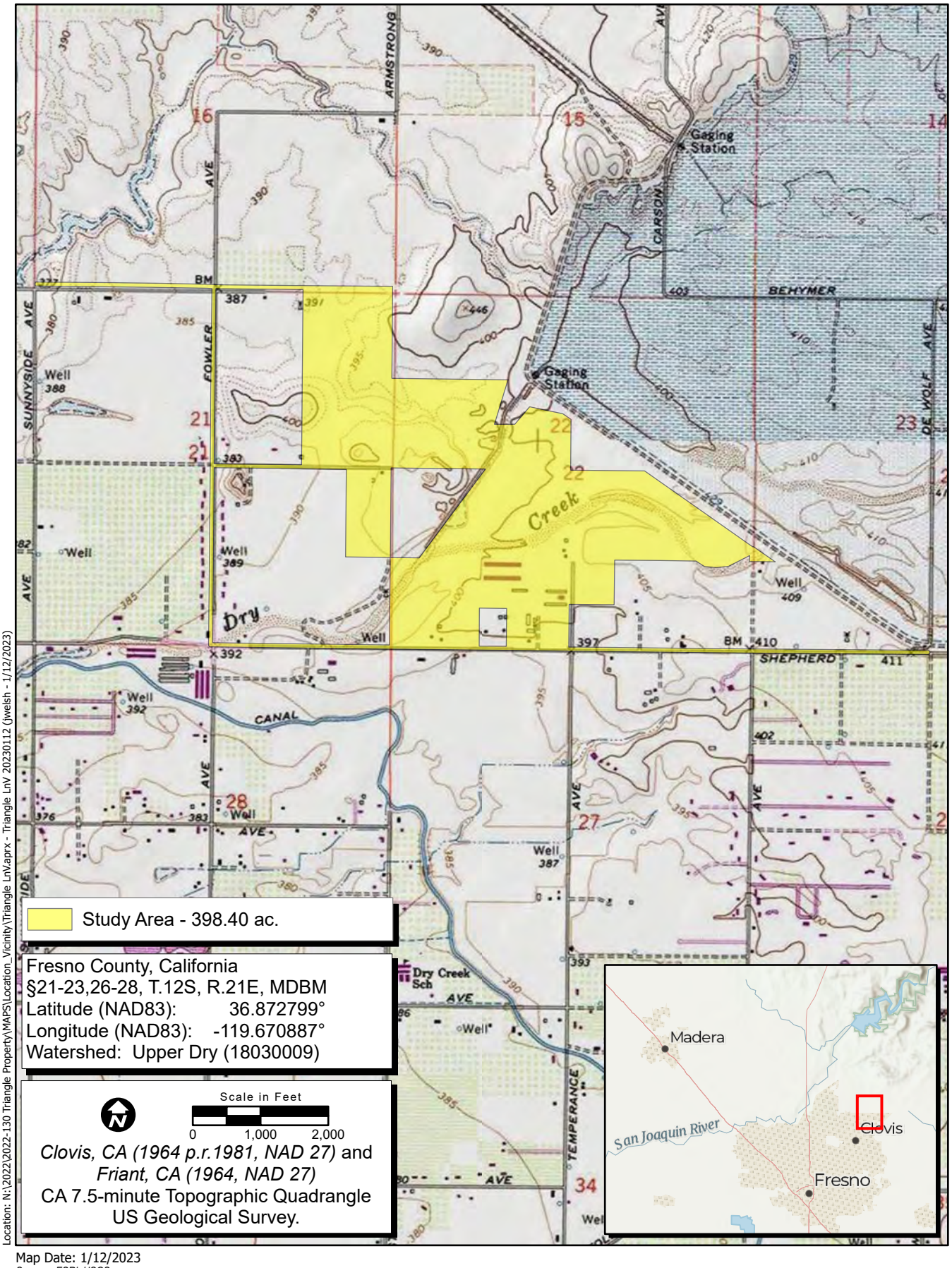
Wilson Premier Homes is proposing the development of "Vista Ranch," a master-planned community to be located in the City of Clovis. The entitlements would include a sphere of influence amendment, general plan amendment, annexation, master development plan, prezoning, and vesting tentative tract map. The Project would include a 2,800- to 3,000-unit residential development varying from low to very high density, as well as mixed use, open space, trails and parks, and community recreation facilities.

1.3 Purpose of this Biological Resources Assessment

The purpose of this BRA is to assess the potential for occurrence of special-status plant and animal species or their habitat, and sensitive habitats such as wetlands within the Study Area. This assessment does not include determinate field surveys conducted according to agency-promulgated protocols. The conclusions and recommendations presented in this report are based upon a review of the available literature and site reconnaissance.

For the purposes of this assessment, special-status species are defined as plants or animals that:

- are listed, proposed for listing, or candidates for future listing as threatened or endangered under the federal Endangered Species Act (ESA);
- are listed or candidates for future listing as threatened or endangered under the California ESA;
- meet the definitions of endangered or rare under Section 15380 of the California Environmental Quality Act (CEQA) Guidelines;



Location: N:\2022\2022-130 Triangle Property\MAPS\Location_Vicinity\Triangle LnVaprx - Triangle LnV 20230112 (jwelsh - 1/12/2023)

Map Date: 1/12/2023
Sources: ESRI, USGS

Figure 1. Study Area Location and Vicinity

ECORP Consulting, Inc.
ENVIRONMENTAL CONSULTANTS

- are identified as a species of special concern by the California Department of Fish and Wildlife (CDFW);
- are birds identified as Birds of Conservation Concern (BCC) by the U.S. Fish and Wildlife Service (USFWS);
- are included on the CDFW watch list;
- are plants considered by the California Native Plant Society (CNPS) to be "rare, threatened, or endangered in California" (California Rare Plant Ranks [CRPRs] 1 and 2);
- plants listed by CNPS as species about which more information is needed to determine their status (CRPR 3), and plants of limited distribution (CRPR 4);
- are plants listed as rare under the California Native Plant Protection Act (NPPA; California Fish and Game Code, Section 1900 et seq.); or
- are fully protected in California in accordance with the California Fish and Game Code, Sections 3511 (birds), 4700 (mammals), 5050 (amphibians and reptiles), and 5515 (fishes).

2.0 REGULATORY SETTING

2.1 Federal Regulations

2.1.1 Federal Endangered Species Act

The federal ESA protects plants and animals that are listed as endangered or threatened by the USFWS and the NMFS. Section 9 of ESA prohibits the taking of listed wildlife, where take is defined as "harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, collect, or attempt to engage in such conduct" (50 Code of Federal Regulations [CFR] 17.3). For plants, this statute governs removing, possessing, maliciously damaging, or destroying any listed plant on federal land and removing, cutting, digging up, damaging, or destroying any listed plant on non-federal land in knowing violation of state law (16 U.S. Code [USC] 1538). Under Section 7 of ESA, federal agencies are required to consult with the USFWS if their actions, including permit approvals or funding, could adversely affect a listed (or proposed) species (including plants) or its Critical Habitat. Through consultation and the issuance of a Biological Opinion (BO), the USFWS may issue an incidental take statement allowing take of the species that is incidental to an otherwise authorized activity provided the activity will not jeopardize the continued existence of the species. Section 10 of the ESA provides for issuance of incidental take permits where no other federal actions are necessary provided a Habitat Conservation Plan (HCP) is developed.

2.1.1.1 Section 7

Section 7 of ESA mandates that all federal agencies consult with USFWS and/or NMFS to ensure that federal agencies' actions do not jeopardize the continued existence of a listed species or adversely modify Critical Habitat for listed species. The adverse modifications will require formal consultation with USFWS or NMFS if direct and/or indirect effects will occur to Critical Habitat that appreciably diminish the value of Critical Habitat for both the survival and recovery of a species. The applicant must conduct a Biological

Assessment (BA) for the purpose of analyzing the potential effects of the project on listed species and Critical Habitat to establish and justify an "effect determination." if adverse effects are likely. The federal agency reviews the BA and prepares a BO if it concludes that the project may adversely affect a listed species or its habitat. The BO may recommend *reasonable and prudent alternatives* to the project to avoid jeopardizing or adversely modifying habitat.

2.1.1.2 Critical Habitat and Essential Habitat

Critical Habitat is defined in Section 3 of the ESA as (1) the specific areas within the geographical area occupied by a species, at the time it is listed in accordance with the ESA, on which are found those physical or biological features essential to the conservation of the species and that may require special management considerations or protection; and (2) specific areas outside the geographical area occupied by a species at the time it is listed, upon a determination that such areas are essential for the conservation of the species. For inclusion in a Critical Habitat designation, habitat within the geographical area occupied by the species at the time it was listed must first have features that are essential to the conservation of the species. Critical Habitat designations identify, to the extent known and using the best scientific data available, habitat areas that provide essential life cycle needs of the species (areas on which are found the primary physical and biological features). Primary physical and biological features are features essential to the conservation of the species and that may require special management considerations or protection. These include but are not limited to the following:

- Space for individual and population growth and for normal behavior;
- Food, water, air, light, minerals, or other nutritional or physiological requirements;
- Cover or shelter;
- Sites for breeding, reproduction, or rearing (or development) of offspring; or
- Habitats that are protected from disturbance or are representative of the historic, geographical, and ecological distributions of a species.

2.1.2 Migratory Bird Treaty Act

The Migratory Bird Treaty Act (MBTA) implements international treaties between the U.S. and other nations devised to protect migratory birds, any of their parts, eggs, and nests from activities such as hunting, pursuing, capturing, killing, selling, and shipping, unless expressly authorized in the regulations or by permit. As authorized by the MBTA, the USFWS issues permits to qualified applicants for the following types of activities: falconry, raptor propagation, scientific collecting, special purposes (rehabilitation, education, migratory game bird propagation, and salvage), take of depredating birds, taxidermy, and waterfowl sale and disposal. The regulations governing migratory bird permits can be found in 50 CFR part 13 General Permit Procedures and 50 CFR part 21 Migratory Bird Permits. The State of California has incorporated the protection of birds of prey in Sections 3800, 3513, and 3503.5 of the California Fish and Game Code.

2.1.3 Federal Clean Water Act

The purpose of the federal Clean Water Act (CWA) is to "restore and maintain the chemical, physical, and biological integrity of the nation's waters." Section 404 of the CWA prohibits the discharge of dredged or fill material into "Waters of the U.S." without a permit from the U.S. Army Corps of Engineers (USACE). "Discharges of fill material" is defined as the addition of fill material into Waters of the U.S., including, but not limited to, the following: placement of fill necessary for the construction of any structure, or impoundment requiring rock, sand, dirt, or other material for its construction; site-development fills for recreational, industrial, commercial, residential, and other uses; causeways or road fills; and fill for intake and outfall pipes, and subaqueous utility lines" (33 CFR § 328.2(f)). In addition, Section 401 of the CWA (33 USC 1341) requires any applicant for a federal license or permit to conduct any activity that may result in a discharge of a pollutant into Waters of the U.S. to obtain a certification that the discharge will comply with the applicable effluent limitations and water quality standards.

Substantial impacts to wetlands (over 0.5 acre of impact) may require an individual permit. Projects that only minimally affect wetlands (less than 0.5 acre of impact) may meet the conditions of one of the existing Nationwide Permits. A Water Quality Certification or waiver pursuant to Section 401 of the CWA is required for Section 404 permit actions; this certification or waiver is issued by the Regional Water Quality Control Board (RWQCB).

2.1.4 U.S. Fish and Wildlife Service Birds of Conservation Concern

The 1988 amendment to the Fish and Wildlife Conservation Act mandates USFWS "identify species, subspecies, and populations of all migratory nongame birds that, without additional conservation actions, are likely to become candidates for listing under ESA." To meet this requirement, USFWS published a list of BCC (USFWS 2021) for the U.S. The list identifies the migratory and nonmigratory bird species (beyond those already designated as federally threatened or endangered) that represent USFWS' highest conservation priorities. Depending on the policy of the lead agency, projects that result in substantial impacts to BCC may be considered significant under CEQA.

2.2 State or Local Regulations

2.2.1 California Fish and Game Code

2.2.1.1 California Endangered Species Act

The California ESA (California Fish and Game Code §§ 2050-2116) generally parallels the main provisions of the federal ESA, but unlike its federal counterpart, the California ESA applies the take prohibitions to species proposed for listing (called *candidates* by the state). Section 2080 of the California Fish and Game Code prohibits the taking, possession, purchase, sale, and import or export of endangered, threatened, or candidate species, unless otherwise authorized by permit or in the regulations. *Take* is defined in Section 86 of the California Fish and Game Code as "hunt, pursue, catch, capture, or kill, or attempt to hunt, pursue, catch, capture, or kill." The California ESA allows for take incidental to otherwise lawful development projects. State lead agencies are required to consult with the CDFW to ensure that any

action they undertake is not likely to jeopardize the continued existence of any endangered, threatened or candidate species or result in destruction or adverse modification of essential habitat.

2.2.1.2 Fully Protected Species

The State of California first began to designate species as *fully protected* prior to the creation of the federal and California ESAs. Lists of fully protected species were initially developed to provide protection to those animals that were rare or faced possible extinction and included fish, amphibians and reptiles, birds, and mammals. Most fully protected species have since been listed as threatened or endangered under the state and/or federal ESAs. The regulations that implement the Fully Protected Species Statute (California Fish and Game Code § 4700 for mammals, § 3511 for birds, § 5050 for reptiles and amphibians, and § 5515 for fish) provide that fully protected species may not be taken or possessed at any time. Furthermore, CDFW prohibits any state agency from issuing incidental take permits for fully protected species. The CDFW will issue licenses or permits for take of these species for necessary scientific research or live capture and relocation pursuant to the permit.

2.2.1.3 Native Plant Protection Act

The NPPA of 1977 was created with the intent to "preserve, protect and enhance rare and endangered plants in this State." The NPPA is administered by CDFW and provided in California Fish and Game Code §§ 1900-1913. The Fish and Wildlife Commission has the authority to designate native plants as *endangered* or *rare* and to protect endangered and rare plants from take. The California ESA of 1984 (California Fish and Game Code §§ 2050-2116) provided further protection for rare and endangered plant species, but the NPPA remains part of the California Fish and Game Code.

2.2.1.4 Protected Birds

Sections 3800, 3513, and 3503 of the California Fish and Game Code specifically protect birds. Section 3800 states that it is unlawful to take nongame birds, such as those occurring naturally in California that are not resident game birds, migratory game birds, or fully protected birds, except when in accordance with regulations of the commission or a mitigation plan approved by CDFW for mining operations. Section 3513 specifically prohibits the take or possession of any migratory nongame bird as designated in the MBTA.

Section 3503 of the California Fish and Game Code prohibits the take, possession, or needless destruction of the nest or eggs of any bird. Additionally, Subsection 3503.5 prohibits the take, possession, or destruction of any birds and their nests in the orders Strigiformes (owls) or Falconiformes (hawks and eagles). These provisions, along with the federal MBTA, serve to protect nesting birds.

2.2.1.5 California Streambed Alteration Notification/Agreement

Section 1602 of the California Fish and Game Code requires that a Streambed Alteration Application (SAA) be submitted to CDFW for "any activity that may substantially divert or obstruct the natural flow or substantially change the bed, channel, or bank of any river, stream, or lake." The CDFW reviews the

proposed actions and, if necessary, submits proposed measures to protect affected fish and wildlife resources to the applicant. The SAA is the final proposal mutually agreed upon by CDFW and the Applicant. Projects that require an SAA often also require a permit from the USACE under Section 404 of the CWA.

2.2.2 Species of Special Concern

Species of Special Concern (SSC) are defined by the CDFW as a species, subspecies, or distinct population of an animal native to California that are not legally protected under ESA, the California ESA or the California Fish and Game Code, but currently satisfy one or more of the following criteria:

- The species has been completely extirpated from the state or, as in the case of birds, it has been extirpated from its primary seasonal or breeding role.
- The species is listed as federally (but not state) threatened or endangered, or meets the state definition of threatened or endangered but has not formally been listed.
- The species has or is experiencing serious (noncyclical) population declines or range retractions (not reversed) that, if continued or resumed, could qualify it for state threatened or endangered status.
- The species has naturally small populations that exhibit high susceptibility to risk from any factor that if realized, could lead to declines that would qualify it for state threatened or endangered status.
- SSC are typically associated with threatened habitats. Project-related impacts to SSC, state-threatened or endangered species are considered significant under CEQA.

2.2.3 Watch List Species

The CDFW maintains a list consisting of taxa that were previously designated as SSC but no longer merit that status, or which do not yet meet SSC criteria, but for which there is concern and a need for additional information to clarify status.

Depending on the policy of the lead agency, projects that result in substantial impacts to species on the Watch List (WL) may be considered significant under CEQA.

2.2.4 California Rare Plant Ranks

The CNPS maintains the Rare Plant Inventory (CNPS 2022a), which provides a list of plant species native to California that are threatened with extinction, have limited distributions, or low populations. Plant species meeting one of these criteria are assigned to one of six CRPRs. The rank system was developed in collaboration with government, academia, non-governmental organizations, and private sector botanists, and is jointly managed by CDFW and the CNPS. The CRPRs are currently recognized in the California Natural Diversity Database (CNDDB). The following are definitions of the CNPS CRPRs:

- Rare Plant Rank 1A – presumed extirpated in California and either rare or extinct elsewhere
- Rare Plant Rank 1B – rare, threatened, or endangered in California and elsewhere

- Rare Plant Rank 2A – presumed extirpated in California, but more common elsewhere
- Rare Plant Rank 2B – rare, threatened, or endangered in California but more common elsewhere
- Rare Plant Rank 3 – a review list of plants about which more information is needed
- Rare Plant Rank 4 – a watch list of plants of limited distribution

Additionally, the CNPS has defined Threat Ranks that are added to the CRPR as an extension. Threat Ranks designate the level of threat on a scale of 1 through 3, with 1 being the most threatened and 3 being the least threatened. Threat Ranks are generally present for all plants ranked 1B, 2B, or 4, and for the majority of plants ranked 3. Plant species ranked 1A and 2A (presumed extirpated in California), and some species ranked 3, which lack threat information, do not typically have a Threat Rank extension. The following are definitions of the CNPS Threat Ranks:

- Threat Rank 0.1 – Seriously threatened in California (over 80 percent of occurrences threatened/high degree and immediacy of threat)
- Threat Rank 0.2 – Moderately threatened in California (20 to 80 percent of occurrences threatened/moderate degree and immediacy of threat)
- Threat Rank 0.3 – Not very threatened in California (less than 20 percent of occurrences threatened/low degree and immediacy of threat or no current threats known)

Factors, such as habitat vulnerability and specificity, distribution, and condition of occurrences, are considered in setting the Threat Rank; and differences in Threat Ranks do not constitute additional or different protection (CNPS 2022b). Depending on the policy of the lead agency, substantial impacts to plants ranked 1A, 1B, or 2 are typically considered significant under CEQA Guidelines Section 15380. Significance under CEQA is typically evaluated on a case-by-case basis for plants ranked 3 or 4.

2.2.5 Sensitive Natural Communities

The CDFW maintains the California Natural Community List (CDFW 2022a), which provides a list of vegetation alliances, associations, and special stands as defined in *A Manual of California Vegetation Online* (CNPS 2022b) along with their respective state and global rarity ranks. Natural communities with a state rarity rank of S1, S2, or S3 are considered sensitive natural communities. Depending on the policy of the lead agency, impacts to sensitive natural communities may be considered significant under CEQA.

2.2.6 Porter-Cologne Water Quality Act

The RWQCB implements water quality regulations under the federal CWA and the Porter-Cologne Water Quality Act. These regulations require compliance with the National Pollutant Discharge Elimination System (NPDES), including compliance with the California Storm Water NPDES General Construction Permit for discharges of storm water runoff associated with construction activities. General Construction Permits for projects that disturb one or more acres of land require development and implementation of a Storm Water Pollution Prevention Plan. Under the Porter-Cologne Water Quality Act, the RWQCB regulates actions that would involve "discharging waste, or proposing to discharge waste, with any region that could affect the water of the state" (Water Code 13260(a)). Waters of the State are defined as "any

surface water or groundwater, including saline waters, within the boundaries of the state" (Water Code 13050 (e)). The RWQCB regulates all such activities, as well as dredging, filling, or discharging materials into Waters of the State, that are not regulated by the USACE due to a lack of connectivity with a navigable water body. The RWQCB may require issuance of a Waste Discharge Requirements for these activities.

2.2.7 California Environmental Quality Act

Per CEQA Guidelines Section 15380, a species not protected on a federal or state list may be considered rare or endangered if the species meets certain specified criteria. These criteria follow the definitions in the federal and California ESAs, and Sections 1900-1913 of the California Fish and Game Code, which deal with rare or endangered plants or animals. Section 15380 was included in the CEQA Guidelines primarily to deal with situations where a project under review may have a significant effect on a species that has not yet been listed by either the USFWS or CDFW.

2.2.7.1 California Environmental Quality Act Significance Criteria

Sections 15063-15065 of the CEQA Guidelines address impact evaluation, and is particularly relevant to biological resources other than listed (endangered, threatened or candidate) species. Generally, impacts to listed species are considered significant and require lead agencies to adopt mitigation measures and prepare an Environmental Impact Report if impacts cannot be mitigated to a less than significant level.

Specifically, Section 15064.7 of the CEQA Guidelines encourages local agencies to develop and publish the thresholds that the agency uses in determining the significance of environmental effects caused by projects under its review. However, agencies may also rely upon the guidance provided by the expanded Initial Study checklist contained in Appendix G of the CEQA Guidelines. Appendix G provides examples of impacts that would normally be considered significant. Based on these examples, impacts to biological resources would normally be considered significant if a project would:

- 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 CDFW or USFWS;
- have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by CDFW or USFWS;
- have a substantial adverse effect on state or federally protected aquatic resources, including Waters of the U.S. and wetlands as defined by Section 404 of the CWA (including, but not limited to, marsh, vernal pool, and coastal) through direct removal, filling, hydrological interruption, or other means;
- interfere substantially with the movement of any native resident or migratory fish or wildlife species, or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites;
- conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance; or

- conflict with the provisions of an adopted HCP, Natural Community Conservation Plan, or other approved local, regional or state habitat conservation plan.

An evaluation of whether or not an impact on biological resources would be substantial must consider both the resource itself and how that resource fits into a regional or local context. Assessment of "impact significance" to populations of nonlisted species (e.g., SSC) usually considers the proportion of the species' range that will be affected by a project, the number of individuals or extent of habitat impacted, and the regional and population level effects. Substantial impacts would be those that would diminish, or result in the loss of, an important biological resource, or those that would obviously conflict with local, state, or federal resource conservation plans, goals, or regulations. Impacts are sometimes locally important but not significant according to CEQA because although the impacts would result in an adverse alteration of existing conditions, they would not substantially diminish or result in the permanent loss of an important resource on a population-wide or region-wide basis.

2.3 Local Plans and Ordinances

2.3.1 Clovis General Plan

The Open Space and Conservation Element of the City of Clovis (City) General Plan includes goals and policies for protection of natural resources. The following goals and policies are relevant to biological resources:

- Goal 2: Natural, agricultural, and historic resources that are preserved and promoted as key features for civic pride and identity.
- Policy 2.2: New development. Encourage new development to incorporate on-site natural resources and low impact development techniques;
- Policy 2.6: Biological resources. Support the protection of biological resources through the conservation of high-quality habitat area.
- Policy 2.7: Native plants. Encourage the use of native and climate-appropriate plant species and prohibit the use of plant species known to be invasive.

2.3.2 Clovis Municipal Code Ch. 9.30 Tree Protection Standards

Chapter 9.30 (Tree Protection Standards) of the City Municipal Code establishes regulations and standards to protect and manage trees on private property to ensure that development is compatible with and enhances the City's quality and character. It is unlawful to remove any protected tree from private property without first obtaining a tree removal permit or exemption in compliance with Section 9.30.060 (tree removal permit/application requirements). Protected trees in all zones include heritage trees, any tree required to be planted or retained as a condition of approval of a development application or a building permit, or trees required by site plan review. Protected trees in all zones except for developed single-family residential properties include any tree with at least one trunk measuring 12 inches or greater in diameter or 38 inches or greater in circumference, measured from 4 feet above the adjacent grade.

Mitigation for impacts to protected trees may include onsite replanting or payment of an in-lieu fee.

3.0 METHODS

3.1 Literature Review

The following resources were reviewed to determine whether any special-status species have potential to occur within the Study Area (Appendix A):

- The CDFW CNDDB record search for the "Clovis, California" and "Friant, California" 7.5-minute quadrangles and the 10 surrounding USGS quadrangles (CDFW 2022a).
- The USFWS Information, Planning, and Consultation System Resource Report List for the Study Area (USFWS 2022).
- The CNPS electronic Inventory of Rare and Endangered Plants of California for the "Clovis, California" and "Friant, California" 7.5-minute quadrangles and the eight surrounding USGS quadrangles (CNPS 2022a).
- National Marine Fisheries Service (NMFS) West Coast Region Species, Critical Habitat, and Essential Habitat (National Oceanic and Atmospheric Administration 2016).

The CNDDB literature review included both mapped data and unprocessed data. Mapped data has been evaluated by a CNDDB Program biologist and has been incorporated into CNDDB occurrence databases. Unprocessed data has been submitted to the CNDDB but has not yet been entered into the CNDDB occurrence database and has not been quality controlled by a CNDDB Program biologist.

3.2 Field Surveys Conducted

3.2.1 Site Reconnaissance

ECORP biologists Rachel Bennett, Stephanie Castle, Keith Kwan, and Daniel Wong conducted the site reconnaissance visit on August 3 and 4, 2022. The Study Area was systematically surveyed on foot using a Trimble Global Positioning System unit with submeter accuracy, topographic maps, and aerial imagery to ensure total site coverage. Special attention was given to identifying those portions of the Study Area with the potential to support special-status species and sensitive habitats. During the field survey, biological communities occurring onsite were characterized and the following biological resource information was collected:

- Vegetation communities
- Plants and animal species directly observed
- Burrows and any other special habitat features
- Representative site photographs (Appendix B)

3.2.2 Aquatic Resource Assessment

ECORP biologists Stephanie Castle, Daniel Wong, and Keith Kwan conducted an aquatic resource assessment of the Study Area concurrently with the August 3 and 4, 2022 site visit. The aquatic resource assessment utilized methods detailed in the *Corps of Engineers Wetlands Delineation Manual* (Environmental Laboratory 1987) and the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region* (USACE 2008), however; this was only assessment-level, so wetland data points were not collected.

3.3 Special-Status Species Considered for the Project

Based on species occurrence information from the literature review and observations in the field, a list of special-status plant and animal species that have the potential to occur within the Study Area was generated. Only special-status species as defined in Section 1.3 were included in this analysis. Each of these species' potential to occur onsite was assessed based on the following criteria:

- **Present** - Species was observed during the site visit or is known to occur within the Project site based on documented occurrences within the CNDDB or other literature
- **Potential to Occur** - Habitat (including soils and elevation requirements) for the species occurs within the Project site
- **Low Potential to Occur** - Marginal or limited amounts of habitat occurs, or the species is not known to occur within the vicinity of the Project site based on CNDDB records and other available documentation
- **Absent** - No suitable habitat (including soils and elevation requirements) or the species is not known to occur within the vicinity of the Project site based on CNDDB records and other documentation

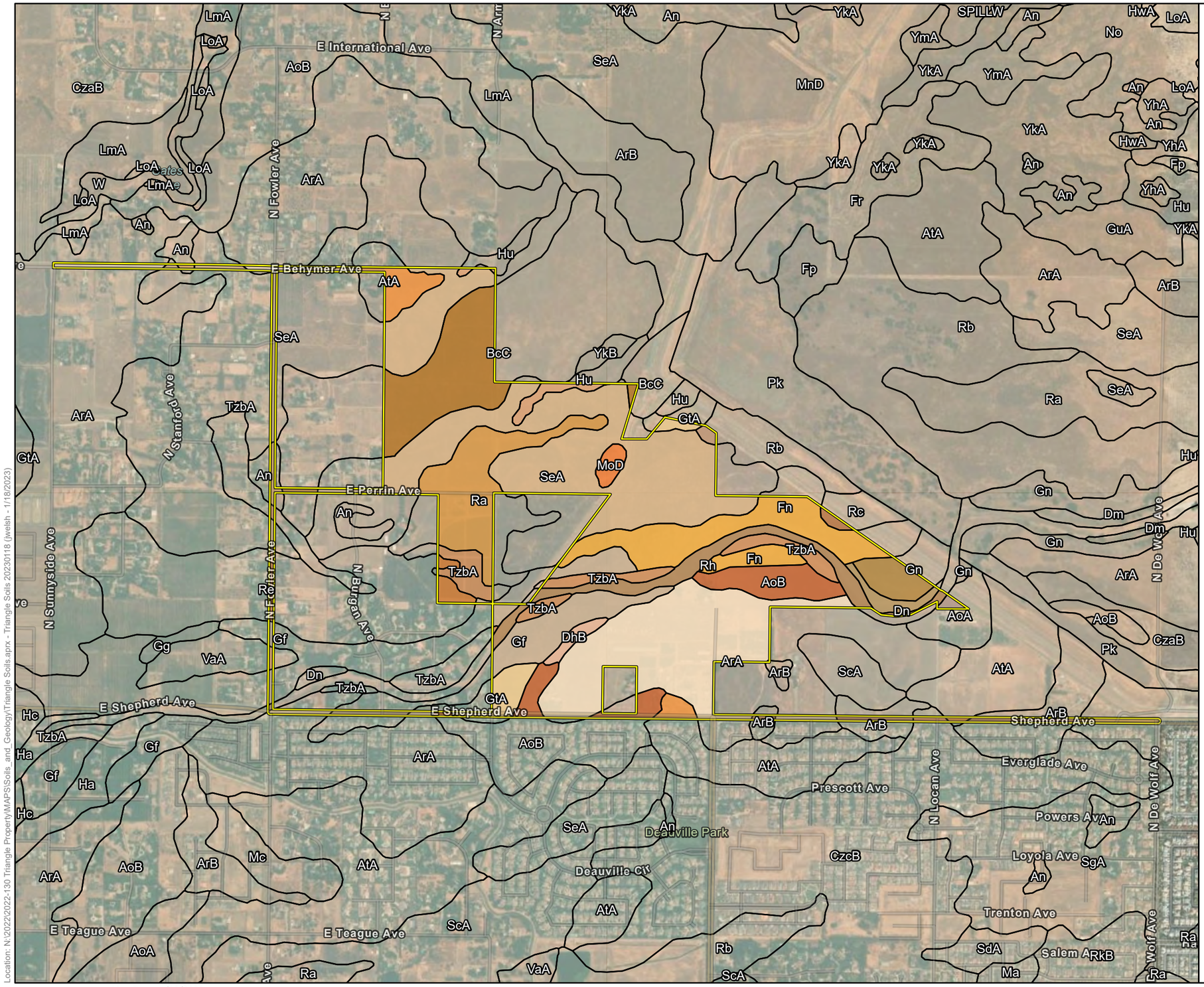
4.0 RESULTS

4.1 Site Characteristics and Land Use

The Study Area is located within flat to gently sloping terrain situated at an elevational range of approximately 390 to 416 feet above mean sea level in the San Joaquin Valley Area Subregion of the Central Western floristic region of California (Jepson eFlora 2022). The Study Area is primarily undeveloped and consists of farmed annual grassland, fallow farmland or pasture, and developed or disturbed areas that consist of a rural residence, farm buildings, abandoned poultry pens, abandoned nursery operations. The offsite infrastructure portions of the Study Area are located along developed roads fronting rural residential development on East Behymer Avenue, East Perrin Avenue, East Shepherd Avenue, and North Fowler Avenue.

4.2 Soils and Topography

According to the Web Soil Survey (NRCS 2022a), 25 map units are delineated within the Study Area (Figure 2). Of these map units, 12 contain hydric components (NRCS 2022b). Table 1 summarizes the hydric components and the landforms on which they occur per map unit.



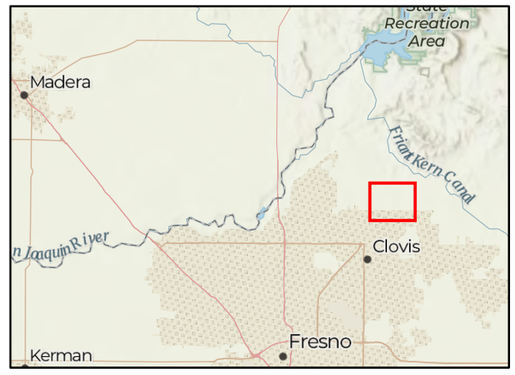
Map Contents

Study Area - 398.40 ac.

Soil Types within Study Area

- An - Alamo clay
- AoA - Atwater loamy sand, 0 to 3 percent slopes, MLRA 17
- AoB - Atwater loamy sand, 3 to 9 percent slopes
- ArA - Atwater sandy loam, 0 to 3 percent slopes
- ArB - Atwater sandy loam, 3 to 9 percent slopes
- AtA - Atwater sandy loam, moderately deep, 0 to 3 percent slopes
- BcC - Blasingame loam, 3 to 15 percent slopes
- CzcB - Cometa-San Joaquin sandy loams, 3 to 9 percent slopes
- DhB - Delhi loamy sand, 3 to 9 percent slopes
- Dn - Dello sandy loam
- Fn - Foster loam
- Gf - Grangeville fine sandy loam, 0 to 1 percent slopes, MLRA 17
- Gn - Grangeville fine sandy loam, hard substratum
- GtA - Greenfield sandy loam, 0 to 3 percent slopes
- Hu - Hildreth clay
- MoD - Millerton rocky fine sandy loam, 3 to 30 percent slopes
- Ra - Ramona sandy loam
- Rb - Ramona sandy loam, hard substratum
- Rc - Ramona loam
- Re - Ramona loam, hard substratum
- Rh - Riverwash
- SeA - San Joaquin loam, 0 to 3 percent slopes
- SgA - San Joaquin loam, shallow, 0 to 3 percent slopes
- TzbA - Tujunga loamy sand, 0 to 3 percent slopes
- VaA - Visalia sandy loam, 0 to 3 percent slopes

Sources: Maxar (3/9/2022), NRCS SSURGO (2019), ESRI



Location: N:\2022\2022-130 Triangle Property\MAPS\Soils_and_Geology\Triangle Soils.aprx - Triangle Soils 20230118 (jwelsh - 1/18/2023)

Map Date: 1/18/2023

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Scale in Feet
0 600 1,200

Figure 2. Natural Resources Conservation Service Soil Units

2022-130 Triangle Property

Table 1. Map Units and Hydric Components Occurring within the Study Area

Map Unit	Hydric?	Hydric Components and Landforms
An – Alamo clay	Yes	Alamo (depressions on fan remnants)
AoA – Atwater loamy sand, 0 to 3 percent slopes, MLRA17	No	None
AoB – Atwater loamy sand, 3 to 9 percent slopes	No	None
ArA – Atwater sandy loam, 0 to 3 percent slopes	No	None
ArB – Atwater sandy loam, 3 to 9 percent slopes	No	None
AtA – Atwater sandy loam, moderately deep, 0 to 3 percent slopes	No	None
BcC – Blasingame loam, 3 to 25 percent slopes	No	None
CzcB – Cometa-San Joaquin sandy loams, 3 to 9 percent slopes	Yes	Alamo (depressions on stream terraces)
DhB – Delhi loamy sand, 3 to 9 percent slopes	No	None
Dn – Dello sandy loam	Yes	Dello (depressions on alluvial fans and floodplains), Unnamed (depressions and channels on floodplains)
Fn – Foster loam	Yes	Foster (depressions on alluvial fans and floodplains), Grangeville (floodplains, alluvial fans), Unnamed, wet (alluvial fans, floodplains)
Gf – Grangeville fine sandy loam, 0 to 1 percent slopes, MLRA 17	Yes	Grangeville (floodplains, alluvial fans), Traver (floodplains, alluvial fans), Unnamed, hydric (floodplains, alluvial fans)
Gn – Grangeville fine sandy loam, hard substratum	Yes	Grangeville (floodplains, alluvial fans)
GtA – Greenfield sandy loam, 0 to 3 percent slopes	No	None
Hu – Hildreth clay	Yes	Hildreth (floodplains, drainageways on floodplains)
MoD – Millerton rocky fine sandy loam, 3 to 30 percent slopes	No	None
Ra – Ramona sandy loam	No	None
Rb – Ramona sandy loam, hard substratum	No	None
Rc – Ramona loam	No	None
Re – Ramona loam, hard substratum	No	None
Rh – Riverwash	Yes	Riverwash (floodplains), Grangeville (floodplains), Visalia (depressions on floodplains)

Table 1. Map Units and Hydric Components Occurring within the Study Area		
Map Unit	**Hydric?**	**Hydric Components and Landforms**
SeA – San Joaquin loam, 0 to 3 percent slopes	Yes	Unnamed (ponded)
SgA – San Joaquin loam, shallow, 0 to 3 percent slopes	Yes	Unnamed (ponded)
TzbA – Tujunga loamy sand, 0 to 3 percent slopes	Yes	Unnamed (flooded)
VaA – Visalia sandy loam, 0 to 3 percent slopes	Yes	Unnamed, somewhat poorly drained (depressions on valleys and drainageways), Hildreth (swales on floodplains), Foster (depressions on floodplains)

4.3 Land Cover Types and Vegetation Communities

Land cover types or vegetation communities found within the Study Area include annual grassland, fallow farmland/pasture, and developed (Figure 3). Descriptions of the land cover types and vegetation communities present within the Study Area are provided below. A list of plant species observed in the Study Area is included as Appendix C.

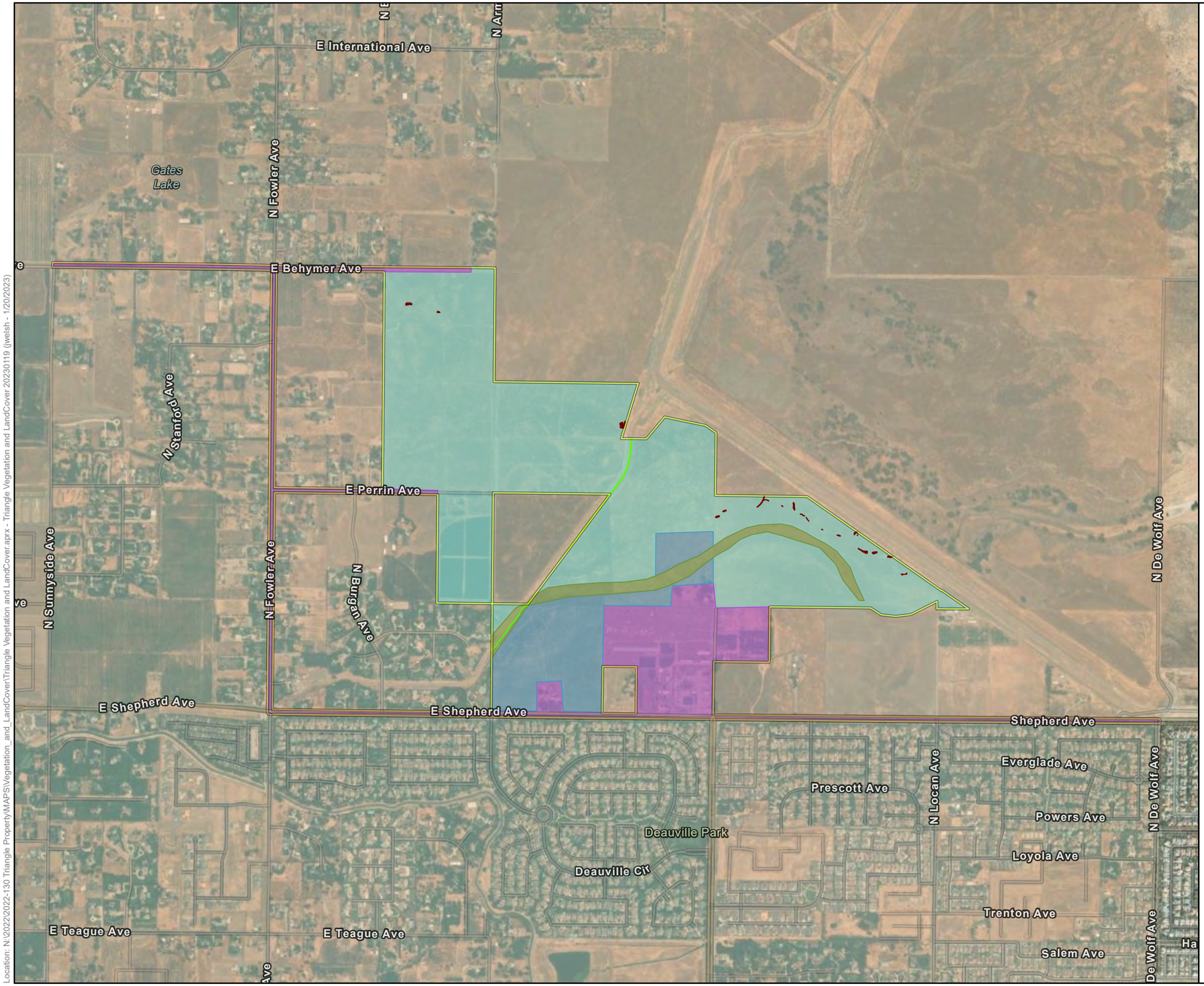
4.3.1 Annual Grassland

A majority of the Study Area is made up of annual grassland that has been farmed for hay. Evidence of regular, if not annual, mowing and plowing is present throughout the grassland. Predominant species include wild oats (*Avena* sp.), foxtail barley (*Hordeum murinum*), shortpod mustard (*Hirschfeldia incana*), ripgut brome (*Bromus diandrus*), soft brome (*Bromus hordeaceus*), and red brome (*Bromus madritensis* ssp. *rubens*).

The annual grassland most resembles the *Avena* spp. – *Bromus* spp. Herbaceous Semi-Natural Alliance as characterized by *A Manual of California Vegetation Online* (CNPS 2022b). Seminatural alliances are strongly dominated by nonnative plants that have become naturalized in the state, do not have state rarity rankings, and are not considered sensitive natural communities by CDFW.

4.3.2 Fallow Farmland/Pasture

A small percentage of the Study Area is made up of fallow farmland and pasture. The fallow farmland appears to have been a cereal grain, *Triticum* sp. such as wheat, oat, or barley. There is active horse and cow pasture along the southern portion of the Study Area. Some of these fields have been leveled and were likely historically irrigated. There is no evidence of current irrigation in the Study Area.



Map Contents

Study Area - 398.40 ac.

Vegetation Communities

Annual Grassland - 257.400 ac.

Land Cover

Developed - 81.096 ac.

Fallow Farmland/Pasture - 44.893 ac.

Unvegetated - 15.010 ac.

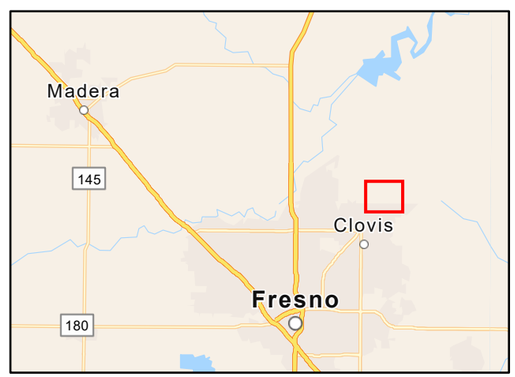
Aquatic Resources

Intermittent Drainage - 0.370 ac.

Seasonal Wetland - 0.436 ac.

The acreage value for each feature has been rounded to the nearest 1/1000 decimal. Summation of these values may not equal the total potential Waters of the U.S. acreage reported.

Sources: Maxar (3/9/2022), ESRI



Location: N:\2022\2022-130 Triangle Property\MAPS\Vegetation_and_LandCover\Triangle Vegetation and LandCover.aprx - Triangle Vegetation and LandCover 20230119 (jwelsh - 1/20/2023)

Map Date: 1/20/2023

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Scale in Feet
0 600 1,200

Figure 3. Vegetation Communities and Land Cover Types
2022-130 Triangle Property

4.3.3 Developed

The developed portions of the Study Area include the paved streets (East Behymer Avenue, East Perrin Avenue, East Shepherd Avenue, North Fowler Avenue), several rural residences along the southern boundary, and a plant nursery.

4.4 Aquatic Resources Assessment

A total of 0.806 acres of aquatic resources were mapped during the assessment within the Study Area (Table 2). A discussion of the aquatic resources assessment is presented below, and the aquatic resources assessment map is presented as Figure 4.

Table 2. Aquatic Resources Assessment

Type	Acreage[1]
Wetlands:	
Seasonal Wetland	0.436
Other Waters:	
Intermittent Drainage	0.370
Total	**0.806**

[1]Acreages represent a calculated estimation from the aquatic resources assessment

4.4.1 Seasonal Wetland

Seasonal wetlands are ephemerally wet due to accumulation of surface runoff and rainwater within low-lying areas. Inundation periods tend to be relatively short and they are commonly dominated by nonnative annual and sometimes perennial hydrophytic species. Nineteen seasonal wetlands (0.436 acre) were mapped within the Study Area. Many of the seasonal wetlands onsite appear to be associated with remnant historic drainages present prior to installation of the Big Dry Creek Dam east of the Study Area and channelization of Big Dry Creek as an outflow of the reservoir. Dominant plant species in the seasonal wetlands included foxtail barley (*Hordeum jubatum*) and slender popcorn flower (*Plagiobothrys stipitatus*).

4.4.2 Intermittent Drainage

Intermittent drainages are linear features that exhibit a bed and bank, OHWM, and flow for weeks or months following significant precipitation events. Intermittent drainages differ from ephemeral drainages in that they flow for longer duration and are influenced by groundwater sources. This usually results in greater quantities and duration of flow relative to ephemeral drainages. The intermittent drainage mapped within the Study Area is a channelized outflow from the Big Dry Creek Reservoir and forms the modern alignment of Big Dry Creek. This aquatic feature was completely dry during the site reconnaissance survey and had vegetation similar to that observed in the annual grassland.



Location: N:\2022\2022-130 Triangle Property\MAPS\Jurisdictional_Delineation\Triangle Aquatic Resources.aprx - Triangle ARA Overview 20230119 (DKrolick - 8/31/2023)

Map Contents

- Overall Study Area - 398.40 ac.
- Reference Coordinate

Aquatic Resources - 0.806 ac.

- Intermittent Drainage - 0.370 ac.
- Seasonal Wetland - 0.436 ac.

Photo Source: Maxar (2020/2021/2022)
Boundary Source: MP Engineering
Delineator(s): Rachel Bennett, Stephanie Castle, Keith Kwan, Daniel Wong
Coordinate System: NAD 1983 StatePlane California IV FIPS 0404 Feet

The information depicted on this graphic represents an aquatic resource assessment. The assessment was not conducted in accordance with the Corps of Engineers Wetland Delineation Manual and Sacramento District Minimum Standards.

Map Date: 8/31/2023

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Scale in Feet
0 600 1,200

Figure 4. Aquatic Resources Assessment

2022-130 Triangle Property

4.5 Critical Habitat

There is no designated Critical Habitat within the Study Area (USFWS 2022).

4.6 Riparian Habitats and Sensitive Natural Communities

Five sensitive natural communities were identified as having potential to occur within the Study Area based on the literature review (CDFW 2022a). These include Great Valley Mixed Riparian Forest, Sycamore Alluvial Mixed Riparian Forest, Northern Basalt Flow Vernal Pool, Northern Claypan Vernal Pool, Northern Hardpan Vernal Pool. Based on the results of the site visit, no sensitive natural communities or riparian habitats are present within the Study Area.

4.7 Wildlife Movement/Corridors and Nursery Sites

The Study Area does not fall within an Essential Habitat Connectivity area mapped by the CDFW, but an expanse of undeveloped land, a portion of which is considered an Essential Habitat Connectivity area, exists east of the Study Area across North Carson Avenue (CDFW 2022b). The Study Area is not expected to provide significant wildlife movement corridors due to it bordering developed areas to the west and south and due to North Carson Avenue separating the Study Area from undeveloped land to the east. However, the open space within the Study Area may provide some migratory opportunities for wildlife.

For the purposes of this analysis, nursery sites include but are not limited to concentrations of nest or den sites such as heron rookeries or bat maternity roosts. These data are available through CDFW's Biogeographic Information and Observation System database (CDFW 2022b) or as occurrence records in the CNDDB and are supplemented with the results of the field reconnaissance. No nursery sites have been documented within the Study Area (CDFW 2022a) and none were observed during the site reconnaissance.

4.8 Wildlife Observations

The Study Area supports a variety of common wildlife species. A list of wildlife species observed within the Study Area during the site visit is included as Appendix D.

4.9 Evaluation of Species Identified in the Literature Search

A list of all special-status plant and wildlife species identified in the literature search as potentially occurring within the Study Area is provided in Table 3. This table includes the listing status for each species, a brief habitat description, and a determination on the potential to occur in the Study Area. Following the table is a brief description of each species with potential to occur.

Several species and sensitive habitat types that were identified in the database and literature searches have been formally delisted, are tracked by the CNDDB but possess no special-status or are identified as sensitive habitats but not located within the Study Area. These species and habitat types were not included in Table 3 and are not discussed further in this report.

Table 3. Evaluation of Special-Status Plant and Wildlife Species for the Study Area

Common Name (*Scientific Name*)	Status			Habitat Description	Observation Period	Potential to Occur Onsite
	FESA	CESA	Other Status			
Plants						
Brassy bryum (*Bryum chryseum*)	-	-	4.3	Chaparral openings, cismontane woodland, and valley and foothill grassland (165'–1,970').	Any Season	Potential to occur. The grassland within the Study Area may provide suitable habitat for this species
Hoover's calycadenia (*Calycadenia hooveri*)	-	-	1B.3	Rocky soils in cismontane woodland and valley and foothill grassland (215'–985').	July–September	Absent. The Study Area does not include suitable rocky habitat for this species.
Bristly sedge (*Carex comosa*)	-	-	2B.1	Mesic (Jepson eFlora 2022) valley and foothill grassland, coastal prairie, and lake margins of marshes and swamps (0'–2,050').	May–September	Low potential to occur. There are few occurrences in the vicinity, however, the mesic areas within the Study Area may provide suitable habitat for this species.
Tree-anemone (*Carpenteria californica*)	-	CT	1B.2	Usually granitic substrates in chaparral and cismontane woodland (1,115' – 4,395').	May–July	Absent. The Study Area is significantly outside of the known elevational range for this species and does not include suitable habitat.
Succulent owl's-clover (*Castilleja campestris* var. *succulenta*)	FT	CE	1B.2	Vernal pools, often in acidic environments (165'–2,460').	April–May	Potential to occur. The seasonal wetlands within the Study Area may provide suitable habitat for this species.
California jewelflower (*Caulanthus californicus*)	FE	CE	1B.1	Chenopod scrub, pinyon and juniper woodland, and valley and foothill grassland (200'–3,280').	February–May	Absent. The Study Area is outside of the known geographic range for this species (USFWS 2022).

Table 3. Evaluation of Special-Status Plant and Wildlife Species for the Study Area

Common Name (*Scientific Name*)	Status			Habitat Description	Observation Period	Potential to Occur Onsite
	FESA	CESA	Other Status			
Streambank spring beauty (*Claytonia parviflora* ssp. *grandiflora*)	-	-	4.2	Occurs in rocky cismontane woodland (820'–3,935').	February–May	Absent. No suitable habitat within the Study Area.
Ewan's larkspur (*Delphinium hansenii* ssp. *ewanianum*)	-	-	4.2	Rocky soils in cismontane woodland, and valley and foothill grassland (195'–1,970').	March–May	Potential to occur. The grassland within the Study Area may provide suitable habitat for this species.
Dwarf downingia (*Downingia pusilla*)	-	-	2B.2	Mesic areas in valley and foothill grassland, and vernal pools. Species has also been found in disturbed areas such as tire ruts and scraped depressions (CDFW 2022a) (5'–1,460').	March–May	Low potential to occur. The Study Area is just outside of the known geographic range for this species, but the seasonal wetlands and other mesic areas within the Study Area may provide suitable habitat.
Spiny-sepaled button-celery (*Eryngium spinosepalum*)	-	-	1B.2	Swales, roadside ditches (Preston et al. 2012), vernal pools and valley and foothill grassland (260'–3,200').	April–June	Potential to occur. The aquatic features within the Study Area may provide suitable habitat for this species.
Kings River monkeyflower (*Erythranthe acutidens*)	-	-	3	Cismontane woodland and lower montane coniferous forest (1,000'–4,005').	April–July	Absent. The Study Area is significantly outside of the known elevational range and does not include suitable habitat for this species.
Small-flowered monkeyflower (*Erythranthe inconspicua*)	-	-	4.3	Mesic. Chaparral, cismontane woodland and lower montane coniferous forest (900'–2,495').	May–June	Absent. The Study Area is significantly outside of the known elevational range and does not include

Table 3. Evaluation of Special-Status Plant and Wildlife Species for the Study Area

Common Name (*Scientific Name*)	Status			Habitat Description	Observation Period	Potential to Occur Onsite
	FESA	CESA	Other Status			
						suitable habitat for this species.
Sierra Nevada monkeyflower (*Erythranthe sierrae*)	-	-	4.2	Openings of cismontane woodland and lower montane coniferous forest or dry meadows and seeps (605'–7,495').	March–July	Absent. The Study does not include suitable habitat for this species.
Boggs Lake hedge-hyssop (*Gratiola heterosepala*)	-	CE	1B.2	Marshes, swamps, lake margins, and vernal pools (35'–7,790').	April–August	Low potential to occur. The aquatic features within the Study Area may provide marginally suitable habitat for this species.
California satintail (*Imperata brevifolia*)	-	-	2B.1	Mesic areas in chaparral, coastal scrub, Mojavean desert scrub, meadows and seeps (often alkali) and riparian scrub (0'–3,985').	September–May	Absent. The Study does not include suitable habitat for this species.
Forked hare-leaf (*Lagophylla dichotoma*)	-	-	1B.1	Cismontane woodland or valley and foothill grassland (150'–1,100').	April–May	Potential to occur. The grassland within the Study Area may provide suitable habitat for this species.
Madera leptosiphon (*Leptosiphon serrulatus*)	-	-	1B.2	Cismontane woodland and lower montane coniferous forest (985'–4,265').	April–May	Absent. The Study Area is significantly outside of the known elevational range and does not include suitable habitat for this species.
Orange lupine *(Lupinus citrinus* var. *citrinus)*	-	-	1B.2	Granitic substrates in chaparral, cismontane woodland, and lower montane coniferous forest (1,245'–5,580').	April–July	Absent. The Study Area is significantly outside of the known elevational range and does not include suitable habitat for this species.

Table 3. Evaluation of Special-Status Plant and Wildlife Species for the Study Area

Common Name (*Scientific Name*)	Status			Habitat Description	Observation Period	Potential to Occur Onsite
	FESA	CESA	Other Status			
Hoary navarretia (*Navarretia eriocephala*)	-	-	4.3	Vernally mesic areas in cismontane woodland and valley and foothill grassland (345'–1,310').	May–June	Low potential to occur. The Study Area is just outside of the known geographic range for this species, but the seasonal wetlands and other mesic areas within the Study Area may provide suitable habitat.
Pincushion navarretia (*Navarretia myersii* ssp. *myersii*)	-	-	1B.1	Often acidic soils in vernal pools (65'–1,085').	April–May	Low potential to occur. The Study Area is just outside of the known geographic range for this species, but the seasonal wetlands within the Study Area may provide suitable habitat.
San Joaquin Valley Orcutt grass (*Orcuttia inaequalis*)	FT	CE	1B.1	Vernal pools (35'–2,475').	April–September	Low potential to occur. The seasonal wetlands within the Study Area may provide very marginal habitat for this species. A conservative assessment was made for this species due to the listing status.
Hairy Orcutt grass (*Orcuttia pilosa*)	FE	CE	1B.1	Vernal pools (150'–655').	May–September	Low potential to occur. The seasonal wetlands within the Study Area may provide very marginal habitat for this species. A conservative assessment was

Table 3. Evaluation of Special-Status Plant and Wildlife Species for the Study Area

Common Name (*Scientific Name*)	Status			Habitat Description	Observation Period	Potential to Occur Onsite
	FESA	CESA	Other Status			
						made for this species due to the listing status.
Arizona pholistoma (*Pholistoma auritum var. arizonicum*)	-	-	2B.3	Mojave desert scrub (900′ -2,740′).	March	Absent. The Study does not include suitable habitat for this species.
Wine-colored tufa moss (*Plagiobryoides vinosula*)	-	-	4.2	Usually in granitic rock or granitic soil along seeps and streams, sometimes in clay (100′–5,695′).	–	Potential to occur. The granitic substrates within the Study Area may provide suitable habitat for this species.
Hartweg's golden sunburst (*Pseudobahia bahiifolia*)	FE	CE	1B.1	Clay, often acidic soils in cismontane woodland, valley and foothill grasslands (50′–490′).	March–April	Low potential to occur. The grassland within the Study Area may provide marginally suitable habitat for this species.
San Joaquin adobe sunburst (*Pseudobahia peirsonii*)	FT	CE	1B.1	Adobe clay soils in cismontane woodland and valley and foothill grassland (295′–2,625′).	February–April	Low potential to occur. The grassland within the Study Area may provide very marginal habitat for this species. A conservative assessment was made for this species due to the listing status.
Sanford's arrowhead (*Sagittaria sanfordii*)	-	-	1B.2	Shallow marshes and freshwater swamps (0′–2,135′).	May–October	Absent. The Study does not include suitable habitat for this species.

Table 3. Evaluation of Special-Status Plant and Wildlife Species for the Study Area

Common Name (*Scientific Name*)	Status			Habitat Description	Observation Period	Potential to Occur Onsite
	FESA	CESA	Other Status			
Greene's tuctoria (*Tuctoria greenei*)	FE	CR	1B.1	Vernal pools (100'–3,510').	May–July	Low potential to occur. The seasonal wetlands within the Study Area may provide very marginal habitat for this species. A conservative assessment was made for this species due to the listing status
Hall's wyethia (*Wyethia elata*)	-	-	4.3	Cismontane woodland and lower montane coniferous forest (3,280'–4,595').	May–August	Absent. The Study Area is significantly outside of the known elevational range and does not include suitable habitat for this species.
Invertebrates						
Vernal pool fairy shrimp (*Branchinecta lynchi*)	FT	-	-	Vernal pools/wetlands.	November-April	Potential to occur. There is suitable habitat within the Study Area.
Vernal pool tadpole shrimp (*Lepidurus packardi*)	FE	-	-	Vernal pools/wetlands.	November-April	Low potential to occur. The seasonal wetlands within the Study Area may provide marginal habitat for this species.
Valley elderberry longhorn beetle (*Desmocerus californicus dimorphus*)	FT	-	-	Elderberry shrubs.	Any season	Absent. The Study Area does not contain elderberry shrubs and is outside of the known geographical range for this species (USFWS 2022).

Table 3. Evaluation of Special-Status Plant and Wildlife Species for the Study Area

Common Name (*Scientific Name*)	Status			Habitat Description	Observation Period	Potential to Occur Onsite
	FESA	CESA	Other Status			
Conservancy fairy shrimp (*Branchinecta conservatio*)	FE	-	-	Vernal pools/wetlands.	November-April	Low potential to occur. The seasonal wetlands within the Study Area may provide marginal habitat for this species.
Monarch butterfly (*Danaus plexippus*)	FC	-	-	Adult monarchs west of the Rocky Mountains typically overwinter in sheltered wooded groves of Monterey pine, Monterey cypress, and gum eucalyptus along coastal California, then disperse in spring throughout California, Nevada, Arizona, and parts of Oregon and Washington. Adults require milkweed and additional nectar sources during the breeding season. Larval caterpillars feed exclusively on milkweed.	Any season	Absent. No suitable habitat within the Study Area.
Fish						
Hardhead (*Mylopharodon conocephalus*)	-	-	SSC	Relatively undisturbed streams at low to mid elevations in the Sacramento-San Joaquin and Russian River drainages. In the San Joaquin River, scattered populations found in tributary streams, but only rarely in the valley reaches of the San Joaquin River	N/A	Absent. There is no suitable habitat within the Study Area.
Sacramento hitch (*Lavinia*	-	-	SSC	Warm, lowland, waters including clear streams, turbid sloughs, lakes and reservoirs. In streams they	N/A	Absent. There is no suitable habitat within the Study Area.

Table 3. Evaluation of Special-Status Plant and Wildlife Species for the Study Area

Common Name (*Scientific Name*)	Status			Habitat Description	Observation Period	Potential to Occur Onsite
	FESA	CESA	Other Status			
exilicauda exilicauda)				are generally found in pools or runs among aquatic vegetation, although small individuals will also use riffles. Sacramento hitch prefer shallow (< 1 m deep) stream habitats with smaller gravel to mud substrates.		
Delta smelt (*Hypomesus transpacificus*)				Sacramento-San Joaquin delta.	N/A	Absent. There is no suitable habitat within the Study Area.
Amphibians						
California tiger salamander - central California Distinct Population Segment [DPS] (*Ambystoma californiense*)	FT	CT	CDFW WL	Vernal pools, wetlands (breeding) and adjacent grassland or oak woodland; needs underground refuge (e.g., ground squirrel and/or gopher burrows). Largely terrestrial as adults.	March-May	Present. There is a documented CNDDB occurrence and suitable habitat within the Study Area.
Western spadefoot (*Spea hammondii*)	-	-	SSC	California endemic species of vernal pools, swales, wetlands and adjacent grasslands throughout the Central Valley.	March-May	Potential to occur. There is suitable habitat within the Study Area.
Foothill yellow-legged frog East/Southern Sierra Clade (*Rana boylii*)	-	CE	SSC	Foothill yellow-legged frogs can be active all year in warmer locations but may become inactive or hibernate in colder climates. At lower elevations, foothill yellow-legged frogs likely spend most of the year in or near streams. Adult frogs, primarily males, will gather along main-stem rivers during spring to breed.	May-October	Absent. There is no suitable habitat within the Study Area.

Table 3. Evaluation of Special-Status Plant and Wildlife Species for the Study Area						
Common Name (*Scientific Name*)	**Status**			**Habitat Description**	**Observation Period**	**Potential to Occur Onsite**
	FESA	**CESA**	**Other Status**			
				Amador, Calaveras, Madera, Mariposa, Sacramento, Tulare, and Tuolumne counties. The portion of Kern County within this clade is bounded on the west by the California Aqueduct and by the following subbasins in the east: Middle Kern-Upper Tehachapi-Grapevine, South Fork Kern, and Upper Kern. The following subbasins in El Dorado and Alpine counties are included in this clade: South Fork American, Upper Cosumnes, and Upper Mokelumne. A small area where the estimated historical range spans into Mono County is also included in this clade. The following counties east of the California Aqueduct are included in this clade: Fresno, Kings, Merced, San Joaquin, and Stanislaus.		
California red-legged frog (*Rana draytonii*)	FT	-	SSC	Lowlands or foothills at waters with dense shrubby or emergent riparian vegetation. Adults must have aestivation habitat to endure summer dry down	May-November	Absent. Outside of known geographical range of species.
Reptiles						
Northwestern pond turtle (*Actinemys marmorata*)	-	-	SSC	Requires basking sites and upland habitats up to 0.5 km from water for egg laying. Uses ponds, streams, detention basins, and irrigation ditches.	April-September	Potential to occur. There is suitable nesting habitat within Study Area.

Table 3. Evaluation of Special-Status Plant and Wildlife Species for the Study Area

Common Name (*Scientific Name*)	Status			Habitat Description	Observation Period	Potential to Occur Onsite
	FESA	CESA	Other Status			
Northern California legless lizard (*Anniella pulchra*)	-	-	SSC	The most widespread of California's *Anniella* species. Occurs in sandy or loose soils under sparse vegetation from Antioch south coastally to Ventura. Bush lupine is often an indicator plant, and two melanistic populations are known.	Generally spring, but depends on location and conditions	Low potential to occur. There is marginally suitable habitat within the Study Area.
Blainville's Coast horned lizard (*Phrynosoma blainvillii*)	-	-	SSC	Formerly a wide-spread horned lizard found in a wide variety of habitats, often in lower elevation areas with sandy washes and scattered low bushes. Also occurs in Sierra Nevada foothills. Requires open areas for basking, but with bushes or grass clumps for cover, patches of loamy soil or sand for burrowing and an abundance of ants (Stebbins and McGinnis 2012). In the northern Sacramento area, this species appears restricted to the foothills between 1000 to 3000 feet from Cameron Park (El Dorado County) north and west to Grass Valley and Nevada City.	March-October	Potential to occur. There is suitable habitat within the Study Area.
California glossy snake (*Arizona elegans occidentalis*)	-	-	SSC	Occurs from the eastern part of the San Francisco Bay Area south to northwestern Baja California. Inhabits arid scrub, rocky washes, grasslands, and chaparral (Stebbins and McGinnis 2012)	April-October	Absent. There is no suitable habitat within the Study Area.

Table 3. Evaluation of Special-Status Plant and Wildlife Species for the Study Area

Common Name (*Scientific Name*)	Status			Habitat Description	Observation Period	Potential to Occur Onsite
	FESA	CESA	Other Status			
Blunt-nosed leopard lizard (*Gambelia sila*)	FE	CE	FP	Occurs in sparsely vegetated alkali scrub habitats in the southern San Joaquin Valley. Uses mammal burrows, shrubs and other structures for shade.	April-July	Absent. There is no suitable habitat within the Study Area.
Giant garter snake (*Thamnophis gigas*)	FT	CT	-	Freshwater ditches, sloughs, and marshes in the Central Valley. Almost extirpated from the southern parts of its range.	April-October	Absent. There is no suitable habitat within the Study Area.
Birds						
Western grebe (*Aechmophorus occidentalis*)	-	-	BCC	Winters on salt or brackish bays, estuaries, sheltered sea coasts, freshwater lakes, and rivers. Nests on freshwater lakes and marshes with open water bordered by emergent vegetation.	June-August (breeding)	Absent. There is no suitable habitat within the Study Area.
Clark's grebe (*Aechmophorus clarkii*)	-	-	BCC	Winters on salt or brackish bays, estuaries, sheltered sea coasts, freshwater lakes, and rivers. Breeds on freshwater to brackish marshes, lakes, reservoirs and ponds, with a preference for large stretches of open water fringed with emergent vegetation.	June-August (breeding)	Absent. There is no suitable habitat within the Study Area.
Western yellow-billed cuckoo (*Coccyzus americanus occidentalis*)	FT	CE	-	Breeds in California, Arizona, Utah, Colorado, and Wyoming. In California, they nest along the upper Sacramento River and the South Fork Kern River from Isabella Reservoir to Canebrake Ecological Reserve. Other known nesting locations	June 15-August 15	Absent. There is no suitable habitat within the Study Area.

Table 3. Evaluation of Special-Status Plant and Wildlife Species for the Study Area

Common Name (*Scientific Name*)	Status			Habitat Description	Observation Period	Potential to Occur Onsite
	FESA	CESA	Other Status			
				include Feather River (Butte, Yuba, Sutter counties), Prado Flood Control Basin (San Bernardino and Riverside County), Amargosa River and Owens Valley (Inyo County), Santa Clara River (Los Angeles County), Mojave River and Colorado River (San Bernardino County). Nests in riparian woodland. Winters in South America		
Short-billed dowitcher (*Limnodromus griseus*)	-	-	BCC	Nests in Canada, southern Alaska; winters in coastal California south to South America; wintering habitat includes coastal mudflats and brackish lagoons	wintering/migrant period: late-August-May	Absent. There is no suitable habitat within the Study Area.
Double-crested cormorant (*Nannopterum auritum*)	-	-	CDFW WL	Nests near ponds, lakes, artificial impoundments, slow-moving rivers, lagoons, estuaries, and open coastlines and typically forages in shallow water. Non-nesters are found in many coastal and inland waters.	April-August	Absent. There is no suitable habitat within the Study Area.
Osprey (*Pandion haliaetus*)	-	-	CDFW WL	Nesting habitat requires close proximity to accessible fish, open nest site free of mammalian predators, and extended ice-free season. The nest in large trees, snags, cliffs, transmission/communication towers, artificial nest platforms, channel markers/buoys.	April-September	Absent. There is no suitable habitat within the Study Area.

Table 3. Evaluation of Special-Status Plant and Wildlife Species for the Study Area

Common Name (*Scientific Name*)	Status			Habitat Description	Observation Period	Potential to Occur Onsite
	FESA	CESA	Other Status			
Golden eagle (*Aquila chrysaetos*)	-	-	CFP; CDFW WL	Nesting habitat includes mountainous canyon land, rimrock terrain of open desert and grasslands, riparian, oak woodland/savannah, and chaparral. Nesting occurs on cliff ledges, river banks, trees, and human-made structures (e.g. windmills, platforms, and transmission towers). Breeding occurs throughout California, except the immediate coast, Central Valley floor, Salton Sea region, and the Colorado River region, where they can be found during Winter.	Nest (February-August); winter CV (October-February)	Potential to occur. There is no suitable nesting habitat within the Study Area but the site supports foraging habitat.
Cooper's hawk (*Accipiter cooperii*)	-	-	CDFW WL	Nests in trees in riparian woodlands in deciduous, mixed and evergreen forests, as well as urban landscapes	March-July	Present. An individual was observed foraging near Perrin Road. There is suitable nesting and foraging habitat within the Study Area.
Bald eagle (*Haliaeetus leucocephalus*)	De-listed	CE	CFP	Typically nests in forested areas near large bodies of water in the northern half of California; nest in trees and rarely on cliffs; wintering habitat includes forest and woodland communities near water bodies (e.g. rivers, lakes), wetlands, flooded agricultural fields, open grasslands	February – September (nesting); October-March (wintering)	Low potential to occur. There is no nesting habitat, but the Study Area supports marginal foraging habitat. The adjacent reservoir likely supports suitable foraging habitat.
Swainson's hawk (*Buteo swainsoni*)	-	CT	-	Nesting occurs in trees in agricultural, riparian, oak woodland, scrub, and	March-August	Potential to occur. There is suitable nesting and foraging

Table 3. Evaluation of Special-Status Plant and Wildlife Species for the Study Area

Common Name (*Scientific Name*)	Status			Habitat Description	Observation Period	Potential to Occur Onsite
	FESA	CESA	Other Status			
				urban landscapes. Forages over grassland, agricultural lands, particularly during disking/harvesting, irrigated pastures		habitat within the Study Area.
Burrowing owl (*Athene cunicularia*)	-	-	SSC	Nests in burrows or burrow surrogates in open, treeless, areas within grassland, steppe, and desert biomes. Often with other burrowing mammals (e.g. prairie dogs, California ground squirrels). May also use human-made habitat such as agricultural fields, golf courses, cemeteries, roadside, airports, vacant urban lots, and fairgrounds.	February-August	Potential to occur. There is suitable burrow and foraging habitat within the Study Area.
Nuttall's woodpecker (*Dryobates nuttallii*)	-	-	BCC	Resident from northern California south to Baja California. Nests in tree cavities in oak woodlands and riparian woodlands.	April-July	Low potential to occur. There is marginal nesting habitat within the Study Area.
Prairie falcon (*Falco mexicanus*)	-	-	CDFW WL	Found in open habitat at all elevations up to 3,350 meters (Steenhof 2020). Nests on cliffs and bluffs in arid plains and steppes; In California, nesting throughout state except northwest corner, along immediate coast, and the Central Valley floor. Winters throughout California, in open habitats, such as grasslands in Central Valley.	March-July (breeding); September-February (wintering in Central Valley)	Low potential to occur. There is no nesting habitat onsite, but the Study Area supports potential foraging habitat.

Table 3. Evaluation of Special-Status Plant and Wildlife Species for the Study Area

Common Name (*Scientific Name*)	Status			Habitat Description	Observation Period	Potential to Occur Onsite
	FESA	CESA	Other Status			
Olive-sided flycatcher (*Contopus cooperi*)	-	-	SSC, BCC	Nests in montane and northern coniferous forests, in forest openings, forest edges, semi-open forest stands. In California, nests in coastal forests, Cascade and Sierra Nevada region. Winters in Central to South America.	May-August	Absent. There is no suitable habitat within the Study Area
Least Bell's vireo (*Vireo bellii pusillus*)	CE	FE	-	In California, breeding range includes Ventura, Los Angeles, Riverside, Orange, San Diego, and San Bernardino counties, and rarely Stanislaus and Santa Clara counties. Nesting habitat includes dense, low shrubby vegetation in riparian areas, brushy fields, young second-growth woodland, scrub oak, coastal chaparral and mesquite brushland. Winters in southern Baja California Sur.	April 1-July 31	Absent. There is no suitable habitat within the Study Area.
Loggerhead shrike (*Lanius ludovicianus*)	-	-	SSC	Found throughout California in open country with short vegetation, pastures, old orchards, grasslands, agricultural areas, open woodlands. Not found in heavily forested habitats.	March-July	Potential to occur. There is suitable nesting and foraging habitat within the Study Area.
Yellow-billed magpie (*Pica nuttallii*)	-	-	BCC	Endemic to California; found in the Central Valley and coast range south of San Francisco Bay and north of Los Angeles County; nesting habitat includes oak savannah with large in large expanses of open ground;	April-June	Potential to occur. There is suitable nesting habitat within the Study Area.

Table 3. Evaluation of Special-Status Plant and Wildlife Species for the Study Area

Common Name (*Scientific Name*)	Status			Habitat Description	Observation Period	Potential to Occur Onsite
	FESA	CESA	Other Status			
				also found in urban parklike settings.		
California horned lark (*Eremophila alpestris actia*)	-	-	CDFW WL	San Joaquin Valley, coast range from Sonoma County south to Baja California; grassland, agricultural.	March-July	Potential to occur. There is suitable nesting and foraging habitat within the Study Area.
Lawrence's goldfinch (*Spinus lawrencei*)	-	-	BCC	Breeds in Sierra Nevada and inner Coast Range foothills surrounding the Central Valley and the southern Coast Range to Santa Barbara County east through southern California to the Mojave Desert and Colorado Desert into the Peninsular Range. Nests in arid and open woodlands with chaparral or other brushy areas, tall annual weed fields, and a water source (e.g. small stream, pond, lake), and to a lesser extent riparian woodland, coastal scrub, evergreen forests, pinyon-juniper woodland, planted conifers, and ranches or rural residences near weedy fields and water.	March-September	Low potential to occur. Marginal nesting habitat is present within the Study Area.
Belding's savannah sparrow (*Passerculus sandwichensis beldingi*)	-	CE	BCC	Resident coastally from Point Conception south into Baja California; coastal salt marsh	Year-round resident; nests March-August	Absent. There is no suitable habitat within the Study Area.
Yellow-headed blackbird	-	-	BCC, SSC	In California, breeds in the Great Basin region, along Colorado River south to Baja California, Salton Sea,	April-July	Absent. There is no suitable habitat within the Study Area.

Table 3. Evaluation of Special-Status Plant and Wildlife Species for the Study Area

Common Name (*Scientific Name*)	Status			Habitat Description	Observation Period	Potential to Occur Onsite
	FESA	CESA	Other Status			
(*Xanthocephalus xanthocephalus*)				Kern, Ventura, Riverside, San Diego, and possibly Orange and Lake counties, and locally in the Central Valley. Nests are constructed over deep water in emergent vegetation of prairie wetlands, quaking aspen parklands, mountain meadows, forest edges, large lakes.		
Bullock's oriole (*Icterus bullockii*)	-	-	BCC	Breeding habitat includes riparian and oak woodlands.	March-July	Potential to occur. There is suitable nesting habitat within the Study Area.
Tricolored blackbird (*Agelaius tricolor*)	-	CT	BCC, SSC	Breeds locally west of Cascade-Sierra Nevada and southeastern deserts from Humboldt and Shasta counties south to San Bernardino, Riverside and San Diego counties. Central California, Sierra Nevada foothills and Central Valley, Siskiyou, Modoc, and Lassen counties. Nests colonially in freshwater marsh, blackberry bramble, milk thistle, triticale fields, weedy (mustard, mallow) fields, giant cane, safflower, stinging nettles, tamarisk, riparian scrublands and forests, fiddleneck, and fava bean fields.	March-August	Potential to occur. There is no nesting habitat, but the Study Area supports suitable foraging habitat. The adjacent reservoir likely supports suitable nesting habitat.
Common yellowthroat	-	-	BCC, SSC	Breeds in salt marshes of San Francisco Bay; winters San Francisco south along	March-July	Absent. There is no suitable habitat within the Study Area.

Table 3. Evaluation of Special-Status Plant and Wildlife Species for the Study Area

Common Name (*Scientific Name*)	Status			Habitat Description	Observation Period	Potential to Occur Onsite
	FESA	CESA	Other Status			
(*Geothlypis trichas sinuosa*)				coast to San Diego County.		
Yellow warbler (*Setophaga petechia*)	-	-	SSC	Breeding range includes most of California, except Central Valley (isolated breeding locales on Valley floor, Stanislaus, Colusa, and Butte counties), Sierra Nevada range above tree line, and southeastern deserts. Nesting habitat includes riparian vegetation near streams and meadows. Winters in Mexico south to South America.	May-August	Absent. There is no suitable habitat within the Study Area.
Mammals						
Spotted bat (*Euderma maculatum*)	-	-	SSC	Roost in cracks, crevices, and caves, usually high in fractured rock cliffs. Found in desert, sub-alpine meadows, desert-scrub, pinyon-juniper woodland, ponderosa pine, mixed conifer forest, canyon bottoms, rims of cliffs, riparian areas, fields, and open pastures (Western Bat Working Group [WBWG] 2022).	April-September	Absent. No suitable habitat within Study Area.
Pallid bat (*Antrozous pallidus*)	-	-	SSC	Crevices in rocky outcrops and cliffs, caves, mines, trees (e.g., basal hollows of redwoods, cavities of oaks, exfoliating pine and oak bark, deciduous trees in riparian areas, and fruit trees in orchards). Also roosts in various human structures such as bridges, barns, porches, bat boxes, and human-occupied as	April-September	Potential to occur. Suitable roosting habitat is present within the Study Area.

Table 3. Evaluation of Special-Status Plant and Wildlife Species for the Study Area

Common Name (*Scientific Name*)	Status			Habitat Description	Observation Period	Potential to Occur Onsite
	FESA	CESA	Other Status			
				well as vacant buildings (WBWG 2022).		
Western mastiff bat (*Eumops perotis californicus*)	-	-	SSC	Primarily a cliff-dwelling species, found in similar crevices in large boulders and buildings (WBWG 2022).	April-September	Low potential to occur. Marginal roosting habitat present within the Study Area.
Western red bat (*Lasiurus blossevillii*)	-	-	SSC	Roosts in foliage of trees or shrubs; Day roosts are commonly in edge habitats adjacent to streams or open fields, in orchards, and sometimes in urban areas. There may be an association with intact riparian habitat (particularly willows, cottonwoods, and sycamores) (WBWG 2022).	April-September	Low potential to occur. Suitable roosting habitat within Study Area.
Townsend's big-eared bat (*Corynorhinus townsendii*)	-	-	SSC	Caves, mines, buildings, rock crevices, trees.	April-September	Low Potential to occur. Marginal roosting habitat present within the Study Area.
Fresno kangaroo rat (*Dipodomys nitratoides exilis*)	FE	CE	-	Elevated grassy patches on alkali plains or in grassy terrain with scattered alkali patches. Friable soils for burrow digging and annual and native forbs and grasses for foraging are necessary habitat components. Distribution is limited to the flat San Joaquin Valley Floor from Merced County to the northern border of Kings County (USFWS 2010).	Any season	Absent. Outside elevational range for species.
San Joaquin kit fox	FE	CT	-	Grasslands, sagebrush scrub.	April 15 - July 15, September 1 - December 1	Low potential to occur. Marginal habitat within the Study Area.

Table 3. Evaluation of Special-Status Plant and Wildlife Species for the Study Area

Common Name (*Scientific Name*)	Status			Habitat Description	Observation Period	Potential to Occur Onsite
	FESA	CESA	Other Status			
(*Vulpes macrotis mutica*)						
American badger (*Taxidea taxus*)	-	-	SSC	Drier open stages of most shrub, forest, and herbaceous habitats with friable soils.	Any season	Potential to occur. Suitable habitat within the Study Area.

Status Codes:

FESA	Federal Endangered Species Act
CESA	California Endangered Species Act
FE	FESA listed, Endangered.
FP	Listed under FESA, but formally proposed for delisting.
FT	FESA listed, Threatened.
FC	Candidate for FESA listing as Threatened or Endangered
BCC	USFWS Bird of Conservation Concern (USFWS 2002).
CR	CESA- or NPPA-listed, Rare.
CT	CESA- or NPPA-listed, Threatened.
CE	CESA or NPPA listed, Endangered.
CFP	California Fish and Game Code Fully Protected Species (§ 3511-birds, § 4700-mammals, §5 050-reptiles/amphibians).
CDFW WL	CDFW Watch List
SSC	CDFW Species of Special Concern (CDFW, updated July 2017).
1B	CRPR/Rare or Endangered in California and elsewhere.
2B	Plants rare, threatened, or endangered in California but more common elsewhere.
3	CRPR/Plants About Which More Information is Needed – A Review List.
4	CRPR/Plants of Limited Distribution – A Watch List.
0.1	Threat Rank/Seriously threatened in California (over 80% of occurrences threatened / high degree and immediacy of threat)
0.2	Threat Rank/Moderately threatened in California (20-80% occurrences threatened / moderate degree and immediacy of threat)
0.3	Threat Rank/Not very threatened in California (<20% of occurrences threatened / low degree and immediacy of threat or no current threats known)
Delisted	Formally Delisted (delisted species are monitored for 5 years).

4.9.1 Plants

Twenty-nine special-status plant species were identified as having the potential to occur within the Study Area based on the literature review (Table 3). However, upon further analysis and after the site visit, 13 species were determined to be absent from the Study Area due to the lack of suitable habitat, or because the Study Area is outside the known range for the species. No further discussion of those species are provided in this analysis. Brief descriptions of the remaining 16 species that have the potential to occur within the Study Area are presented below.

4.9.1.1 Brassy Bryum

Brassy bryum (*Bryum chryseum*) is not listed pursuant to either the federal or California ESAs, but is designated as a CRPR 4.3 species. This species is a moss that occurs in chaparral openings, cismontane woodland, and valley and foothill grassland. Brassy bryum is known to occur at elevations ranging from 165 to 1,970 feet above mean sea level (MSL). The current range in California for Brassy bryum includes Amador, Butte, Fresno, Madera, Mendocino, and San Bernardino counties (CNPS 2022a).

There are no mapped CNDDB occurrences of this species within 5 miles of the Study Area (CDFW 2022a). However, there are unprocessed CNDDB records in the vicinity and the grassland within the Study Area may provide suitable habitat. Brassy bryum has potential to occur.

4.9.1.2 Bristly Sedge

Bristly sedge (*Carex comosa*) is not listed pursuant to either the federal or California ESAs, but is designated as a CRPR 2B.1 plant. This species is a perennial rhizomatous herb that occurs in coastal prairies, marshes and swamps including lake margins, and in valley and foothill grassland. Bristly sedge blooms from May through September and is known to occur at elevations ranging from sea level to 2,050 feet above MSL. The current range of this species in California includes Contra Costa, Fresno, Lake, Mendocino, Sacramento, San Bernardino, Santa Cruz, San Francisco, Shasta, San Joaquin, San Mateo, and Sonoma counties; it is considered extirpated from San Bernardino and San Francisco counties (CNPS 2022a).

There are no CNDDB occurrences of this species within 5 miles of the Study Area (CDFW 2022a). The mesic areas within the Study Area may provide suitable habitat. Bristly sedge has low potential to occur.

4.9.1.3 Succulent Owl's-Clover

Succulent owl's clover (*Castilleja campestris* ssp. *succulenta*) is listed as threatened pursuant to the federal ESA, endangered pursuant to the California ESA, and is designated as a CRPR 1B.2 species. This species is a hemiparasitic herbaceous annual that occurs in vernal pools that are often acidic. Succulent owl's clover blooms from April through May, and is known to occur at elevations ranging from 165 to 2,460 feet above MSL. Succulent owl's clover is endemic to California; the current range of this species includes Fresno, Madera, Merced, Mariposa, San Joaquin, and Stanislaus counties (CNPS 2022a).

There are five CNDDB occurrences of this species within 5 miles of the Study Area (CDFW 2022a). The seasonal wetlands within the Study Area may provide suitable habitat. Succulent owl's clover has potential to occur.

4.9.1.4 Ewan's Larkspur

Ewan's larkspur (*Delphinium hansenii* ssp. *ewanianum*) is not listed pursuant to either the federal or California ESAs, but is designated as a CRPR 4.2 species. This species is an herbaceous perennial that occurs in rocky cismontane woodland and valley and foothill grassland. Ewan's larkspur blooms from March through May and is known to occur at elevations ranging from 195 to 1,970 feet above MSL.

Ewan's larkspur is endemic to California; its current range includes Amador, Calaveras, El Dorado, Fresno, Kern, Madera, Mariposa, Merced, Stanislaus, and Tulare counties (CNPS 2022a).

There are no CNDDB occurrences of this species within 5 miles of the Study Area (CDFW 2022a). However, there are unprocessed CNDDB records in the vicinity and the grassland within the Study Area may provide suitable habitat. Ewan's larkspur has potential to occur.

4.9.1.5 Dwarf Downingia

Dwarf downingia (*Downingia pusilla*) is not listed pursuant to either the federal or California ESAs, but is designated as a CRPR 2B.2 species. This species is an herbaceous annual that occurs in vernal pools and mesic areas of valley and foothill grasslands. Dwarf downingia has also been found in manmade features such as tire ruts, scraped depressions, stock ponds, and roadside ditches. This species blooms from March through May and is known to occur at elevations ranging from 5 to 1,460 feet above MSL. The current range of this species in California includes Fresno, Merced, Napa, Placer, Sacramento, San Joaquin, Solano, Sonoma, Stanislaus, Tehama, and Yuba counties (CNPS 2022a).

There is one CNDDB occurrence of this species within 5 miles of the Study Area (CDFW 2022a). The Study Area is slightly out of range for this species however, the seasonal wetlands and other mesic areas may provide suitable habitat. Dwarf downingia has low potential to occur.

4.9.1.6 Spiny-Sepaled Button-Celery

Spiny-sepaled button-celery (*Eryngium spinosepalum*) is not listed pursuant to either the federal or California ESAs, but is designated as a CRPR 1B.2 species. This species is an herbaceous annual/perennial that occurs in valley and foothill grassland and vernal pools. Spiny-sepaled button-celery blooms from April through June and is known to occur at elevations ranging from 260 to 3,200 feet above MSL. Spiny-sepaled button-celery is endemic to California; the current range of this species includes Calaveras, Contra Costa, Fresno, Kern, Madera, Mariposa, Merced, San Luis Obispo, Stanislaus, Tulare, and Tuolumne counties (CNPS 2022a).

There are no CNDDB occurrences of this species within 5 miles of the Study Area (CDFW 2022a). The aquatic features within the Study Area may provide suitable habitat. Spiny-sepaled button-celery has potential to occur.

4.9.1.7 Boggs Lake Hedge-Hyssop

Boggs Lake hedge-hyssop (*Gratiola heterosepala*) is not listed pursuant to the federal ESA, is listed as endangered pursuant to the California ESA, and is designated as a CRPR 1B.2 species. This species is an herbaceous annual that occurs in clay in marshes and swamps (lake margins), and vernal pools. Boggs Lake hedge-hyssop blooms from April through August and is known to occur at elevations ranging from 35 to 7,790 feet above MSL. The current range of this species in California includes Fresno, Lake, Lassen, Madera, Mendocino, Merced, Modoc, Placer, Sacramento, Shasta, Siskiyou, San Joaquin, Solano, Sonoma, and Tehama counties (CNPS 2022a).

There are no CNDDB occurrences of this species within 5 miles of the Study Area (CDFW 2022a). The aquatic features within the Study Area may provide suitable habitat. Boggs Lake hedge-hyssop has potential to occur.

4.9.1.8 Forked Hare-Leaf

Forked hare-leaf (*Lagophylla dichotoma*) is not listed pursuant to either the federal or California ESAs, but is designated as a CRPR 1B.1 species. This species is an herbaceous annual that occurs sometimes in clay in cismontane woodland and valley and foothill grassland. Forked hare-leaf blooms from April through May and is known to occur at elevations from 150 to 1,100 feet above MSL. Forked hare-leaf is endemic to California; the current range of this species includes Calaveras, Fresno, Merced, and Stanislaus counties. It is believed to possibly be extirpated from Merced County (CNPS 2022a).

There are no CNDDB occurrences of this species within 5 miles of the Study Area (CDFW 2022a). The grassland within the Study Area may provide suitable habitat. Forked hare-leaf has potential to occur.

4.9.1.9 Hoary Navarretia

Hoary navarretia (*Navarretia eriocephala*) is not listed pursuant to either the federal or California ESAs, but is designated as a CRPR 4.3 species. This species is an herbaceous annual that occurs in vernally mesic areas within cismontane woodland and valley and foothill grassland. Hoary navarretia blooms from May through June and is known to occur at elevations ranging from 345 to 1,310 feet above MSL. Hoary navarretia is endemic to California; its current range includes Fresno and Sacramento counties (CNPS 2022a).

There are no CNDDB occurrences of this species within 5 miles of the Study Area (CDFW 2022a). However, there are unprocessed CNDDB records in the vicinity. The Study Area is slightly out of range for this species however, the seasonal wetlands and other mesic areas may provide suitable habitat. Hoary navarretia has low potential to occur.

4.9.1.10 Pincushion Navarretia

Pincushion navarretia (*Navarretia myersii* ssp. *myersii*) is not listed pursuant to either the federal or California ESAs, but is designated as a CNPS 1B.1 species. This species is an herbaceous annual that occurs in vernal pools that are often acidic. Pincushion navarretia blooms from April through May and is known to occur at elevations ranging from 65 to 1,085 feet above MSL. Pincushion navarretia is endemic to California; the current range of this species includes Amador, Calaveras, Madera, Merced, Placer, and Sacramento counties (CNPS 2022a).

There are no CNDDB occurrences of this species within 5 miles of the Study Area (CDFW 2022a). The Study Area is slightly out of range for this species however, the seasonal wetlands and other mesic areas may provide suitable habitat. Pincushion navarretia has low potential to occur.

4.9.1.11 San Joaquin Valley Orcutt Grass

San Joaquin Valley Orcutt grass (*Orcuttia inaequalis*) is listed as threatened pursuant to the federal ESA, endangered pursuant to the California ESA, and designated as a CRPR 1B.1 species. This herbaceous annual occurs on acidic soils that vary in texture from clay to sandy loam in vernal pools (California Department of Fish and Game [CDFG] 2005). San Joaquin Valley Orcutt grass blooms from April through September and is known to occur at elevations ranging from 35 to 2,475 feet above MSL. San Joaquin Valley Orcutt grass is endemic to California; the current range of this species includes Fresno, Madera, Merced, Solano, Stanislaus, and Tulare counties, and is likely extirpated from Stanislaus County (CNPS 2022a).

There are three CNDDB occurrences of this species within 5 miles of the Study Area (CDFW 2022a). The seasonal wetlands within the Study Area may provide marginal habitat. San Joaquin Valley Orcutt grass has low potential to occur.

4.9.1.12 Hairy Orcutt Grass

Hairy Orcutt grass (*Orcuttia pilosa*) is listed endangered pursuant to both the federal and California ESAs, and is designated as a CRPR 1B.1 species. This species is an herbaceous annual that occurs in vernal pools. Hairy Orcutt grass blooms from May through September and is known to occur at elevations ranging from 150 to 655 feet above MSL. Hairy Orcutt grass is endemic to California; the current range of this species includes Glenn, Madera, Merced, Stanislaus, and Tehama counties (CNPS 2022a).

There are no CNDDB occurrences of this species within 5 miles of the Study Area (CDFW 2022a). The seasonal wetlands within the Study Area may provide marginal habitat. Hairy Orcutt grass has low potential to occur.

4.9.1.13 Wine Colored-Tufa Moss

Wine-colored tufa moss (*Plagiobryoides vinosula*) is not listed pursuant to either the federal and California ESAs and is designated as a CRPR 4.2 species. This species is a moss that occurs usually in granitic rock or granitic soil along seeps and streams (or sometimes in clay) within cismontane woodland, Mojavean desert scrub, meadows and seeps, pinyon and juniper woodland, or riparian woodland. Wine-colored tufa moss is known to occur at 100 to 5,695 feet above MSL. The current range of this species includes Butte, Inyo, Kern, Lake, Madera, Monterey, San Bernardino, San Diego, and Tulare counties (CNPS 2022a).

There are no CNDDB occurrences of this species within 5 miles of the Study Area (CDFW 2022a). However, there are unprocessed CNDDB records in the vicinity and the Study Area may provide suitable habitat. Wine-colored tufa moss has potential to occur.

4.9.1.14 Hartweg's Golden Sunburst

Hartweg's golden sunburst (*Pseudobahia bahiifolia*) is listed as endangered pursuant to both the federal and California ESAs, and is designated as a CRPR 1B.1 species. This species is an herbaceous annual that occurs on clay soils that are often acidic in cismontane woodlands, and valley and foothill grasslands.

Hartweg's golden sunburst blooms from March through April and is known to occur at elevations ranging from 50 to 490 feet above MSL. Hartweg's golden sunburst is endemic to California; the current range of this species includes Fresno, Madera, Merced, Stanislaus, Sutter, Tuolumne, and Yuba counties. This species is believed to be extirpated from Yuba County (CNPS 2022a).

There are no CNDDB occurrences of this species within 5 miles of the Study Area (CDFW 2022a). The grassland within the Study Area may provide marginally suitable habitat. Hartweg's golden sunburst has low potential to occur.

4.9.1.15 San Joaquin Adobe Sunburst

San Joaquin adobe sunburst (*Pseudobahia peirsonii*) is listed as threatened pursuant to the federal ESA, endangered pursuant to the California ESA, and is designated as a CRPR 1B.1 species. This species is an herbaceous annual that occurs on adobe clay in cismontane woodlands and valley and foothill grasslands. San Joaquin adobe sunburst blooms from February through April and is known to occur at elevations ranging from 295 to 2,625 feet above MSL. San Joaquin adobe sunburst is endemic to California; the current range of this species includes Fresno, Kern, and Tulare counties (CNPS 2022a).

There are no CNDDB occurrences of this species within 5 miles of the Study Area (CDFW 2022a). The grassland within the Study Area may provide marginally suitable habitat. San Joaquin adobe sunburst has low potential to occur.

4.9.1.16 Greene's Tuctoria

Greene's tuctoria (*Tuctoria greenei*) is listed endangered pursuant to the federal ESA, listed as rare pursuant to the California ESA, and is designated as a CRPR 1B.1 species. This species is an herbaceous annual that occurs in vernal pools. Greene's tuctoria blooms from May through July and is known to occur at elevations ranging from 100 to 3,510 feet above MSL. Greene's tuctoria is endemic to California; the current range of this species includes Butte, Fresno, Glenn, Madera, Merced, Modoc, Shasta, San Joaquin, Stanislaus, Tehama, and Tulare counties. It is considered extirpated from Fresno, Madera, San Joaquin, Stanislaus, and Tulare counties (CNPS 2022a).

There is one CNDDB occurrence of this species within 5 miles of the Study Area (CDFW 2022a). The seasonal wetlands within the Study Area may provide marginal habitat for this species. Greene's tuctoria has low potential to occur.

4.9.2 Invertebrates

Five special-status invertebrate species were identified as having the potential to occur within the Study Area based on the literature review (Table 3). However, upon further analysis and after the site visit, two species, valley elderberry longhorn beetle and monarch butterfly, were determined to be absent from the Study Area due to the lack of suitable habitat, or because the Study Area is outside the known range for the species. No further discussion of those species are provided in this analysis. Brief descriptions of the remaining three species that have the potential to occur within the Study Area are presented below.

4.9.2.1 Vernal Pool Fairy Shrimp

The vernal pool fairy shrimp (*Branchinecta lynchi*) is listed as threatened pursuant to the federal ESA. Vernal pool fairy shrimp may occur in seasonal ponds, vernal pools, and swales during the wet season, which generally occurs from December through May. This species can be found in a variety of pool sizes, ranging from less than 0.001 acre to over 24.5 acres (Eriksen and Belk 1999). The shrimp hatch from cysts when colder water (10°C [50°F] or less) fills the pool and mature in as few as 18 days, under optimal conditions (Eriksen and Belk 1999). At maturity, mating takes place and cysts are dropped. Vernal pool fairy shrimp occur in disjunct patches dispersed across California's Central Valley from Shasta County to Tulare County, the central and southern Coast Ranges from northern Solano County to Ventura County, and three areas in Riverside County (USFWS 2003a).

There are 30 CNDDB occurrences of this species within 5 miles of the Study Area (CDFW 2022a). The seasonal wetlands within the Study Area provide suitable habitat. Vernal pool fairy shrimp has potential to occur.

4.9.2.2 Vernal Pool Tadpole Shrimp

The vernal pool tadpole shrimp (*Lepidurus packardi*) is listed as endangered pursuant to the federal ESA. This species inhabits vernal pools containing clear to highly turbid water, ranging in size from 0.001 to 89.0 acres (USFWS 1994). Vernal pool tadpole shrimp are distinguished from other vernal pool branchiopods discussed in this report by a large, shield like carapace that covers the anterior half of their body (USFWS 2003a). Cysts hatch during the wet season and the shrimp reach maturity in a few weeks. This species matures slowly and is long lived, relative to other species. Vernal pool tadpole shrimp will continue to grow as long as the pools they occur in remain inundated, and in some instances can survive for six months or longer (USFWS 2003a). The geographic range of vernal pool tadpole shrimp extends from Shasta County to northern Tulare County in California's Central Valley, and in the central coast range from Solano County to Alameda County (USFWS 2003a).

There are no CNDDB occurrences of this species within 5 miles of the Study Area (CDFW 2022a). The seasonal wetlands within the Study Area provide marginal habitat. Vernal pool tadpole shrimp has low potential to occur.

4.9.2.3 Conservancy Fairy Shrimp

The conservancy fairy shrimp (*Branchinecta conservatio*) is listed as endangered pursuant to the federal ESA. This fairy shrimp is endemic to California and is found in grasslands in the northern two thirds of the Central Valley (Eriksen and Belk 1999). The historic distribution of conservancy fairy shrimp is not known, but it likely occurred throughout a large portion of the Central Valley and Southern Coastal regions of California (USFWS 2005). Until recently, this species has only been known from a few disjunct populations in California, including four clustered populations in the Vina Plains area in Tehama and Butte Counties, Jepson Prairie Preserve in Solano County, The Sacramento National Wildlife Refuge in Glenn County, the Tule Ranch Unit of CDFG's Yolo basin Wildlife Area in Yolo County, the Grasslands Ecological Area in Merced County, one location in Stanislaus County, three locations in the Southern Sierra Foothills Vernal

Pool Region, and two locations near the Santa Barbara Vernal Pool Region (USFWS 2003a, 2006). In April of 2007, the USFWS reported that a single conservancy fairy shrimp was documented in one vernal pool within the Mariner Conservation Bank in Placer County, near the town of Lincoln, California.

There are no CNDDB occurrences of this species within 5 miles of the Study Area (CDFW 2022a). The seasonal wetlands within the Study Area provide marginal habitat. Conservancy fairy shrimp has low potential to occur.

4.9.3 Fish

Three special-status fish species were identified as having the potential to occur within the Study Area based on the literature review: Sacramento hitch, hardhead, and delta smelt. However, upon further analysis and after the site visit, all three species were determined to be absent from the Study Area due to the lack of suitable habitat. No further discussion of special-status fish is provided in this analysis.

4.9.4 Amphibians

Four special-status amphibian species were identified as having the potential to occur within the Study Area based on the literature review (Table 3). However, upon further analysis and after the site visit, two species, foothill yellow-legged frog and California red-legged frog, were considered to be absent from the Study Area due to the lack of suitable habitat. No further discussion of those species is provided in this analysis. Brief descriptions of the remaining two species that have the potential to occur within the Study Area are presented below.

4.9.4.1 California Tiger Salamander

The Central Valley DPS of California tiger salamander (*Ambystoma californiense)* is listed as threatened under the federal ESA. The Santa Barbara County and Sonoma County DPS of California tiger salamander are federally listed as endangered. The species is listed as threatened under the California ESA throughout its range. It is most commonly associated with annual grassland habitats but may also occur within open woodland areas of low hills and valleys. The California tiger salamander occurs from Yolo County (Dunnigan area) south through the Central Valley to Kern County, and discontinuously from Santa Barbara County north through the inner coast range to Sonoma County (USFWS 2003b, 2015).

There are 21 CNDDB occurrences of this species within 5 miles of the Study Area, including one occurrence mapped within the Study Area (Occurrence 729; CDFW 2022a). California tiger salamander larvae was mapped within a swale in the Study Area in 2006. Aquatic features within the Study Area provide suitable breeding habitat and the annual grassland provides suitable upland habitat. California tiger salamander is considered present within the Study Area.

4.9.4.2 Western Spadefoot

The western spadefoot (*Spea hammondii*) is not listed pursuant to either the California or federal ESAs; however, it is designated as a CDFG SSC. Necessary habitat components of the western spadefoot include loose friable soils in which to burrow in upland habitats and breeding ponds. Breeding sites include

temporary rain pools, such as vernal pools and seasonal wetlands, or pools within portions of intermittent drainages (Jennings and Hayes 1994). Spadefoots spend most of their adult life within underground burrows or other suitable refugia, such as rodent burrows. In California, western spadefoot toads are known to occur from the Redding area, Shasta County southward to northwestern Baja California, at elevations below 4,475 feet (Jennings and Hayes 1994).

There are 11 CNDDB occurrences of this species within 5 miles of the Study Area (CDFW 2022a). The seasonal wetlands within the Study Area provide suitable habitat. Western spadefoot has potential to occur.

4.9.5 Reptiles

Six special-status reptile species were identified as having the potential to occur within the Study Area based on the literature review (Table 3). However, upon further analysis and after the site visit, three species, blunt-nosed leopard lizard, California glossy snake, and giant garter snake, were considered to be absent from the Study Area due to the lack of suitable habitat for the species. No further discussion of those species is provided in this analysis. Brief descriptions of the remaining four species that have the potential to occur within the Study Area are presented below.

4.9.5.1 Northwestern Pond Turtle

The northwestern pond turtle (*Actinemys marmorata*) is not listed pursuant to either the federal or California ESAs; however, it is designated as a CDFW SSC. Northwestern pond turtles occur in a variety of fresh and brackish water habitats including marshes, lakes, ponds, and slow-moving streams (Jennings and Hayes 1994). This species is primarily aquatic; however, they typically leave aquatic habitats in the fall to reproduce and to overwinter (Jennings and Hayes 1994). Deep, still water with abundant emergent woody debris, overhanging vegetation, and rock outcrops is optimal for basking and thermoregulation. Although adults are habitat generalists, hatchlings and juveniles and hatchlings require shallow edgewater with relatively dense submergent or short emergent vegetation in which to forage. Northwestern pond turtles are typically active between March and November. Mating generally occurs during late April and early May and eggs are deposited between late April and early August (Jennings and Hayes 1994). Eggs are deposited within excavated nests in upland areas, with substrates that typically have high clay or silt fractions (Jennings and Hayes 1994). The majority of nesting sites are located within 650 feet (200 meters) of aquatic sites; however, nests have been documented as far as 1,310 feet (400 meters) from aquatic habitat.

There are two CNDDB occurrences of this species within 5 miles of the Study Area (CDFW 2022a). The intermittent drainage and annual grassland within the Study Area provide suitable nesting/over-wintering habitat. Northwestern pond turtle has potential to occur.

4.9.5.2 Northern California Legless Lizard

The Northern California legless lizard (*Anniella pulchra*) is one of five species of legless lizard in California (Papenfuss and Parham 2013). Although CDFW only recognizes two subspecies (*A. p. pulchra* and *A. p.*

nigra), all California legless lizards are considered SSC. They are not listed under the California or federal ESAs.

Although lacking legs, the legless lizards (*Anniella*) are decidedly lizards as shown by their eyelids, which are lacking in all snakes. Like snakes, however, these species lack external ear openings. The Northern California legless lizard has the largest range of all California *Anniella*, ranging from sites in and around Antioch, in the east bay, south to northern San Luis Obispo County. Two disjunct segments of this species range occur: one in the eastern foothills of Tulare and Fresno counties, and another at the western edge of the Antelope Valley in Kern and Los Angeles counties. A large area of undetermined species status connects those populations to areas occupied by Southern Sierra legless lizard (*A. campi*), Bakersfield legless lizard (*A. grinnelli*), Temblor legless lizard (*A. alexanderae*), and southern California legless lizard (*A. stebbinsi*). Although not recognized by taxonomists, a melanistic form of A. pulchra that exists in Monterey Bay is considered to be the subspecies *A. p. nigra* by CDFW.

There is one CNDDB occurrence of this species within 5 miles of the Study Area (CDFW 2022a). The grassland within the Study Area provides marginally suitable habitat. Northern California legless lizard has low potential to occur.

4.9.5.3 Blainville's "Coast" Horned Lizard

Blainville's horned lizard (*Phrynosoma blainvillii*) is considered an SSC by CDFW. This species is a relatively large (to 105 millimeters [mm] in snout-vent length) dorsoventrally flattened, rounded lizard found historically from Redding, California to Baja, Mexico (Jennings and Hayes 1994). Formally considered the coast horned lizard (*P. coronatum*), the species has gone through a long period of taxonomic instability (Jennings and Hayes 1994; Montanucci 2004; Leaché et al. 2009). This diurnal species can occur within a variety of habitats including scrubland, annual grassland, valley-foothill woodlands, and coniferous forests, although it is most common along lowland desert sandy washes and chaparral (Stebbins 2003). In the Coast Ranges, it occurs from Sonoma County south into Baja California (CDFG 1988). It occurs from sea level to 8,000 feet above MSL and an isolated population occurs in Siskiyou County (Stebbins 2003).

Blainville's horned lizard is found in open microhabitats such as sandy washes with scattered shrubs or firebreaks in chaparral, where they forage for ants, small beetles and other insects (Jennings and Hayes 1994). Horned lizards (*Phrynosoma*) are native ant specialists and daily activities are centered on aboveground activity patterns of ants, with lizards active generally in mornings and later in the afternoon in the summer. They usually emerge from hibernation in March or April, and are active until September or later. Mating takes place in April through early May (Jennings and Hayes 1994), and an average of 12 (but up to 21) eggs are laid from April to June (Stebbins and McGinnis 2012). Hatchlings 25 to 27 mm in length emerge from July through September (Stebbins and McGinnis 2012). Periods of daily or seasonal inactivity are spent within rodent burrows or underneath the soil or surface objects (CDFG 1988).

There is one CNDDB occurrence of this species within 5 miles of the Study Area (CDFW 2022a). The grassland and fallowed areas within the Study Area provide suitable habitat. Blainville's horned lizard has potential to occur.

4.9.6 Birds

Twenty-five special-status bird species were identified as having the potential to occur within the Study Area based on the literature review (Table 3). However, upon further analysis and after the site visit, 12 species were considered to be absent from the Study Area due to the lack of suitable habitat for the species. No further discussion of those species is provided in this analysis. Brief descriptions of the remaining 13 species that have the potential to occur within the Study Area are presented below.

4.9.6.1 Golden Eagle

The golden eagle (*Aquila chrysaetos*) is not listed pursuant to either the California or federal Endangered Species Acts. However, it is fully protected according to Section 3511 of the Fish and Game Code of California and the federal Bald and Golden Eagle Protection Act. Golden eagles generally nest on cliff ledges and/or large lone trees in rolling to mountainous terrain. Golden eagles nest throughout California except the flat portions of the Central Valley, the immediate coast, and portions of southeastern California (Katzner et al. 2020). Occurrences within the Central Valley are usually dispersing post-breeding birds, non-breeding sub-adults, or migrants. Foraging habitat includes open grassland and savannah. Nesting occurs during February through August.

There are no CNDDB occurrences of this species within 5 miles of the Study Area (CDFW 2022a). The Study Area provides suitable foraging habitat. Golden eagle has potential to occur.

4.9.6.2 Cooper's Hawk

The Cooper's hawk (*Accipiter cooperii*) is not listed pursuant to either the California or federal Endangered Species Acts. However, it is a CDFW "watch list" species and is currently tracked in the CNDDB. Typical nesting and foraging habitats include riparian woodland, dense oak woodland, and other woodlands near water. Cooper's hawk nest throughout California from Siskiyou County to San Diego County and includes the Central Valley (Rosenfield et al. 2020). Breeding occurs during March through July, with a peak from May through July.

There are no CNDDB occurrences of this species within 5 miles of the Study Area (CDFW 2022a), however an individual was observed foraging during the site survey. The Study Area provides suitable nesting and foraging habitat. Cooper's hawk is present.

4.9.6.3 Bald Eagle

The bald eagle (*Haliaeetus leucocephalus*) has been delisted under the federal ESA but remains listed as Endangered under the California ESA. It is fully protected pursuant to the California Fish and Game Code Section 3511 and the federal Bald and Golden Eagle Protection Act. It is a Bureau of Land Management sensitive species, and a U. S. Forest Service sensitive species. Bald eagles breed at lower elevations in the northern Sierra Nevada and North Coast ranges. Bald eagles breed in forested areas adjacent to large waterbodies (Buehler 2020). Tree species used for nesting is quite variable and includes conifers (dominant where available), oaks, hickories, cottonwoods and aspens (Buehler 2020). Nest trees are

generally the largest tree available in a suitable area (Buehler 2020). Breeding activity occurs during late-February through September, with peaks in activity from March to June.

There are no CNDDB occurrences of this species within 5 miles of the Study Area (CDFW 2022a). However, there are unprocessed CNDDB records in the vicinity and the Study Area provides marginal foraging habitat. Bald eagle has low potential to occur.

4.9.6.4 Swainson's Hawk

The Swainson's hawk (*Buteo swainsoni*) is listed as a threatened species and are protected pursuant to the California ESA. This species nests in North America (Canada, western U.S., and Mexico) and typically winters from South America north to Mexico. However, a small population has been observed wintering in the Sacramento-San Joaquin River Delta (Bechard et al. 2020). In California, the nesting season for Swainson's hawk ranges from mid-March to late August.

Swainson's hawks nest within tall trees in a variety of wooded communities including riparian, oak woodland, roadside landscape corridors, urban areas, and agricultural areas, among others. Foraging habitat includes open grassland, savannah, low-cover row crop fields, and livestock pastures. In the Central Valley, Swainson's hawks typically feed on a combination of California vole (*Microtus californicus*), California ground squirrel (*Spermophilus beecheyi*), ring-necked pheasant (*Phasianus colchicus*), many passerine birds, and grasshoppers (*Melanopulus* species). Swainson's hawks are opportunistic foragers and will readily forage in association with agricultural mowing, harvesting, disking, and irrigating (Estep 1989). The removal of vegetative cover by such farming activities results in more readily available prey items for this species.

There is one CNDDB occurrence of this species within 5 miles of the Study Area (CDFW 2022a). The Study Area provides suitable nesting and foraging habitat. Swainson's hawk has potential to occur.

4.9.6.5 Burrowing Owl

The burrowing owl (*Athene cunicularia*) is not listed pursuant to either the California or federal ESAs; however, it is designated as a BCC by the USFWS and a SSC by the CDFW. Burrowing owls inhabit dry open rolling hills, grasslands, desert floors, and open bare ground with gullies and arroyos. They can also inhabit developed areas such as golf courses, cemeteries, roadsides within cities, airports, vacant lots in residential areas, school campuses, and fairgrounds (Poulin et al. 2020). This species typically uses burrows created by fossorial mammals, most notably the California ground squirrel (*Spermophilus beecheyi*) but may also use man-made structures such as concrete culverts or pipes; concrete, asphalt, or wood debris piles; or openings beneath concrete or asphalt pavement (CDFG 2012). The breeding season typically occurs between February 1 and August 31 (California Burrowing Owl Consortium 1993; CDFG 2012).

There are no CNDDB occurrences of this species within 5 miles of the Study Area (CDFW 2022a). The Study Area provides suitable burrow and foraging habitat. Burrowing owl has potential to occur.

4.9.6.6 Nuttall's Woodpecker

The Nuttall's woodpecker (*Dryobates nuttallii*) is not listed and protected under either state or federal ESAs but is considered a USFWS BCC. They are resident from Siskiyou County south to Baja California. Nuttall's woodpeckers nest in tree cavities primarily within oak woodlands, but also can be found in riparian woodlands (Lowther et al. 2020). Breeding occurs during April through July.

There are no CNDDB occurrences of this species within 5 miles of the Study Area (CDFW 2022a). The Study Area provides marginal nesting habitat. Nuttall's woodpecker has low potential to occur.

4.9.6.7 Prairie Falcon

Prairie falcons (*Falco mexicanus*) are not listed pursuant to either the California or federal ESAs; however, they are considered to be a CDFW watch list species. The breeding distribution of prairie falcons includes the entire state except the extreme northwestern part of the state and coastal areas (Steenhof 2020). Nesting occurs during March through July. However, prairie falcons have not been documented to nest in the Central Valley but may occur as migrants and wintering birds. They nest primarily on shelves, ledges, or potholes in cliffs, but may also use trees, power line structures, buildings, mine highwalls, caves, or stone quarries (Steenhof 2020). Breeding habitat includes open habitat at all elevation up to 3,350 meters in arid plains and stepped, wherever cliffs or bluffs are present (Steenhof 2020).

There are no CNDDB occurrences of this species within 5 miles of the Study Area (CDFW 2022a). There is no nesting habitat, but the Study Area provides potential foraging habitat. Prairie falcon has low potential to occur.

4.9.6.8 Loggerhead Shrike

The loggerhead shrike (*Lanius ludovicianus*) is not listed pursuant to either the California or federal ESAs; but is considered a species of special concern by the CDFW. Loggerhead shrikes nest throughout California except the northwestern corner, montane forests, and high deserts (Small 1994). Loggerhead shrikes nest in small trees and shrubs in open country with short vegetation such as pastures, old orchards, mowed roadsides, cemeteries, golf courses, agricultural fields, riparian areas, and open woodlands (Yosef 2020). The nesting season extends from March through July.

There are no CNDDB occurrences of this species within 5 miles of the Study Area (CDFW 2022a). However, there are unprocessed CNDDB records in the vicinity and the Study Area provides suitable nesting and foraging habitat. Loggerhead shrike has potential to occur.

4.9.6.9 Yellow-Billed Magpie

The yellow-billed magpie (*Pica nuttalli*) is not listed pursuant to either the California or federal ESAs but is considered a USFWS BCC. This endemic species is a yearlong resident of the Central Valley and Coast Ranges from San Francisco Bay to Santa Barbara County. Yellow-billed magpies build large, bulky nests in trees in a variety of open woodland habitats, typically near grassland, pastures or cropland. Nest building begins in late January to mid-February, which may take up to six to eight weeks to complete, with eggs

laid during April through May, and fledging during May through June (Koenig and Reynolds 2020). The young leave the nest at about 30 days after hatching (Koenig and Reynolds 2020). Yellow-billed magpies are highly susceptible to West Nile Virus, which may have been the cause of death to thousands of magpies during 2004-2006 (Koenig and Reynolds 2020).

There are no CNDDB occurrences of this species within 5 miles of the Study Area (CDFW 2022a). The Study Area provides suitable nesting habitat. Yellow-billed magpie has potential to occur.

4.9.6.10 California Horned Lark

The California horned lark (*Eremophila alpestris actia*) is not listed and protected pursuant to either the California or federal ESAs but is considered a CDFW watch list species. Horned larks are widely distributed throughout North America with 21 recognized subspecies (American Ornithologists' Union 1957). The California horned lark is one of approximately nine subspecies that breeds and/or winters in California and is found in the Coast Range and southern San Joaquin Valley south into northern Baja California (Beason 2020). The California horned lark is resident and nonmigratory. They are found in grasslands and other open habitats with sparse vegetation. Nests are grass lined and built on the ground. Breeding season includes March through July, with a peak of activity in May.

There is one CNDDB occurrence of this species within 5 miles of the Study Area (CDFW 2022a). The Study Area provides suitable nesting and foraging habitat. California horned lark potential to occur.

4.9.6.11 Lawrence's Goldfinch

The Lawrence's goldfinch (*Spinus lawrencei*) is not listed pursuant to either the California or federal ESAs but is currently a BCC according to the USFWS. Lawrence's goldfinch breed west of the Sierra Nevada-Cascade axis from Tehama, Shasta, and Trinity counties south into the foothills surrounding the Central Valley to Kern County; and on the Coast Range from Contra Costa County to Santa Barbara County (Watt et al. 2020). Lawrence's goldfinch nest in arid woodlands usually with brushy areas, tall annual weeds and a local water source (Watt et al. 2020). Nesting occurs during March through September.

There are no CNDDB occurrences of this species within 5 miles of the Study Area (CDFW 2022a). The Study Area provides marginal nesting habitat. Lawrence's goldfinch has low potential to occur.

4.9.6.12 Bullock's Oriole

The Bullock's oriole (*Icterus bullockii*) is not listed pursuant to either the California or federal ESAs but is currently a species of BCC according to the USFWS. In California, Bullock's orioles are found throughout the state except the higher elevations of mountain ranges and the eastern deserts (Small 1994). They are found in riparian and oak woodlands where nests are built in deciduous trees, but may also use orchards, conifers, and eucalyptus trees (Flood et al. 2020). Nesting occurs from March through July.

There are no CNDDB occurrences of this species within 5 miles of the Study Area (CDFW 2022a). The Study Area provides suitable nesting habitat. Bullock's oriole has potential to occur.

4.9.6.13 Tricolored Blackbird

The tricolored blackbird (*Agelaius tricolor*) was granted emergency listing for protection under the California ESA in December 2014 but the listing status was not renewed in June 2015. After an extensive status review, the California Fish and Game Commission listed tricolored blackbirds as a threatened species in 2018. In addition, it is currently considered a USFWS BCC and a CDFW SSC. This colonial nesting species is distributed widely throughout the Central Valley, Coast Range, and into Oregon, Washington, Nevada, and Baja California (Beedy et al. 2020). Tricolored blackbirds nest in colonies that can range from several pairs to several thousand pairs, depending on prey availability, the presence of predators, or level of human disturbance. Tricolored blackbird nesting habitat includes emergent marsh, riparian woodland/scrub, blackberry thickets, densely vegetated agricultural and idle fields (e.g., wheat, triticale, safflower, fava bean fields, thistle, mustard, cane, and fiddleneck), usually with some nearby standing water or ground saturation (Beedy et al. 2020). They feed mainly on grasshoppers during the breeding season, but may also forage upon a variety of other insects, grains, and seeds in open grasslands, wetlands, feedlots, dairies, and agricultural fields (Beedy et al. 2020). The nesting season is generally from March through August.

There are five CNDDB occurrences of this species within 5 miles of the Study Area (CDFW 2022a). There is no suitable nesting habitat onsite, but the grassland/pasture communities in the Study Area represents suitable foraging habitat. Tricolored blackbird has potential to occur.

4.9.7 Mammals

Eight special-status mammal species were identified as having the potential to occur within the Study Area based on the literature review (Table 3). However, upon further analysis and after the site visit, two species, Fresno kangaroo rat and spotted bat, were considered to be absent from the Study Area due to the lack of suitable habitat, or due to the Study Area being outside the known range for the species. No further discussion of those species is provided in this analysis. Brief descriptions of the remaining six species that have the potential to occur within the Study Area are presented below.

4.9.7.1 Pallid Bat

The pallid bat (*Antrozous pallidus*) is not listed pursuant to either the federal or California ESAs; however, this species is considered an SSC by CDFW. The pallid bat is a large, light-colored bat with long, prominent ears and pink, brown, or grey wing and tail membranes. This species ranges throughout North America from the interior of British Columbia, south to Mexico, and east to Texas. The pallid bat inhabits low elevation (below 6,000 feet) rocky arid deserts and canyonlands, shrub-steppe grasslands, karst formations, and higher elevation coniferous forest (above 7,000 feet). This species roosts alone or in groups in the crevices of rocky outcrops and cliffs, caves, mines, trees, and in various human structures such as bridges and barns. Pallid bats are feeding generalists that glean a variety of arthropod prey from surfaces as well as capturing insects on the wing. Foraging occurs over grasslands, oak savannahs, ponderosa pine forests, talus slopes, gravel roads, lava flows, fruit orchards, and vineyards. Although this species utilizes echolocation to locate prey, they often use only passive acoustic cues. This species is not thought to migrate long distances between summer and winter sites (WBWG 2021).

There are no CNDDB occurrences of this species within 5 miles of the Study Area (CDFW 2022a). The abandoned buildings and trees within the Study Area provide suitable roosting habitat. Pallid bat has potential to occur.

4.9.7.2 Western Mastiff Bat

The western mastiff bat (*Eumops perotis californicus*) is not listed pursuant to either the California or federal Endangered Species Acts; however, this species is considered a species of special concern by CDFW (CDFW 2022a). The greater mastiff bat is the largest North American molossid (free-tailed bat) with a forearm length of 73 to 83 mm. This species has a disjunct distribution and ranges from central Mexico across the southwestern U.S., and throughout California to within a few miles of the Oregon border. The greater mastiff bat can be found in a variety of habitats, including desert scrub, chaparral, oak woodland, the ponderosa pine belt, and at high elevation meadows and mixed conifer forests. This species is primarily a cliff-dwelling species and roosting colonies are generally found on or under exfoliating rock slabs. Roosts have also been identified in similar crevices in large boulders and buildings. Foraging has been documented as high as 2,000 feet above the ground, although 100 to 200 feet is more typical. This species is most commonly encountered in broad open areas including dry desert washes, flood plains, chaparral, oak woodland, open ponderosa pine forest, grassland, and agricultural areas. The diet of the greater mastiff bat consists primarily of moths but also includes beetles, crickets, and katydids (WBWG 2021).

There are no CNDDB occurrences of this species within 5 miles of the Study Area (CDFW 2022a). The abandoned buildings within the Study Area provide marginal roosting habitat. Western mastiff bat has low potential to occur.

4.9.7.3 Western Red Bat

The western red bat (*Lasiurus blossevillii*) is not listed pursuant to either the California or federal ESAs; however, this species is considered a SSC by CDFW. The western red bat is easily distinguished from other western bat species by its distinctive red coloration. This species is broadly distributed, its range extending from southern British Columbia in Canada through Argentina and Chile in South America, and including much of the western U.S. This solitary species day roosts primarily in the foliage of trees or shrubs in edge habitats bordering streams or open fields, in orchards, and occasionally urban areas. They may be associated with intact riparian habitat, especially with willows, cottonwoods, and sycamores. This species may occasionally utilize caves for roosting as well. They feed on a variety of insects, and generally begin to forage one to two hours after sunset. This species is considered highly migratory, however the timing of migration and the summer ranges of males and females may be different. Winter behavior of this species is poorly understood (WBWG 2021).

There are no CNDDB occurrences of this species within 5 miles of the Study Area (CDFW 2022a). However, there are unprocessed CNDDB records in the vicinity and some of the vegetation within the Study Area provides marginal roosting habitat. Western red bat has low potential to occur.

4.9.7.4 Townsend's Big-Eared Bat

The Townsend's big-eared bat (*Corynorhinus townsendii*) is not listed pursuant to either the California or federal ESAs; however, this species is considered a SSC by CDFW. Townsend's big-eared bat is a fairly large bat with prominent bilateral noes lumps and large rabbit-like ears. This species occurs throughout the west and ranges from the southern portion of British Columbia south along the Pacific coast to central Mexico and east into the Great Plains. This species has been reported from a wide variety of habitat types and elevations from sea level to 10,827 feet. Habitats used include coniferous forests, mixed mesophytic forests, deserts, native prairies, riparian communities, active agricultural areas, and coastal habitat types. Its distribution is strongly associated with the availability of caves and cave-like roosting habitat including abandoned mines, buildings, bridges, rock crevices, and hollow trees. This species is readily detectable when roosting due to their habit of roosting pendant-like on open surfaces. Townsend's big-eared bat is a moth specialist with more than 90 percent of its diet composed of lepidopterans. Foraging habitat is generally edge habitats along streams adjacent to and within a variety of wooded habitats. This species often travels long distances when foraging and large home ranges have been documented in California (WBWG 2021).

There are no CNDDB occurrences of this species within 5 miles of the Study Area (CDFW 2022a). However, there are unprocessed CNDDB records in the vicinity and the trees within the Study Area provide marginal roosting habitat. Townsend's big-eared bat has low potential to occur.

4.9.7.5 San Joaquin Kit Fox

The San Joaquin kit fox (*Vulpes macrotis*) is listed as threatened under the California ESA and as endangered under the federal ESA. Although the precise historical range of the San Joaquin kit fox is unknown, Grinnell et al. (1937) believed that prior to 1930 San Joaquin kit fox occupied most of the San Joaquin Valley from southern Kern County north to Tracy in San Joaquin County on the west side, and near La Grange in Stanislaus County on the east side. Since then the San Joaquin kit fox population has declined primarily as a result of habitat loss to agricultural, urban, industrial and mineral development in the San Joaquin Valley. San Joaquin kit fox has been listed as endangered for over 30 years, yet despite the loss of habitat and apparent decline in numbers since the early 1970s, there has never been a comprehensive survey of its entire range or habitat that was once thought to be occupied (USFWS 1983; Morrell 1975). Despite the lack of a comprehensive data set, local surveys, research projects, and incidental sightings indicate that kit foxes currently inhabit some areas of suitable habitat on the San Joaquin Valley floor and in the surrounding foothills of the coastal ranges, Sierra Nevada, and Tehachapi Mountains, from southern Kern County north to Contra Costa, Alameda, and San Joaquin counties on the west, and near La Grange in Stanislaus County on the east side of the Valley (Williams in litt. 1990), and some of the larger scattered islands of natural land on the Valley floor in Kern, Tulare, Kings, Fresno, Madera, and Merced counties (USFWS 1998).

In the southern portion of the range, the kit fox is commonly associated with Valley Sink Scrub, Valley Saltbush Scrub, Upper Sonoran Subshrub Scrub, and Annual Grassland. Kit foxes also inhabit grazed grasslands, petroleum fields (Morrell 1971; O'Farrell 1980), and survive adjacent to tilled or fallow fields (Jensen 1972; Ralls and White 1991). In the central portion of the range, which includes Madera County,

the kit fox is associated with Valley Sink Scrub, Interior Coast Range Saltbush Scrub, Upper Sonoran Subshrub Scrub, Annual Grassland and the remaining native grasslands. Agriculture dominates this region where kit foxes mostly inhabit grazed, nonirrigated grasslands, but also live next to and forage in tilled or fallow fields, irrigated row crops, orchards, and vineyards (USFWS 1998). In the northern portion of their range, kit foxes commonly are associated with annual grassland (Hall 1983) and Valley Oak Woodland (Bell 1994). Kit foxes inhabit grazed grasslands, grasslands with wind turbines, and also live adjacent to and forage in tilled and fallow fields, and irrigated row crops (Bell 1994). They usually inhabit areas with loose-textured (friable) soils, suitable for den excavation (USFWS 1983). Where soils make digging difficult, the foxes frequently use and modify burrows built by other animals (Orloff et al. 1986). Structures such as culverts, abandoned pipelines, and well casings also may be used as den sites (USFWS 1983).

Kit foxes are primarily nocturnal and carnivorous, but are commonly seen during the day in the late spring and early summer (Orloff et al. 1986). Major prey includes kangaroo rats, black-tailed hares, desert cottontails, deer mice, California ground squirrels, ground-nesting birds, and insects (Scrivner et al. 1987).

There are no CNDDB occurrences of this species within 5 miles of the Study Area (CDFW 2022a). The Study Area is at the eastern limits of the species' distribution range. San Joaquin kit fox has low potential to occur.

4.9.7.6 American Badger

The American badger (*Taxidea taxus*) is designated in California as a SSC. The species historically ranged throughout much of the state, except in humid coastal forests. Badgers were once numerous in the Central Valley; however, populations now occur in low numbers in the surrounding peripheral parts of the valley and in the adjacent lowlands of eastern Monterey, San Benito, and San Luis Obispo counties (Williams 1986). Badgers occupy a variety of habitats, including grasslands and savannas. The principal requirements seem to be significant food supply, friable soils, and relatively open, uncultivated ground (Williams 1986).

There are no CNDDB occurrences of this species within 5 miles of the Study Area (CDFW 2022a). The grasslands and burrows found within the Study Area provide suitable habitat. American badger has potential to occur.

5.0 IMPACT ANALYSIS

This section specifically addresses the questions raised by the CEQA - Appendix G Environmental Checklist Form, IV. Biological Resources. This section also identifies the appropriate recommendations to reduce potential impacts of the actions to less than significant. The recommendations are described in detail in Section 6.0.

5.1 Special-Status Species, Designated Critical Habitat and Essential Fish Habitat

Would the Project result in effects, either directly or through habitat modifications, to species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by the CDFW or USFWS?

The Project would result in construction-related impacts to potential habitat for special-status species within the Study Area. As such, the Project would potentially have a substantial adverse effect, either directly or through habitat modifications, on special-status species identified by CDFW and USFWS. Impacts by taxon group are summarized below.

5.1.1 Impacts to Special-Status Plants

There are 16 special-status plant species with potential to occur in the Study Area. Vegetation removal, grading, and other ground-disturbing activities associated with construction implementation has potential to impact these species. Implementation of recommended measures described in Section 6.0 would avoid or minimize potential effects to special-status plants.

5.1.2 Impacts to Special-Status Invertebrates

There is one special-status invertebrate with potential to occur in the Study Area: vernal pool fairy shrimp. Grading and other ground-disturbing activities associated with construction implementation has potential to impact vernal pool fairy shrimp. Implementation of the recommended measures outlined in Section 6.0 would avoid or minimize the potential for effects on special-status invertebrates.

5.1.3 Impacts to Special-Status Amphibians

There are two special-status amphibians with potential to occur in the Study Area. Vegetation removal, grading, and other ground-disturbing activities associated with construction implementation has potential to impact these species. Implementation of recommended measures outlined in Section 6.0 would avoid or minimize potential effects to these species within the Study Area.

5.1.4 Impacts to Special-Status Reptiles

There are three special-status reptiles with potential to occur in the Study Area. Vegetation removal, grading, and other ground-disturbing activities associated with construction implementation has potential to impact these species. Implementation of recommended measures outlined in Section 6.0 would avoid or minimize potential effects to these species within the Study Area.

5.1.5 Impacts to Special-Status Birds

There are 12 special-status bird species with potential to occur within or adjacent to the Study Area. Additionally, most birds and their nests are protected by the MBTA and Fish and Game Code. Construction activities have potential to impact nesting birds. Implementation of recommended measures outlined in Section 6.0 would avoid or minimize potential effects to special-status birds.

5.1.6 Impacts to Special-Status Mammals

There are six special-status mammals with potential to occur in the Study Area. Vegetation removal, grading, and other ground-disturbing activities associated with construction implementation has potential to impact these species. Implementation of recommended measures outlined in Section 6.0 would avoid or minimize potential for effects to special-status mammals.

5.2 Riparian Habitat and Sensitive Natural Communities

Would the Project 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 US Fish and Wildlife Service?

The Project would not have a substantial adverse effect on any riparian habitat or other sensitive natural communities.

5.3 Aquatic Resources, Including Waters the U.S. and State

Would the Project 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?

Approximately 0.806 acre of aquatic resources were mapped during the aquatic resource assessment in the Study Area. Of the 0.806 acre, 0.436 acre are classified as seasonal wetlands and 0.370 acre are classified as other waters (intermittent drainage; Figure 3). This acreage represents an assessment of the extent of aquatic resources within the Study Area and is subject to modification following USACE review and/or the verification process.

Any alterations of, or discharges into, Waters of the U.S. and Waters of the State, including wetlands as defined pursuant to Section 404 of the federal CWA, must be in conformance with the CWA. Compliance is achieved through conformance with Sections 404 and 401 permitting and certification requirements, respectively, prior to any grading or construction that may impact jurisdictional area(s), as applicable. Specific impact avoidance, minimization, and/or compensation measures shall be developed and implemented as part of the Section 404 Permit to ensure no-net-loss of wetland function and values.

Implementation of recommendations described in Section 6.0 would avoid, minimize, and/or compensate for potential effects to Waters of the U.S. and State.

5.4 Wildlife Movement/Corridors

Would the Project interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?

The open space within the Study Area may provide some migratory opportunities for wildlife but is not expected to support significant wildlife movement corridors. Project construction is likely to temporarily disturb and displace most wildlife from the Study Area. Once construction is complete, wildlife

movements are expected to be more limited through the Study Area and mostly restricted to the open space areas. As previously described, there are no known active nursery sites within the Study Area. The Project is not expected to substantially interfere with wildlife movement or impact wildlife nursery sites.

5.5 Local Policies, Ordinances, and Other Plans

Does the Project conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?

The Study Area includes trees that are protected under Chapter 9.30 (Tree Protection Standards) of the City Municipal Code.

The Applicant will coordinate with the local jurisdiction to secure the necessary variance, permit, or approval prior to impacting protected trees and if any other potential conflicts are determined. Therefore, the Project does not conflict with a local policy or ordinance protecting biological resources, including tree ordinances.

Does the Project conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan?

The Study Area is not currently covered by any local, regional, or state conservation plan. Therefore, the Project would not conflict with a local, regional, or state conservation plan.

6.0 RECOMMENDATIONS

This section summarizes recommended measures to avoid, minimize, or compensate for potential impacts to biological resources from the Proposed Project.

6.1 General Recommendations

The following general measures are recommended to avoid impacts to offsite and onsite biological resources:

- Erosion control measures will be placed between avoided aquatic resources and the outer edge of the impact area within an area identified with highly visible markers (e.g., construction fencing, flagging, silt barriers) prior to commencement of construction activities. Such identification and erosion control measures will be properly maintained until construction is completed and the soils have been stabilized.
- Fiber rolls used for erosion control will be certified by the California Department of Food and Agriculture as weed free.
- Seed mixtures applied for erosion control will not contain California Invasive Plant Council designated invasive species (http://cal-ipc.org/) and will be composed of native species appropriate for the site.
- Trash generated onsite will be promptly and properly removed from the site.

- Any fueling in the upland portion of the Study Area will use appropriate secondary containment techniques to prevent spills.
- A qualified biologist will conduct a mandatory Worker Environmental Awareness Program for all contractors, work crews, and any onsite personnel on the potential for special-status species to occur on the Project site. The training will provide an overview of habitat and characteristics of the species, the need to avoid certain areas, and the possible penalties for noncompliance.

6.2 Special-Status Species

Recommendations to minimize impacts to special-status species or their habitats are summarized in the following sections.

6.2.1 Plants

The following measures are recommended to minimize potential impacts to special-status plants.

- A floristic plant survey shall be conducted according to USFWS, CDFW, and CNPS protocols prior to ground or vegetation disturbance in areas with the potential to support special-status plants. The area of disturbance and a 25-foot buffer shall be surveyed by a qualified botanist during the appropriate phenological stage for identifying target species.. If no special-status plants are found during the survey, no further measures are necessary.
- If surveys identify special-status plants and if avoidance of special-status plants is feasible, establish and clearly demarcate avoidance zones for special-status plant occurrences prior to construction. Avoidance zones shall include the extent of the special-status plants plus a 25-foot buffer, unless otherwise determined by a qualified biologist, and shall be maintained until the completion of construction. A qualified biologist/biological monitor shall be present if work must occur within the avoidance buffer to ensure special-status plants are not impacted by the work.
- If surveys identify special-status plants and if avoidance of special-status plants is not feasible, mitigation for significant impacts to special-status plants may be required. Mitigation measures shall be developed in consultation with CDFW. Mitigation measures may include restoration or permanent preservation of onsite or offsite habitat for special-status plants and/or translocation of plants or seeds from impacted areas to unaffected habitats.

6.2.2 Invertebrates

The following measures are recommended to minimize potential impacts to special-status invertebrates.

- Conduct USFWS protocol-level dry and wet season surveys to determine presence or absence of vernal pool fairy shrimp, conservancy fairy shrimp, and vernal pool tadpole shrimp, or if surveys are not conducted, presence should be assumed for all three species within suitable habitat. If no vernal pool fairy shrimp, conservancy fairy shrimp, or vernal pool tadpole shrimp are found during protocol-level dry and wet season surveys and the results are accepted by USFWS, no further measures are recommended.

- If federally listed branchiopod species are found during surveys or presence is assumed, obtain take coverage from USFWS (under Sections 7 or 10 of federal ESA) and preserve federally listed branchiopod habitat (e.g., vernal pools and seasonal wetlands) at an offsite mitigation property at a minimum ratio of 1.5:1 and as agreed upon through consultation with USFWS. Comply with all avoidance and/or minimization measures of the USFWS BO or HCP. Measures may include implementation of Best Management Practices and erosion control measures to prevent direct and indirect effects to avoided habitat for vernal pool fairy shrimp, conservancy fairy shrimp, and vernal pool tadpole shrimp.

6.2.3 Amphibians

6.2.3.1 California Tiger Salamander Mitigation

The following measures are recommended to mitigate for potential impacts to California tiger salamander.

- Obtain take coverage for California tiger salamander from USFWS under Section 7 or Section 10 of federal ESA and obtain take coverage for California tiger salamander from CDFW under Section 2081 of the California Fish and Game Code.
- Preserve in perpetuity suitable upland habitat for California tiger salamander at an offsite mitigation property at a minimum ratio of 1:1 and as agreed upon through consultation with USFWS and CDFW. The amount of impacted potential suitable upland habitat shall be determined by a qualified biologist.

6.2.3.2 Special-Status Amphibian Avoidance

The following measures are recommended to minimize potential impacts to California tiger salamander and western spadefoot.

- Prior to the start of ground-disturbing activities on the Project site, the Project proponent shall retain a qualified California tiger salamander and western spadefoot biologist (Biologist).
- Prior to the start of ground-disturbing activities on the Project site, the Biologist shall conduct an education program to the workers onsite. The program shall consist of a presentation from the Biologist that includes a discussion of the biology and general behavior of California tiger salamander and western spadefoot, information about the distribution and habitat needs of these animals, sensitivity of these animals to human activities, and their status of legal protection. A pamphlet that summarizes this information shall be handed out to the workers. If new workers come to the Project site, their direct supervisor will be responsible for providing them with the pamphlet.
- Prior to the start of ground-disturbing activities in areas considered potential habitat for California tiger salamander and western spadefoot, the Biologist shall conduct a preconstruction survey. This survey shall be conducted within 72 hours prior to the start of ground-disturbing activities. If a California tiger salamander is found, the Biologist shall allow the animal to leave on

its own volition. If a western spadefoot is found, the Biologist may relocate the animal to a safe location offsite.

- The Biologist shall train the onsite workers to check all equipment and the surrounding area for California tiger salamander and western spadefoot every morning prior to starting construction. If either are found the workers shall allow the animal to leave on its own volition and immediately contact the Biologist regarding the observation.
- The Biologist shall submit all observations of western spadefoot and California tiger salamander to the CDFW CNDDB within 60 calendar days of the observation.

6.2.4 Reptiles

The following measure is recommended to minimize potential impacts to northern California legless lizard, northwestern pond turtle, and Blainville's horned lizard.

- Prior to the start of ground-disturbing activities in areas considered potential habitat for northern California legless lizard, northwestern pond turtle, and Blainville's horned lizard, a qualified biologist shall conduct a preconstruction survey. This survey shall be conducted within 72 hours prior to the start of ground-disturbing activities. Any individuals discovered on the Project site immediately prior to or during Project activities shall be allowed to move out of the work area of their own volition. If this is not feasible, they shall be captured by a qualified wildlife biologist and relocated out of harm's way to the nearest suitable habitat at least 100 feet from the Project work area where they were found.

6.2.5 Special-Status Birds and Migratory Bird Treaty Act-Protected Birds (Including Nesting Raptors)

The following measures are recommended to minimize potential impacts to nesting birds.

- All Nesting Birds (Non raptors) – A qualified biologist shall perform a preconstruction nesting bird survey within 14 days prior to construction (or less if recommended by CDFW) within the Project work area and a 100-foot radius. If any active nests are observed, these nests shall be designated a sensitive area and protected by an avoidance buffer established in coordination with CDFW until a qualified biologist has determined that the young have fledged and are no longer reliant upon the nest or parental care for survival.
- Raptors – A qualified biologist shall perform a preconstruction nesting raptor survey within 14 days prior to construction (or less if recommended by CDFW) within the Project work area and a 500-foot radius. If any active raptor nests are observed, these nests shall be designated a sensitive area and protected by an avoidance buffer established in coordination with CDFW until a qualified biologist has determined that the young have fledged and are no longer reliant upon the nest or parental care for survival.
- Burrowing Owl – A qualified wildlife biologist shall survey for burrowing owl within the Project work area and a 250-foot radius of the Project work area within 14 days prior to starting Project activities. Surveys shall be conducted according to the Staff Report on Burrowing Owl Mitigation (CDFG 2012). If any occupied burrows are observed, these burrows shall be designated a sensitive

area and protected by an avoidance buffer established in coordination with CDFW. Consult with CDFW to develop avoidance and minimization measures, which could include preparing and implementing a passive relocation plan.

- Swainson's Hawk – A qualified biologist shall perform a preconstruction nesting Swainson's hawk survey within 14 days prior to construction (or less if recommended by CDFW) within the Project work area and a 0.25-mile radius. If any active nests are observed, these nests shall be designated a sensitive area and protected by an avoidance buffer established in coordination with CDFW until the breeding season has ended or until a qualified biologist has determined that the young have fledged and are no longer reliant upon the nest or parental care for survival.

6.2.6 Special-Status Mammals

6.2.6.1 American Badger

The following measure is recommended to minimize potential impacts to American badger.

- Prior to the start of ground-disturbing activities a qualified biologist shall conduct a preconstruction survey for American badger. This survey shall be conducted within 14 days prior to ground-disturbing activities. If American badgers are found, allow them to leave the Project Area on their own volition. If American badgers do not leave, consultation with CDFW on potential eviction efforts shall be required prior to initiation of ground-disturbing activities.

6.2.6.2 San Joaquin Kit Fox

The following measures are recommended to minimize potential impacts to San Joaquin kit fox.

- At least 30 days prior to the start of ground-disturbing activities, a qualified wildlife biologist shall perform transect surveys of the Project site and a 250-foot buffer, to identify potential dens and other kit fox sign. If sign of kit fox is detected, a qualified wildlife biologist shall be available onsite during all Project-related activities that could impact the species. If kit foxes are found on or within 250 feet of the Project site, all activity shall cease until a qualified wildlife biologist confirms that the individual(s) has left of its own volition. If ground-disturbing activities are confined to a portion of the Project site (e.g., phasing), then that area and a 250-foot radius shall be surveyed.
- If San Joaquin kit fox dens are found, they shall be avoided by appropriate distances (known den = 100 feet; pupping den = 500 feet). Absolutely no disturbance to known San Joaquin kit fox dens shall occur and no work shall occur within the above buffers without contacting CDFW and obtaining written authorization to do so. An Incidental Take Permit for San Joaquin kit fox may be required for such activities.

6.2.6.3 Special-Status Bats

The following measures are recommended to minimize potential impacts to pallid bat, Townsend's big-eared bat, western mastiff bat, and western red bat.

- A qualified biologist shall conduct a bat habitat assessment for suitable bat roosting habitat prior to any construction activities that may impact bat habitat (e.g., trees or structures). If no suitable roosting habitat is identified, no further measures are necessary. If suitable roosting habitat and/or signs of bat use is identified during the assessment, the roosting habitat shall be avoided to the extent possible, and the following shall be implemented:

    - If suitable roosting habitat and/or signs of bat use is identified in a tree or other habitat structure that must be removed, a qualified biologist shall prepare a Bat Management Plan for CDFW's review. The Plan shall identify methods for determining occupation of the roosting habitat by special-status bats (e.g., acoustic monitoring, evening emergence surveys). If an active bat roost is found, a plan for passive exclusion of bats from the roost shall be prepared for CDFW's review. Exclusion shall be scheduled either (1) between approximately March 1 (or when evening temperatures are above 45 degrees Fahrenheit and rainfall less than 0.5 inch in 24 hours occurs) and April 15, prior to parturition of pups; or (2) between September 1 and October 15 (or prior to evening temperatures dropping below 45 degrees Fahrenheit and onset of rainfall greater than 0.5 inch in 24 hours). The qualified biologist shall monitor the roost prior to exclusion to confirm that it does not support a maternity colony. If a maternity colony is or may be present, the roost shall be avoided until it is no longer active or until the qualified biologist can confirm that no maternity colony is present.

6.2.7 Aquatic Resources, Including Waters of the U.S. and State

- Conduct a USACE ARD for the Project and submit to USACE and obtain an Approved Jurisdictional Determination or Preliminary Jurisdictional Determination.
- Request authorization to fill wetlands and other Waters of the U.S. under Sections 404 and 401 of the federal CWA (Section 404 Permit and Section 401 Water Quality Certification) prior to discharging any dredged or fill materials into any Waters of the U.S. Because the Waters of the U.S. are also Waters of the State, the 401 Water Quality Certification will authorize fill to Waters of the State. Specific impact avoidance, minimization, and/or compensation measures shall be developed and implemented as part of the Section 404 Permit to ensure no-net-loss of wetland function and values. To facilitate such authorization, an application for a Section 404 Permit and an application for a 401 Water Quality Certification for the Project shall be prepared and submitted to USACE and RWQCB and shall include direct, avoided, and preserved acreages to Waters of the U.S. Mitigation for impacts to Waters of the U.S. would consist of a minimum of a 1:1 replacement ratio for direct impacts; however, final mitigation requirements shall be developed in consultation with USACE. These measures may include purchase of mitigation credits at an agency-approved mitigation bank and/or Permittee-responsible mitigation (e.g., preservation and creation) in an onsite preserve or offsite mitigation property.
- Prepare and submit a LSA Notification to CDFW under California Fish and Game Code Section 1602 to request authorization to impact regulated aquatic features.

6.2.8 Trees

Trees protected under the City tree ordinance are present within the Study Area. The following measure is recommended to prevent conflicts with the local tree ordinance:

- A tree removal permit or exemption shall be secured prior to impacting trees protected under the City ordinance. Avoidance buffers for protected trees shall be consistent with the City requirements, shall be clearly demarcated prior to construction, and shall be maintained until the completion of construction. A qualified biologist/biological monitor shall be present if work must occur within the avoidance buffer to ensure avoided protected trees are not impacted by the work.

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LIST OF APPENDICES

Appendix A – Special-Status Species Searches

Appendix B – Representative Site Photographs

Appendix C – Plant Species Observed Onsite

Appendix D – Wildlife Observed Onsite

APPENDIX A

Special-Status Species Searches

Selected Elements by Element Code

California Department of Fish and Wildlife

California Natural Diversity Database

Query Criteria: Quad IS (Clovis (3611976) OR Friant (3611986) OR Little Table Mtn. (3711917) OR Lanes Bridge (3611987) OR Fresno North (3611977) OR Fresno South (3611967) OR Malaga (3611966) OR Sanger (3611965) OR Round Mountain (3611975) OR Academy (3611985) OR Millerton Lake East (3711915) OR Millerton Lake West (3711916))

Element Code	Species	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
AAAAA01181	***Ambystoma californiense pop. 1*** California tiger salamander - central California DPS	Threatened	Threatened	G2G3T3	S3	WL
AAABF02020	***Spea hammondii*** western spadefoot	None	None	G2G3	S3	SSC
AAABH01055	***Rana boylii pop. 5*** foothill yellow-legged frog - south Sierra DPS	Proposed Endangered	Endangered	G3T2	S2	
ABNFD01020	***Nannopterum auritum*** double-crested cormorant	None	None	G5	S4	WL
ABNGA04040	***Ardea alba*** great egret	None	None	G5	S4	
ABNGA06030	***Egretta thula*** snowy egret	None	None	G5	S4	
ABNGA11010	***Nycticorax nycticorax*** black-crowned night heron	None	None	G5	S4	
ABNKC19070	***Buteo swainsoni*** Swainson's hawk	None	Threatened	G5	S3	
ABNKC22010	***Aquila chrysaetos*** golden eagle	None	None	G5	S3	FP
ABNKD06090	***Falco mexicanus*** prairie falcon	None	None	G5	S4	WL
ABNRB02022	***Coccyzus americanus occidentalis*** western yellow-billed cuckoo	Threatened	Endangered	G5T2T3	S1	
ABNSB10010	***Athene cunicularia*** burrowing owl	None	None	G4	S3	SSC
ABPAT02011	***Eremophila alpestris actia*** California horned lark	None	None	G5T4Q	S4	WL
ABPBW01114	***Vireo bellii pusillus*** least Bell's vireo	Endangered	Endangered	G5T2	S2	
ABPBXB0020	***Agelaius tricolor*** tricolored blackbird	None	Threatened	G1G2	S1S2	SSC
AFCJB25010	***Mylopharodon conocephalus*** hardhead	None	None	G3	S3	SSC
AMACC05030	***Lasiurus cinereus*** hoary bat	None	None	G3G4	S4	
AMACC07010	***Euderma maculatum*** spotted bat	None	None	G4	S3	SSC

Element Code	Species	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
AMACC10010	***Antrozous pallidus*** pallid bat	None	None	G4	S3	SSC
AMACD02011	***Eumops perotis californicus*** western mastiff bat	None	None	G4G5T4	S3S4	SSC
AMAFD01060	***Perognathus inornatus*** San Joaquin pocket mouse	None	None	G2G3	S2S3	
AMAFD03151	***Dipodomys nitratoides exilis*** Fresno kangaroo rat	Endangered	Endangered	G3TH	SH	
AMAJA03041	***Vulpes macrotis mutica*** San Joaquin kit fox	Endangered	Threatened	G4T2	S2	
AMAJF04010	***Taxidea taxus*** American badger	None	None	G5	S3	SSC
ARAAD02030	***Emys marmorata*** western pond turtle	None	None	G3G4	S3	SSC
ARACC01020	***Anniella pulchra*** Northern California legless lizard	None	None	G3	S3	SSC
ARACF12100	***Phrynosoma blainvillii*** coast horned lizard	None	None	G3G4	S3S4	SSC
ARADB01017	***Arizona elegans occidentalis*** California glossy snake	None	None	G5T2	S2	SSC
CTT44110CA	***Northern Hardpan Vernal Pool*** Northern Hardpan Vernal Pool	None	None	G3	S3.1	
CTT44120CA	***Northern Claypan Vernal Pool*** Northern Claypan Vernal Pool	None	None	G1	S1.1	
CTT44131CA	***Northern Basalt Flow Vernal Pool*** Northern Basalt Flow Vernal Pool	None	None	G3	S2.2	
CTT61420CA	***Great Valley Mixed Riparian Forest*** Great Valley Mixed Riparian Forest	None	None	G2	S2.2	
CTT62100CA	***Sycamore Alluvial Woodland*** Sycamore Alluvial Woodland	None	None	G1	S1.1	
ICBRA03030	***Branchinecta lynchi*** vernal pool fairy shrimp	Threatened	None	G3	S3	
ICBRA03150	***Branchinecta mesovallensis*** midvalley fairy shrimp	None	None	G2	S2S3	
ICBRA06010	***Linderiella occidentalis*** California linderiella	None	None	G2G3	S2S3	
ICBRA10010	***Lepidurus packardi*** vernal pool tadpole shrimp	Endangered	None	G4	S3S4	
IICOL48011	***Desmocerus californicus dimorphus*** valley elderberry longhorn beetle	Threatened	None	G3T2T3	S3	
IICOL4C020	***Lytta moesta*** moestan blister beetle	None	None	G2	S2	

Element Code	Species	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
IICOL4C030	***Lytta molesta*** molestan blister beetle	None	None	G2	S2	
IIDIP07010	***Efferia antiochi*** Antioch efferian robberfly	None	None	G1G2	S1S2	
IIDIP08010	***Metapogon hurdi*** Hurd's metapogon robberfly	None	None	G1G2	S1S2	
IIHYM24480	***Bombus crotchii*** Crotch bumble bee	None	None	G2	S1S2	
ILARAU8070	***Calicina mesaensis*** Table Mountain harvestman	None	None	G1	S1	
IMBIV19010	***Gonidea angulata*** western ridged mussel	None	None	G3	S1S2	
PDAPI0Z0Y0	***Eryngium spinosepalum*** spiny-sepaled button-celery	None	None	G2	S2	1B.2
PDAST1P040	***Calycadenia hooveri*** Hoover's calycadenia	None	None	G2	S2	1B.3
PDAST5J070	***Lagophylla dichotoma*** forked hare-leaf	None	None	G2	S2	1B.1
PDAST7P010	***Pseudobahia bahiifolia*** Hartweg's golden sunburst	Endangered	Endangered	G1	S1	1B.1
PDAST7P030	***Pseudobahia peirsonii*** San Joaquin adobe sunburst	Threatened	Endangered	G1	S1	1B.1
PDBOR0A190	***Cryptantha hooveri*** Hoover's cryptantha	None	None	GH	SH	1A
PDBRA31010	***Caulanthus californicus*** California jewelflower	Endangered	Endangered	G1	S1	1B.1
PDCAM060C0	***Downingia pusilla*** dwarf downingia	None	None	GU	S2	2B.2
PDFAB2B103	***Lupinus citrinus var. citrinus*** orange lupine	None	None	G2T2	S2	1B.2
PDHDR04010	***Carpenteria californica*** tree-anemone	None	Threatened	G1?	S1?	1B.2
PDPLM09130	***Leptosiphon serrulatus*** Madera leptosiphon	None	None	G3	S3	1B.2
PDPLM0C0X1	***Navarretia myersii ssp. myersii*** pincushion navarretia	None	None	G2T2	S2	1B.1
PDSCR0D3Z1	***Castilleja campestris var. succulenta*** succulent owl's-clover	Threatened	Endangered	G4?T2T3	S2S3	1B.2
PDSCR0R060	***Gratiola heterosepala*** Boggs Lake hedge-hyssop	None	Endangered	G2	S2	1B.2
PMALI040Q0	***Sagittaria sanfordii*** Sanford's arrowhead	None	None	G3	S3	1B.2

Selected Elements by Element Code

California Department of Fish and Wildlife

California Natural Diversity Database

Element Code	Species	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
PMCYP032Y0	***Carex comosa*** bristly sedge	None	None	G5	S2	2B.1
PMPOA3D020	***Imperata brevifolia*** California satintail	None	None	G3	S3	2B.1
PMPOA4G040	***Orcuttia pilosa*** hairy Orcutt grass	Endangered	Endangered	G1	S1	1B.1
PMPOA4G060	***Orcuttia inaequalis*** San Joaquin Valley Orcutt grass	Threatened	Endangered	G1	S1	1B.1
PMPOA6N010	***Tuctoria greenei*** Greene's tuctoria	Endangered	Rare	G1	S1	1B.1

Record Count: 65

IPaC resource list

This report is an automatically generated list of species and other resources such as critical habitat (collectively referred to as *trust resources*) under the U.S. Fish and Wildlife Service's (USFWS) jurisdiction that are known or expected to be on or near the project area referenced below. The list may also include trust resources that occur outside of the project area, but that could potentially be directly or indirectly affected by activities in the project area. However, determining the likelihood and extent of effects a project may have on trust resources typically requires gathering additional site-specific (e.g., vegetation/species surveys) and project-specific (e.g., magnitude and timing of proposed activities) information.

Below is a summary of the project information you provided and contact information for the USFWS office(s) with jurisdiction in the defined project area. Please read the introduction to each section that follows (Endangered Species, Migratory Birds, USFWS Facilities, and NWI Wetlands) for additional information applicable to the trust resources addressed in that section.

Location

Fresno County, California



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Local office

Sacramento Fish And Wildlife Office

(916) 414-6600
(916) 414-6713

Federal Building
2800 Cottage Way, Room W-2605
Sacramento, CA 95825-1846

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Endangered species

This resource list is for informational purposes only and does not constitute an analysis of project level impacts.

The primary information used to generate this list is the known or expected range of each species. Additional areas of influence (AOI) for species are also considered. An AOI includes areas outside of the species range if the species could be indirectly affected by activities in that area (e.g., placing a dam upstream of a fish population even if that fish does not occur at the dam site, may indirectly impact the species by reducing or eliminating water flow downstream). Because species can move, and site conditions can change, the species on this list are not guaranteed to be found on or near the project area. To fully determine any potential effects to species, additional site-specific and project-specific information is often required.

Section 7 of the Endangered Species Act **requires** Federal agencies to "request of the Secretary information whether any species which is listed or proposed to be listed may be present in the area of such proposed action" for any project that is conducted, permitted, funded, or licensed by any Federal agency. A letter from the local office and a species list which fulfills this requirement can **only** be obtained by requesting an official species list from either the Regulatory Review section in IPaC (see directions below) or from the local field office directly.

For project evaluations that require USFWS concurrence/review, please return to the IPaC website and request an official species list by doing the following:

1. Draw the project location and click CONTINUE.
2. Click DEFINE PROJECT.
3. Log in (if directed to do so).
4. Provide a name and description for your project.
5. Click REQUEST SPECIES LIST.

Listed species[1] and their critical habitats are managed by the Ecological Services Program of the U.S. Fish and Wildlife Service (USFWS) and the fisheries division of the National Oceanic and Atmospheric Administration (NOAA Fisheries[2]).

Species and critical habitats under the sole responsibility of NOAA Fisheries are **not** shown on this list. Please contact NOAA Fisheries for species under their jurisdiction.

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1. Species listed under the Endangered Species Act are threatened or endangered; IPaC also shows species that are candidates, or proposed, for listing. See the listing status page for more information. IPaC only shows species that are regulated by USFWS (see FAQ).
2. NOAA Fisheries, also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

The following species are potentially affected by activities in this location:

Mammals

NAME	STATUS
Fresno Kangaroo Rat Dipodomys nitratoides exilis Wherever found There is **final** critical habitat for this species. The location of the critical habitat is not available. https://ecos.fws.gov/ecp/species/5150	Endangered
San Joaquin Kit Fox Vulpes macrotis mutica Wherever found No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/2873	Endangered

Birds

NAME	STATUS
Yellow-billed Cuckoo Coccyzus americanus There is **final** critical habitat for this species. The location of the critical habitat is not available. https://ecos.fws.gov/ecp/species/3911	Threatened

Reptiles

NAME	STATUS

NOT FOR CONSULTATION

Blunt-nosed Leopard Lizard Gambelia silus — Endangered

Wherever found

No critical habitat has been designated for this species.
https://ecos.fws.gov/ecp/species/625

Amphibians

NAME	STATUS
California Tiger Salamander Ambystoma californiense	Threatened

There is **final** critical habitat for this species. The location of the critical habitat is not available.
https://ecos.fws.gov/ecp/species/2076

Fishes

NAME	STATUS
Delta Smelt Hypomesus transpacificus	Threatened

Wherever found

There is **final** critical habitat for this species. The location of the critical habitat is not available.
https://ecos.fws.gov/ecp/species/321

Insects

NAME	STATUS
Monarch Butterfly Danaus plexippus	Candidate

Wherever found

No critical habitat has been designated for this species.
https://ecos.fws.gov/ecp/species/9743

Crustaceans

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NAME	STATUS
Conservancy Fairy Shrimp Branchinecta conservatio Wherever found There is **final** critical habitat for this species. The location of the critical habitat is not available. https://ecos.fws.gov/ecp/species/8246	Endangered
Vernal Pool Fairy Shrimp Branchinecta lynchi Wherever found There is **final** critical habitat for this species. The location of the critical habitat is not available. https://ecos.fws.gov/ecp/species/498	Threatened

Flowering Plants

NAME	STATUS
Fleshy Owl's-clover Castilleja campestris ssp. succulenta Wherever found There is **final** critical habitat for this species. The location of the critical habitat is not available. https://ecos.fws.gov/ecp/species/8095	Threatened
Greene's Tuctoria Tuctoria greenei Wherever found There is **final** critical habitat for this species. The location of the critical habitat is not available. https://ecos.fws.gov/ecp/species/1573	Endangered
Hartweg's Golden Sunburst Pseudobahia bahiifolia Wherever found No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/1704	Endangered

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San Joaquin Orcutt Grass Orcuttia inaequalis — Threatened

Wherever found

There is **final** critical habitat for this species. The location of the critical habitat is not available.
https://ecos.fws.gov/ecp/species/5506

Critical habitats

Potential effects to critical habitat(s) in this location must be analyzed along with the endangered species themselves.

There are no critical habitats at this location.

Migratory birds

Certain birds are protected under the Migratory Bird Treaty Act[1] and the Bald and Golden Eagle Protection Act[2].

Any person or organization who plans or conducts activities that may result in impacts to migratory birds, eagles, and their habitats should follow appropriate regulations and consider implementing appropriate conservation measures, as described below.

1. The Migratory Birds Treaty Act of 1918.
2. The Bald and Golden Eagle Protection Act of 1940.

Additional information can be found using the following links:

- Birds of Conservation Concern https://www.fws.gov/program/migratory-birds/species
- Measures for avoiding and minimizing impacts to birds https://www.fws.gov/library/collections/avoiding-and-minimizing-incidental-take-migratory-birds
- Nationwide conservation measures for birds https://www.fws.gov/sites/default/files/documents/nationwide-standard-conservation-measures.pdf

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The birds listed below are birds of particular concern either because they occur on the USFWS Birds of Conservation Concern (BCC) list or warrant special attention in your project location. To learn more about the levels of concern for birds on your list and how this list is generated, see the FAQ below. This is not a list of every bird you may find in this location, nor a guarantee that every bird on this list will be found in your project area. To see exact locations of where birders and the general public have sighted birds in and around your project area, visit the E-bird data mapping tool (Tip: enter your location, desired date range and a species on your list). For projects that occur off the Atlantic Coast, additional maps and models detailing the relative occurrence and abundance of bird species on your list are available. Links to additional information about Atlantic Coast birds, and other important information about your migratory bird list, including how to properly interpret and use your migratory bird report, can be found below.

For guidance on when to schedule activities or implement avoidance and minimization measures to reduce impacts to migratory birds on your list, click on the PROBABILITY OF PRESENCE SUMMARY at the top of your list to see when these birds are most likely to be present and breeding in your project area.

NAME	BREEDING SEASON
Bald Eagle *Haliaeetus leucocephalus* This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities.	Breeds Jan 1 to Aug 31
Belding's Savannah Sparrow *Passerculus sandwichensis beldingi* This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA https://ecos.fws.gov/ecp/species/8	Breeds Apr 1 to Aug 15
Bullock's Oriole *Icterus bullockii* This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA	Breeds Mar 21 to Jul 25
Clark's Grebe *Aechmophorus clarkii* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds Jun 1 to Aug 31

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Common Yellowthroat Geothlypis trichas sinuosa — Breeds May 20 to Jul 31

This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA
https://ecos.fws.gov/ecp/species/2084

Golden Eagle Aquila chrysaetos — Breeds Jan 1 to Aug 31

This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities.
https://ecos.fws.gov/ecp/species/1680

Lawrence's Goldfinch Carduelis lawrencei — Breeds Mar 20 to Sep 20

This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.
https://ecos.fws.gov/ecp/species/9464

Nuttall's Woodpecker Picoides nuttallii — Breeds Apr 1 to Jul 20

This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA
https://ecos.fws.gov/ecp/species/9410

Olive-sided Flycatcher Contopus cooperi — Breeds May 20 to Aug 31

This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.
https://ecos.fws.gov/ecp/species/3914

Short-billed Dowitcher Limnodromus griseus — Breeds elsewhere

This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.
https://ecos.fws.gov/ecp/species/9480

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Tricolored Blackbird Agelaius tricolor — Breeds Mar 15 to Aug 10

This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.
https://ecos.fws.gov/ecp/species/3910

Western Grebe aechmophorus occidentalis — Breeds Jun 1 to Aug 31

This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.
https://ecos.fws.gov/ecp/species/6743

Yellow-billed Magpie Pica nuttalli — Breeds Apr 1 to Jul 31

This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.
https://ecos.fws.gov/ecp/species/9726

Probability of Presence Summary

The graphs below provide our best understanding of when birds of concern are most likely to be present in your project area. This information can be used to tailor and schedule your project activities to avoid or minimize impacts to birds. Please make sure you read and understand the FAQ "Proper Interpretation and Use of Your Migratory Bird Report" before using or attempting to interpret this report.

Probability of Presence (■)

Each green bar represents the bird's relative probability of presence in the 10km grid cell(s) your project overlaps during a particular week of the year. (A year is represented as 12 4-week months.) A taller bar indicates a higher probability of species presence. The survey effort (see below) can be used to establish a level of confidence in the presence score. One can have higher confidence in the presence score if the corresponding survey effort is also high.

How is the probability of presence score calculated? The calculation is done in three steps:

1. The probability of presence for each week is calculated as the number of survey events in the week where the species was detected divided by the total number of survey events for that week. For example, if in week 12 there were 20 survey

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events and the Spotted Towhee was found in 5 of them, the probability of presence of the Spotted Towhee in week 12 is 0.25.

2. To properly present the pattern of presence across the year, the relative probability of presence is calculated. This is the probability of presence divided by the maximum probability of presence across all weeks. For example, imagine the probability of presence in week 20 for the Spotted Towhee is 0.05, and that the probability of presence at week 12 (0.25) is the maximum of any week of the year. The relative probability of presence on week 12 is 0.25/0.25 = 1; at week 20 it is 0.05/0.25 = 0.2.
3. The relative probability of presence calculated in the previous step undergoes a statistical conversion so that all possible values fall between 0 and 10, inclusive. This is the probability of presence score.

To see a bar's probability of presence score, simply hover your mouse cursor over the bar.

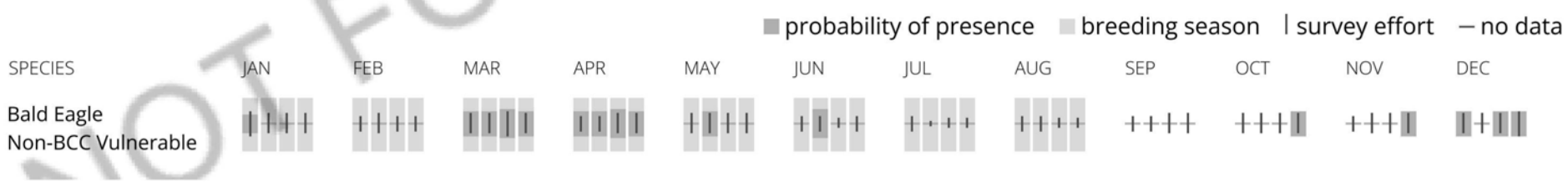
Breeding Season ( )
Yellow bars denote a very liberal estimate of the time-frame inside which the bird breeds across its entire range. If there are no yellow bars shown for a bird, it does not breed in your project area.

Survey Effort (|)
Vertical black lines superimposed on probability of presence bars indicate the number of surveys performed for that species in the 10km grid cell(s) your project area overlaps. The number of surveys is expressed as a range, for example, 33 to 64 surveys.

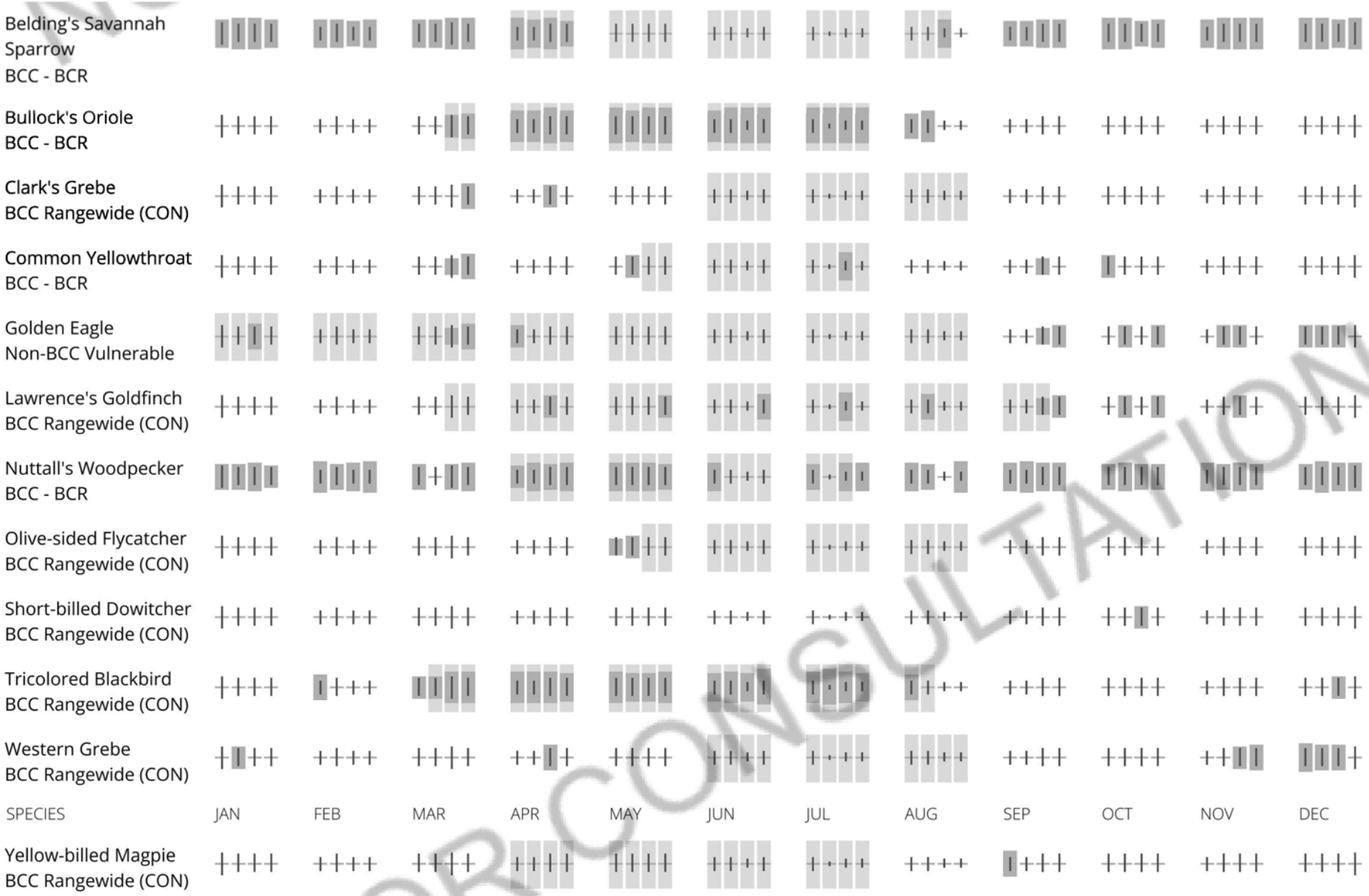
To see a bar's survey effort range, simply hover your mouse cursor over the bar.

No Data (–)
A week is marked as having no data if there were no survey events for that week.

Survey Timeframe
Surveys from only the last 10 years are used in order to ensure delivery of currently relevant information. The exception to this is areas off the Atlantic coast, where bird returns are based on all years of available data, since data in these areas is currently much more sparse.



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Tell me more about conservation measures I can implement to avoid or minimize impacts to migratory birds.

Nationwide Conservation Measures describes measures that can help avoid and minimize impacts to all birds at any location year round. Implementation of these measures is particularly important when birds are most likely to occur in the project area. When birds may be breeding in the area, identifying the locations of any active nests and avoiding their destruction is a very helpful impact minimization measure.

To see when birds are most likely to occur and be breeding in your project area, view the Probability of Presence Summary. Additional measures or permits may be advisable depending on the type of activity you are conducting and the type of infrastructure or bird species present on your project site.

What does IPaC use to generate the list of migratory birds that potentially occur in my specified location?

The Migratory Bird Resource List is comprised of USFWS Birds of Conservation Concern (BCC) and other species that may warrant special attention in your project location.

The migratory bird list generated for your project is derived from data provided by the Avian Knowledge Network (AKN). The AKN data is based on a growing collection of survey, banding, and citizen science datasets and is queried and filtered to return a list of those birds reported as occurring in the 10km grid cell(s) which your project intersects, and that have been identified as warranting special attention because they are a BCC species in that area, an eagle (Eagle Act requirements may apply), or a species that has a particular vulnerability to offshore activities or development.

Again, the Migratory Bird Resource list includes only a subset of birds that may occur in your project area. It is not representative of all birds that may occur in your project area. To get a list of all birds potentially present in your project area, please visit the Rapid Avian Information Locator (RAIL) Tool.

What does IPaC use to generate the probability of presence graphs for the migratory birds potentially occurring in my specified location?

The probability of presence graphs associated with your migratory bird list are based on data provided by the Avian Knowledge Network (AKN). This data is derived from a growing collection of survey, banding, and citizen science datasets.

Probability of presence data is continuously being updated as new and better information becomes available. To learn more about how the probability of presence graphs are produced and how to interpret them, go the Probability of Presence Summary and then click on the "Tell me about these graphs" link.

How do I know if a bird is breeding, wintering or migrating in my area?

To see what part of a particular bird's range your project area falls within (i.e. breeding, wintering, migrating or year-round), you may query your location using the RAIL Tool and look at the range maps provided for birds in your area at the bottom of the profiles provided for each bird in your results. If a bird on your migratory bird species list has a breeding season associated with it, if that bird does occur in your project area, there may be nests present at some point within the timeframe specified. If "Breeds elsewhere" is indicated, then the bird likely does not breed in your project area.

What are the levels of concern for migratory birds?

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Migratory birds delivered through IPaC fall into the following distinct categories of concern:

1. "BCC Rangewide" birds are Birds of Conservation Concern (BCC) that are of concern throughout their range anywhere within the USA (including Hawaii, the Pacific Islands, Puerto Rico, and the Virgin Islands);
2. "BCC - BCR" birds are BCCs that are of concern only in particular Bird Conservation Regions (BCRs) in the continental USA; and
3. "Non-BCC - Vulnerable" birds are not BCC species in your project area, but appear on your list either because of the Eagle Act requirements (for eagles) or (for non-eagles) potential susceptibilities in offshore areas from certain types of development or activities (e.g. offshore energy development or longline fishing).

Although it is important to try to avoid and minimize impacts to all birds, efforts should be made, in particular, to avoid and minimize impacts to the birds on this list, especially eagles and BCC species of rangewide concern. For more information on conservation measures you can implement to help avoid and minimize migratory bird impacts and requirements for eagles, please see the FAQs for these topics.

Details about birds that are potentially affected by offshore projects

For additional details about the relative occurrence and abundance of both individual bird species and groups of bird species within your project area off the Atlantic Coast, please visit the Northeast Ocean Data Portal. The Portal also offers data and information about other taxa besides birds that may be helpful to you in your project review. Alternately, you may download the bird model results files underlying the portal maps through the NOAA NCCOS Integrative Statistical Modeling and Predictive Mapping of Marine Bird Distributions and Abundance on the Atlantic Outer Continental Shelf project webpage.

Bird tracking data can also provide additional details about occurrence and habitat use throughout the year, including migration. Models relying on survey data may not include this information. For additional information on marine bird tracking data, see the Diving Bird Study and the nanotag studies or contact Caleb Spiegel or Pam Loring.

What if I have eagles on my list?

If your project has the potential to disturb or kill eagles, you may need to obtain a permit to avoid violating the Eagle Act should such impacts occur.

Proper Interpretation and Use of Your Migratory Bird Report

The migratory bird list generated is not a list of all birds in your project area, only a subset of birds of priority concern. To learn more about how your list is generated, and see options for identifying what other birds may be in your project area, please see the FAQ "What does IPaC use to generate the migratory birds potentially occurring in my specified location". Please be aware this report provides the "probability of presence" of birds within the 10 km grid cell(s) that overlap your project; not your exact project footprint. On the graphs provided, please also look carefully at the survey effort (indicated by the black vertical bar) and for the existence of the "no data" indicator (a red horizontal bar). A high survey effort is the key component. If the survey effort is high, then the probability of presence score can be viewed as more dependable. In

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contrast, a low survey effort bar or no data bar means a lack of data and, therefore, a lack of certainty about presence of the species. This list is not perfect; it is simply a starting point for identifying what birds of concern have the potential to be in your project area, when they might be there, and if they might be breeding (which means nests might be present). The list helps you know what to look for to confirm presence, and helps guide you in knowing when to implement conservation measures to avoid or minimize potential impacts from your project activities, should presence be confirmed. To learn more about conservation measures, visit the FAQ "Tell me about conservation measures I can implement to avoid or minimize impacts to migratory birds" at the bottom of your migratory bird trust resources page.

Coastal Barrier Resources System

Projects within the John H. Chafee Coastal Barrier Resources System (CBRS) may be subject to the restrictions on federal expenditures and financial assistance and the consultation requirements of the Coastal Barrier Resources Act (CBRA) (16 U.S.C. 3501 et seq.). For more information, please contact the local Ecological Services Field Office or visit the CBRA Consultations website. The CBRA website provides tools such as a flow chart to help determine whether consultation is required and a template to facilitate the consultation process.

There are no known coastal barriers at this location.

Data limitations

The CBRS boundaries used in IPaC are representations of the controlling boundaries, which are depicted on the official CBRS maps. The boundaries depicted in this layer are not to be considered authoritative for in/out determinations close to a CBRS boundary (i.e., within the "CBRS Buffer Zone" that appears as a hatched area on either side of the boundary). For projects that are very close to a CBRS boundary but do not clearly intersect a unit, you may contact the Service for an official determination by following the instructions here: https://www.fws.gov/service/coastal-barrier-resources-system-property-documentation

Data exclusions

CBRS units extend seaward out to either the 20- or 30-foot bathymetric contour (depending on the location of the unit). The true seaward extent of the units is not shown in the CBRS data, therefore projects in the offshore areas of units (e.g., dredging, breakwaters, offshore wind energy or oil and gas projects) may be subject to CBRA even if they do not intersect the CBRS data. For additional information, please contact CBRA@fws.gov.

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Facilities

National Wildlife Refuge lands

Any activity proposed on lands managed by the National Wildlife Refuge system must undergo a 'Compatibility Determination' conducted by the Refuge. Please contact the individual Refuges to discuss any questions or concerns.

There are no refuge lands at this location.

Fish hatcheries

There are no fish hatcheries at this location.

Wetlands in the National Wetlands Inventory

Impacts to NWI wetlands and other aquatic habitats may be subject to regulation under Section 404 of the Clean Water Act, or other State/Federal statutes.

For more information please contact the Regulatory Program of the local U.S. Army Corps of Engineers District.

Wetland information is not available at this time

This can happen when the National Wetlands Inventory (NWI) map service is unavailable, or for very large projects that intersect many wetland areas. Try again, or visit the NWI map to view wetlands at this location.

Data limitations

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The Service's objective of mapping wetlands and deepwater habitats is to produce reconnaissance level information on the location, type and size of these resources. The maps are prepared from the analysis of high altitude imagery. Wetlands are identified based on vegetation, visible hydrology and geography. A margin of error is inherent in the use of imagery; thus, detailed on-the-ground inspection of any particular site may result in revision of the wetland boundaries or classification established through image analysis.

The accuracy of image interpretation depends on the quality of the imagery, the experience of the image analysts, the amount and quality of the collateral data and the amount of ground truth verification work conducted. Metadata should be consulted to determine the date of the source imagery used and any mapping problems.

Wetlands or other mapped features may have changed since the date of the imagery or field work. There may be occasional differences in polygon boundaries or classifications between the information depicted on the map and the actual conditions on site.

Data exclusions

Certain wetland habitats are excluded from the National mapping program because of the limitations of aerial imagery as the primary data source used to detect wetlands. These habitats include seagrasses or submerged aquatic vegetation that are found in the intertidal and subtidal zones of estuaries and nearshore coastal waters. Some deepwater reef communities (coral or tuberficid worm reefs) have also been excluded from the inventory. These habitats, because of their depth, go undetected by aerial imagery.

Data precautions

Federal, state, and local regulatory agencies with jurisdiction over wetlands may define and describe wetlands in a different manner than that used in this inventory. There is no attempt, in either the design or products of this inventory, to define the limits of proprietary jurisdiction of any Federal, state, or local government or to establish the geographical scope of the regulatory programs of government agencies. Persons intending to engage in activities involving modifications within or adjacent to wetland areas should seek the advice of appropriate federal, state, or local agencies concerning specified agency regulatory programs and proprietary jurisdictions that may affect such activities.

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CNPS Rare Plant Inventory

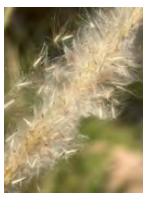
California Native Plant Society

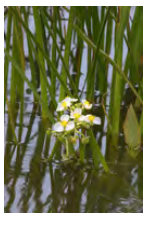
Search Results

30 matches found. Click on scientific name for details

Search Criteria: Quad is one of [**3611976:3611986:3711917:3611987:3611977:3611967:3611966:3611965:3611975:3611985:3711915:3711916**]

▲ SCIENTIFIC NAME	COMMON NAME	FAMILY	LIFEFORM	BLOOMING PERIOD	FED LIST	STATE LIST	GLOBAL RANK	STATE RANK	CA RARE PLANT RANK	PHOTO
Bryum chryseum	brassy bryum	Bryaceae	moss		None	None	G5	S3	4.3	No Photo Available
Calycadenia hooveri	Hoover's calycadenia	Asteraceae	annual herb	Jul-Sep	None	None	G2	S2	1B.3	No Photo Available
Carex comosa	bristly sedge	Cyperaceae	perennial rhizomatous herb	May-Sep	None	None	G5	S2	2B.1	 Dean Wm. Taylor 1997
Carpenteria californica	tree-anemone	Hydrangeaceae	perennial evergreen shrub	(Apr)May-Jul	None	CT	G1?	S1?	1B.2	No Photo Available
Castilleja campestris var. *succulenta*	succulent owl's-clover	Orobanchaceae	annual herb (hemiparasitic)	(Mar)Apr-May	FT	CE	G4? T2T3	S2S3	1B.2	No Photo Available
Caulanthus californicus	California jewelflower	Brassicaceae	annual herb	Feb-May	FE	CE	G1	S1	1B.1	No Photo Available
Claytonia parviflora ssp. *grandiflora*	streambank spring beauty	Montiaceae	annual herb	Feb-May	None	None	G5T3	S3	4.2	No Photo Available
Cryptantha hooveri	Hoover's cryptantha	Boraginaceae	annual herb	Apr-May	None	None	GH	SH	1A	No Photo Available
Delphinium hansenii ssp. *ewanianum*	Ewan's larkspur	Ranunculaceae	perennial herb	Mar-May	None	None	G4T3	S3	4.2	No Photo Available
Downingia pusilla	dwarf downingia	Campanulaceae	annual herb	Mar-May	None	None	GU	S2	2B.2	No Photo Available
Eryngium spinosepalum	spiny-sepaled button-celery	Apiaceae	annual/perennial herb	Apr-Jun	None	None	G2	S2	1B.2	No Photo Available
Erythranthe acutidens	Kings River monkeyflower	Phrymaceae	annual herb	Apr-Jul	None	None	G2G3	S2S3	3	 Barry Breckling
Erythranthe	small-flowered	Phrymaceae	annual herb	May-Jun	None	None	G4	S4	4.3	

inconspicua	monkeyflower									© 2017 Debra L. Cook
Erythranthe sierrae	Sierra Nevada monkeyflower	Phrymaceae	annual herb	Mar-Jul	None	None	G2	S2	4.2	 © 2014 Neal Kramer
Gratiola heterosepala	Boggs Lake hedge-hyssop	Plantaginaceae	annual herb	Apr-Aug	None	CE	G2	S2	1B.2	 ©2004 Carol W. Witham
Imperata brevifolia	California satintail	Poaceae	perennial rhizomatous herb	Sep-May	None	None	G3	S3	2B.1	 © 2020 Matt C. Berger
Lagophylla dichotoma	forked hare-leaf	Asteraceae	annual herb	Apr-May	None	None	G2	S2	1B.1	 © 2010 Chris Winchell
Leptosiphon serrulatus	Madera leptosiphon	Polemoniaceae	annual herb	Apr-May	None	None	G3	S3	1B.2	 © 2008 Chris Winchell
Lupinus citrinus var. *citrinus*	orange lupine	Fabaceae	annual herb	Apr-Jul	None	None	G2T2	S2	1B.2	No Photo Available
Navarretia eriocephala	hoary navarretia	Polemoniaceae	annual herb	May-Jun	None	None	G4?	S4?	4.3	 © 2018 Leigh Johnson
Navarretia myersii ssp. *myersii*	pincushion navarretia	Polemoniaceae	annual herb	Apr-May	None	None	G2T2	S2	1B.1	 © 2020 Leigh Johnson
Orcuttia inaequalis	San Joaquin Valley Orcutt grass	Poaceae	annual herb	Apr-Sep	FT	CE	G1	S1	1B.1	No Photo Available
Orcuttia pilosa	hairy Orcutt grass	Poaceae	annual herb	May-Sep	FE	CE	G1	S1	1B.1	 © 2003 George W. Hartwell

Pholistoma auritum var. *arizonicum*	Arizona pholistoma	Hydrophyllaceae	annual herb	Mar	None	None	G5T4?	S3	2B.3	No Photo Available
Plagiobryoides vinosula	wine-colored tufa moss	Bryaceae	moss		None	None	G3G4	S3S4	4.2	No Photo Available
Pseudobahia bahiifolia	Hartweg's golden sunburst	Asteraceae	annual herb	Mar-Apr	FE	CE	G1	S1	1B.1	No Photo Available
Pseudobahia peirsonii	San Joaquin adobe sunburst	Asteraceae	annual herb	Feb-Apr	FT	CE	G1	S1	1B.1	No Photo Available
Sagittaria sanfordii	Sanford's arrowhead	Alismataceae	perennial rhizomatous herb (emergent)	May-Oct(Nov)	None	None	G3	S3	1B.2	 ©2013 Debra L. Cook
Tuctoria greenei	Greene's tuctoria	Poaceae	annual herb	May-Jul(Sep)	FE	CR	G1	S1	1B.1	 ©2008 F. Gauna
Wyethia elata	Hall's wyethia	Asteraceae	perennial herb	May-Aug	None	None	G4	S4	4.3	No Photo Available

Showing 1 to 30 of 30 entries

Suggested Citation:

California Native Plant Society, Rare Plant Program. 2022. Rare Plant Inventory (online edition, v9-01 1.5). Website https://www.rareplants.cnps.org [accessed 7 September 2022].

National Marine Fisheries Service – West Coast Region – California
November 2016

Intersection of USGS 7.5' Quadrangles with NOAA Fisheries ESA Listed Species, Critical Habitat, Essential Fish Habitat, and MMPA Species Data within California.

An "X" following a listed feature indicates it may be present. Identified resources may be present throughout the entire quadrangle or only a portion of it.

Quad Name **Friant**
Quad Number **36119-H6**

ESA Anadromous Fish

SONCC Coho ESU (T) -
CCC Coho ESU (E) -
CC Chinook Salmon ESU (T) -
CVSR Chinook Salmon ESU (T) -
SRWR Chinook Salmon ESU (E) -
NC Steelhead DPS (T) -
CCC Steelhead DPS (T) -
SCCC Steelhead DPS (T) -
SC Steelhead DPS (E) -
CCV Steelhead DPS (T) - **X**
Eulachon (T) -
sDPS Green Sturgeon (T) -

ESA Anadromous Fish Critical Habitat

SONCC Coho Critical Habitat -
CCC Coho Critical Habitat -
CC Chinook Salmon Critical Habitat -
CVSR Chinook Salmon Critical Habitat -
SRWR Chinook Salmon Critical Habitat -
NC Steelhead Critical Habitat -
CCC Steelhead Critical Habitat -
SCCC Steelhead Critical Habitat -
SC Steelhead Critical Habitat -
CCV Steelhead Critical Habitat -
Eulachon Critical Habitat -
sDPS Green Sturgeon Critical Habitat -

ESA Marine Invertebrates

Range Black Abalone (E) -
Range White Abalone (E) -

ESA Marine Invertebrates Critical Habitat

Black Abalone Critical Habitat -

ESA Sea Turtles

East Pacific Green Sea Turtle (T) -
Olive Ridley Sea Turtle (T/E) -
Leatherback Sea Turtle (E) -
North Pacific Loggerhead Sea Turtle (E) -

ESA Whales

Blue Whale (E) -
Fin Whale (E) -
Humpback Whale (E) -
Southern Resident Killer Whale (E) -
North Pacific Right Whale (E) -
Sei Whale (E) -
Sperm Whale (E) -

ESA Pinnipeds

Guadalupe Fur Seal (T) -
Steller Sea Lion Critical Habitat -

Essential Fish Habitat

Coho EFH -
Chinook Salmon EFH - X
Groundfish EFH -
Coastal Pelagics EFH -
Highly Migratory Species EFH -

MMPA Species (See list at left)

ESA and MMPA Cetaceans/Pinnipeds
See list at left and consult the NMFS Long Beach office
562-980-4000

MMPA Cetaceans -
MMPA Pinnipeds -

APPENDIX B

Representative Site Photographs



Photo 1. Annual grassland within the Study Area.
Photo taken August 3, 2022, facing southwest.



Photo 2. Annual grassland within the Study Area.
Photo taken August 3, 2022, facing southeast.



Photo 3. Annual grassland within the Study Area.
Photo taken August 4, 2022 facing west.



Photo 4. Fallow farmland within the Study Area.
Photo taken August 3, 2022, facing south.



Photo 5. Fallow farmland within the Study Area. Photo taken August 3, 2022, facing northeast.



Photo 6. Intermittent drainage and annual grassland within the Study Area. Photo taken August 3, 2022, facing south.



Photo 7. Intermittent drainage within the Study Area. Photo taken August 3, 2022, facing south.



Photo 8. Unvegetated area of the old channel alignment within the Study Area. Photo taken August 4, 2022, facing south.



Photo 9. Unvegetated area of the old channel alignment within the Study Area. Photo taken August 3, 2022, facing east.



Photo 10. Pasture within the Study Area.
Photo taken August 4, 2022, facing northwest.



Photo 11. Seasonal wetland within the Study Area.
Photo taken August 4, 2022, facing north.



Photo 12. Seasonal wetland within the Study Area.
Photo taken August 4, 2022, facing southwest.



Photo 13. Seasonal wetland within the Study Area.
Photo taken August 4, 2022, facing northeast.



Photo 14. Structure within the Study Area.
Photo taken August 4, 2022, facing southwest.



Photo 15. Structure within the Study Area.
Photo taken August 4, 2022, facing southeast.



Photo 16. Burrows within the Study Area.
Photo taken August 3, 2022, facing west-southwest.

APPENDIX C

Plant Species Observed Onsite

Triangle Properties:
Plant Species Observed Onsite (August 3 4, 2022)

SCIENTIFIC NAME	COMMON NAME	Indicator
APOCYNACEAE	DOGBANE FAMILY	
Asclepias fascicularis	Narrow-leaf milkweed	FAC
ARECACEAE	PALM FAMILY	
Phoenix sp.	Palm	
ASTERACEAE	SUNFLOWER FAMILY	
*Centaurea solstitialis**	Yellow star-thistle	N/L
Centromadia sp.		
*Dittrichia graveolens**	Stinkwort	N/L
Heliotropium curassavicum	Seaside heliotrope	FACU
*Lactuca serriola**	Prickly lettuce	FACU
*Taraxacum officinale**	Common dandelion	FACU
Xanthium strumarium	Rough cockle-bur	FAC
BORAGINACEAE	BORAGE FAMILY	
Amsinckia menziesii	Small flowered fiddleneck	N/L
Amsinckia sp.	Fiddleneck	
Plagiobothrys stipitatus	Slender popcorn-flower	FACW
BRASSICACEAE	MUSTARD FAMILY	
*Hirschfeldia incana**	Shortpod mustard	N/L
CHENOPODIACEAE	GOOSEFOOT FAMILY	
*Chenopodium album**	White goosefoot	FACU
CONVOLVULACEAE	MORNING-GLORY FAMILY	
Cuscuta sp.	Dodder	
EUPHORBIACEAE	SPURGE FAMILY	
Croton setiger	Turkey mullein	N/L
FABACEAE	LEGUME FAMILY	
Acmispon americanus	Spanish clover	UPL
*Vicia villosa**	Hairy vetch	N/L
GERANIACEAE	GERANIUM FAMILY	
Erodium sp.	Filaree	
*Geranium dissectum**	Cut-leaved geranium	N/L
LAMIACEAE	MINT FAMILY	
*Marrubium vulgare**	Common horehound	FACU

Triangle Properties:
Plant Species Observed Onsite (August 3 4, 2022)

SCIENTIFIC NAME	COMMON NAME	Indicator
LAMIACEAE	MINT FAMILY	
Trichostema lanceolatum	Vinegar weed	N/L
MALVACEAE	MALLOW FAMILY	
*Malva parviflora**	Cheeseweed	N/L
MORACEAE	MULBERRY FAMILY	
*Ficus carica**	Common fig	FACU
MYRSINACEAE	MYRSINE FAMILY	
*Lysimachia arvensis**	Scarlet pimpernel	FAC
MYRTACEAE	MYRTLE FAMILY	
*Eucalyptus globulus**	Blue gum	N/L
Eucalyptus sp.	Eucalyptus	
OLEACEAE	OLIVE FAMILY	
*Olea europaea**	European olive	N/L
POACEAE	GRASS FAMILY	
*Andropogon virginicus var. virginicus**	Broomsedge bluestem	FAC
*Avena fatua**	Wild oat	UPL
Avena sp.	Oat	
*Bromus diandrus**	Ripgut brome	N/L
*Bromus hordeaceus**	Soft brome	FACU
*Bromus madritensis ssp. rubens**	Red brome	UPL
Distichlis spicata	Saltgrass	FAC
*Festuca myuros**	Rat-tail vulpia	FACU
*Festuca perennis**	Italian Ryegrass	FAC
*Hordeum marinum ssp. gussoneanum**	Mediterranean barley	FAC
*Hordeum murinum**	Foxtail barley	FACU
POLYGONACEAE	BUCKWHEAT FAMILY	
Eriogonum nudum	Naked buckwheat	N/L
*Rumex crispus**	Curly dock	FAC
SCROPHULARIACEAE	FIGWORT FAMILY	
*Verbascum thapsus**	Common mullein	FACU
SOLANACEAE	NIGHTSHADE FAMILY	
Datura inoxia	Pricklybur	N/L

Triangle Properties:
Plant Species Observed Onsite (August 3 4, 2022)

SCIENTIFIC NAME	COMMON NAME	Indicator
SOLANACEAE	NIGHTSHADE FAMILY	
*Datura stramonium**	Jimson weed	UPL
TAXODIACEAE	BALD CYPRESS FAMILY	
Sequoia sempervirens	Coast redwood	N/L
VERBENACEAE	VERVAIN FAMILY	
Phyla nodiflora	Common lippia	FACW
ZYGOPHYLLACEAE	CALTROP FAMILY	
*Tribulus terrestris**	Puncture vine	N/L

APPENDIX D

Wildlife Observed Onsite

Common Name	Scientific Name
Reptiles	
Western fence lizard	*Sceloporus occidentalis*
Birds	
Canada Goose	*Branta canadensis*
Rock Pigeon	*Columba livia*
Eurasian Collared-Dove	*Streptopelia decaocto*
Mourning Dove	*Zenaida macroura*
Black-chinned Hummingbird	*Archilochus alexandri*
Anna's Hummingbird	*Calypte anna*
Killdeer	*Charadrius vociferus*
Turkey Vulture	*Cathartes aura*
Cooper's Hawk	*Accipiter cooperii*
Red-tailed Hawk	*Buteo jamaicensis*
American Kestrel	*Falco sparverius*
Western Kingbird	*Tyrannus verticalis*
California Scrub-Jay	*Aphelocoma californica*
American Crow	*Corvus brachyrhynchos*
Common Raven	*Corvus corax*
Horned Lark	*Eremophila alpestris*
Northern Mockingbird	*Mimus polyglottos*
House Sparrow	*Passer domesticus*
House Finch	*Haemorhous mexicanus*
Brewer's Blackbird	*Euphagus cyanocephalus*
Mammals	
California ground squirrel	*Otospermophilus beecheyi*
Desert cottontail	*Sylvilagus audubonii*
Pocket gopher	*Thomomys sp.*

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E.1 - E – Jurisdictional Delineation

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BAY AREA OFFICE
1720 Solano Avenue
Berkeley, CA 94707
Phone: 510/559-9603
Fax: 510/559-9605
www.vollmarconsulting.com

Delineation of Potential Jurisdictional Aquatic Resources



Vista Ranch Project Site
Fresno County, California

Prepared for:

Wilson Premier Homes
7550 North Palm Avenue, Suite 102
Fresno, CA 93711
Contact: Goldie Lewis | 559/224-7550

Prepared by:

Vollmar Natural Lands Consulting
1720 Solano Avenue
Berkeley, CA 94707
Contact: John Vollmar | 510/559-9603

August 17, 2023

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ACRONYMS AND ABBREVIATIONS

APN	Assessor's Parcel Number
CARI	California Aquatic Resource Inventory
CWA	Clean Water Act
EPA	U.S. Environmental Protection Agency
GIS	Geographic Information System
NRCS	Natural Resources Conservation Service
NWI	National Wetlands Inventory
NWP	Nationwide Permit
NWPL	National Wetland Plant List
OHWM	ordinary high-water mark
PEM	palustrine emergent
RHA	Rivers and Harbors Act
RWQCB	Regional Water Quality Control Board
TNW	Traditional Navigable Water
USACE	U.S. Army Corps of Engineers
USFWS	U.S. Fish and Wildlife Service
USGS	U.S. Geological Survey
WDR	Waste Discharge Requirements

1.0 INTRODUCTION

This report summarizes the methods and results of a delineation of aquatic resources under potential federal and/or state jurisdiction within the Vista Ranch Project Site (site). The site is located just north of Clovis in Fresno County, California (**Figure 1**). The site is largely within an approximately 509-acre master-planned community (the Vista Ranch Master Plan Area). The Vista Ranch Project will result in the development of a portion of the Vista Ranch Master Plan Area, as well as associated off-site infrastructure.

The site addressed by this report is the area of effects of the Vista Ranch Project. It includes approximately 364.3 acres of the master plan area, as well as approximately 33.2 acres of areas planned for off-site improvements. Combined, these form the approximately 397.5-acre study area, and comprise the area where all direct impacts associated with the Vista Ranch Project will occur.

The purpose of this delineation is to identify, map, and describe aquatic resources on the site that may be subject to federal and/or state jurisdiction. A total of 1.924 acres of aquatic resources which may be subject to federal jurisdiction were delineated. In addition, a 1.129-acre agricultural pond which may not be subject to federal jurisdiction was mapped. The features which may be subject to federal jurisdiction include 0.278 acre of potential Other Waters within the spillway canal, and 1.646 acres of potential Wetlands within depressional basins, stockponds, and the spillway canal. Details on these delineated resources are provided in the Results section below.

The 2022-2023 rain-year (July 1-June 30) was much wetter than average, resulting in atypical prolonged flooding of depressional areas on the site as discussed below. These conditions were considered as part of the delineation field work. The findings of this delineation are preliminary and must be reviewed and verified in writing by the U.S. Army Corps of Engineers (USACE) to be considered an official delineation.

This delineation was prepared by Vollmar Natural Lands Consulting (VNLC), Berkeley, California. The address and contact information for both VNLC and Wilson Premier Homes representatives for this project are provided on the cover of this report.

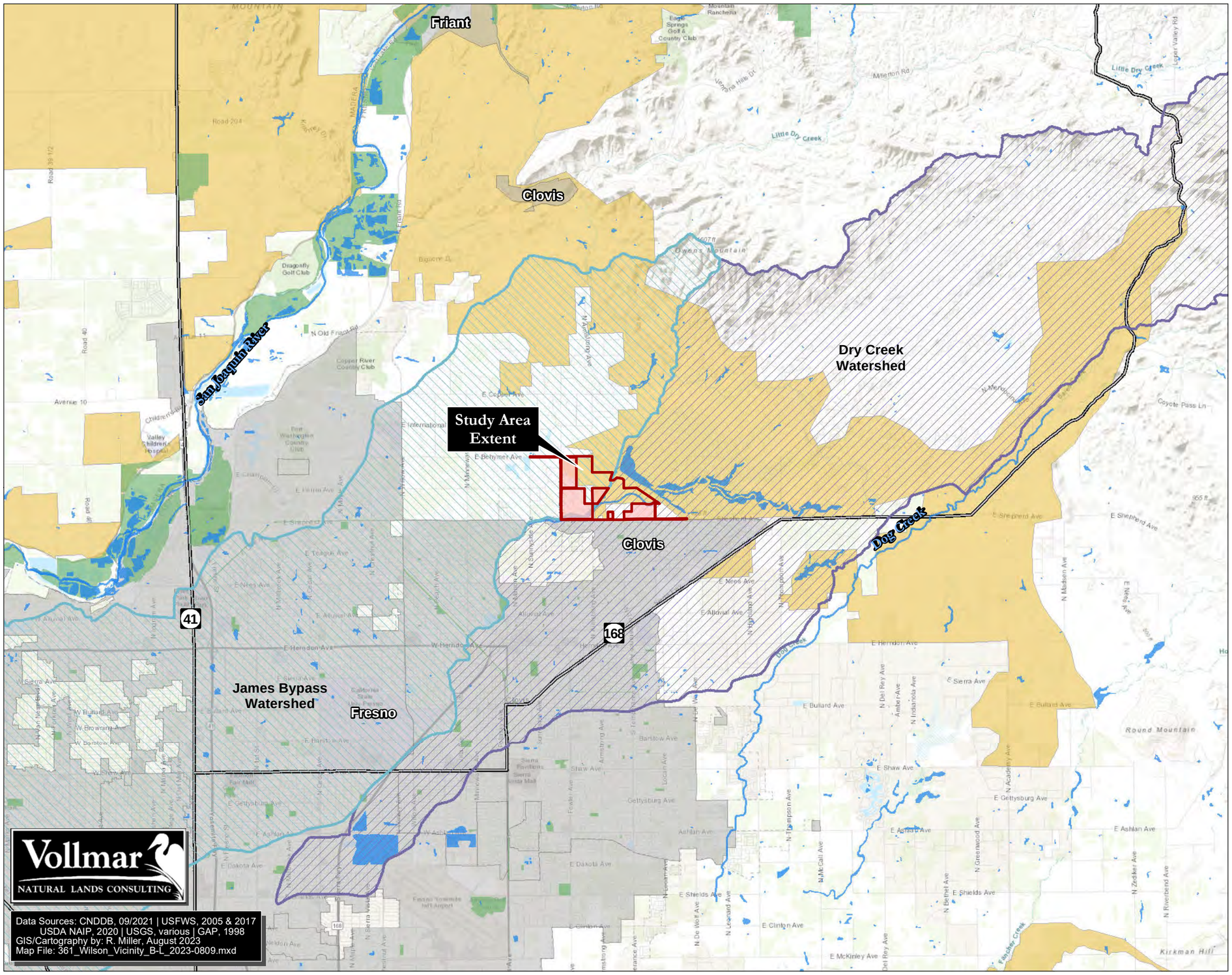
2.0 BACKGROUND INFORMATION

2.1 Location of Study Area

The site is located north of the City of Clovis in Fresno County, California. It is bordered on the south and west by suburban residential development and on the northwest by more open rural residential development. To the northeast, it is bordered by open range and the Big Dry Creek Dam and Reservoir. The dam and reservoir are flood control structures operated by the Fresno Metropolitan Flood Control District (FMFCD) (BOR, CDWR, and CBDA, 2003).

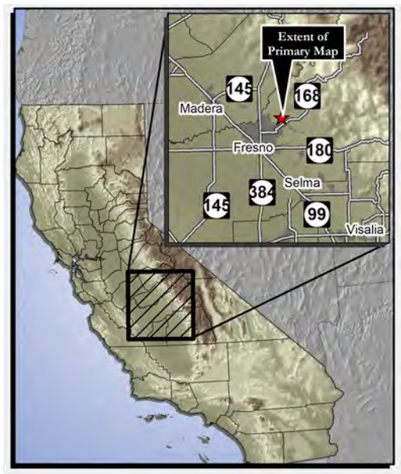
FIGURE 1
Regional Vicinity Map

Vista Ranch Development
Fresno County, California



Legend

- Highway
- Stream or River
- Study Area (397.5 ac.)
- Not Part of Study Area
- Wetland
- USFWS Vernal Pool Core Recovery Area
- Dry Creek Watershed
- James Bypass Watershed
- Conserved or Public Land
- Urban Area



N
W E
S

1:100,000
(1 in. = 1.58 miles at Tabloid Layout)

0 1 2 4 Km
0 1 2 4 Mi

FIGURE 2
USGS Topographic Map

Vista Ranch Development
Fresno County, California

Township 12 South, Range 21 East, Section 8

Township 12 South, Range 21 East, Section 9

Township 12 South, Range 21 East, Section 10

Township 12 South, Range 21 East, Section 11

Township 12 South, Range 21 East, Section 12

Township 12 South, Range 21 East, Section 13

Township 12 South, Range 21 East, Section 14

Township 12 South, Range 21 East, Section 15

Township 12 South, Range 21 East, Section 16

Township 12 South, Range 21 East, Section 17

Township 12 South, Range 21 East, Section 20

Township 12 South, Range 21 East, Section 21

Township 12 South, Range 21 East, Section 22

Township 12 South, Range 21 East, Section 23

Township 12 South, Range 21 East, Section 24

Township 12 South, Range 21 East, Section 25

Township 12 South, Range 21 East, Section 26

Township 12 South, Range 21 East, Section 27

Township 12 South, Range 21 East, Section 28

Township 12 South, Range 21 East, Section 29

Township 12 South, Range 21 East, Section 33

Township 12 South, Range 21 East, Section 34

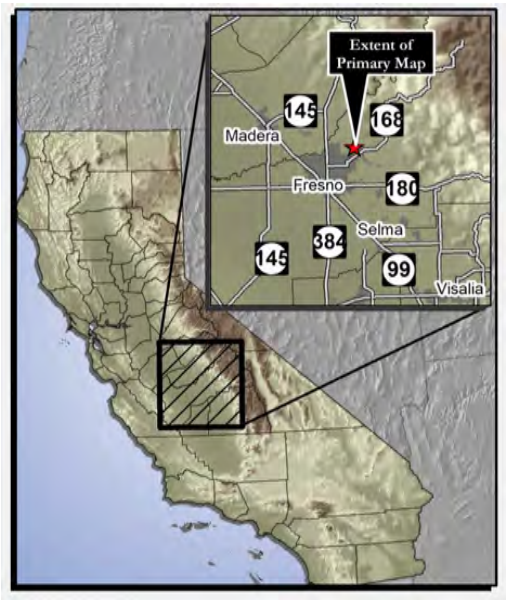
Township 12 South, Range 21 East, Section 35

Township 12 South, Range 21 East, Section 36

E COPPER AVE
E BEHYMER AVE
E SHEPHERD AVE
E TEAGUE AVE
E COLE AVE
E NEES AVE
HORSESHOE BEND AVE
E PENNSYLVANIA AVE
SERENA AVE
LESTER AVE
HERITAGE AVE
RICHMOND
POWERS AVE
E COOK AVE
TOLLHOUSE RD
LEXINGTON
N SUNNYSIDE AVE
N STANFORD AVE
N PURDUE AVE
N BURGAN AVE
N FOWLER AVE
N CARSON AVE
N LEONARD AVE
N DE WOLF AVE
N ARMSTRONG AVE
N LINDA LN
N MARION
N SANDERS AVE
Enterprise Canal
Dry Creek
Gates Lane

Legend

- Stream
- Study Area (397.5 ac.)
- Not Part of Study Area
- Wetland (CARI, SFEI 2023)
- Public Land Survey Boundary
- City of Clovis



N
W E
S

1:24,000
(1 in. = 2,000 feet at Tabloid Layout)

0 250 500 1,000 Meters

0 1,000 2,000 4,000 Feet

Vollmar
NATURAL LANDS CONSULTING

Data Sources: VNLC, 2023 | USGS, various
USHUD, 2015 | TIGER, 2011 | SFEI, 2023
ESRI/Maxar, 2023
GIS/Cartography by: R. Miller, August 2023
Map File: 361_Wilson_Topo_B-L_2023-0809.mxd

The site is located within Sections 21, 22, and 23 of Township 12 South, Range 21 East of the Mount Diablo Base & Meridian within the Friant and Clovis 7.5-minute U.S. Geological Survey (USGS) topographic quadrangles (**Figure 2**). The coordinates at the approximate center of the site are 36.873266, -119.670577. The nearest road intersection is East Shepherd Avenue and North Temperance Avenue along the central southern edge of the site.

The site is accessed from Highway 99 south by exiting at Highway 180 East (Exit 133B). After approximately 3.4 miles, take Exit 60A for Highway 168 East. After 1.3 miles, exit at Temperance Ave (Exit 9) and continue north for 2.2 miles. Access to the site is by a dirt road extending north from Temperance Avenue in the south and along East Behymer Road in the northwest.

2.2 General Setting of Study Area

The study area consists primarily of non-native annual grasslands, degraded pasture, and the Big Dry Creek Reservoir Spillway canal. An abandoned section of Dry Creek, a local seasonal creek, crosses the southeast portion of the site. This section was abandoned when the Big Dry Creek Reservoir was constructed in 1948 and the creek re-routed through the reservoir and current spillway canal which rejoins the original creek channel just off the site about 2,200 feet below the spillway. The abandoned creek channel is now an upland habitat that is part of the overall non-native grasslands in this portion of the site. There are some rural homes sites in the southeast of the site and a few dirt access roads. The site has mostly level to gentle terrain with the most pronounced topography in the northwest. Elevation ranges from about 380 to 413 feet with slopes generally running south and southwest in the south and east of the site and west in the northwest of the site.

Much of the northwest and southeast of the site consists of non-native annual grasslands. These areas appear to be minimally or not currently grazed and support a mix of mostly non-native annual grasses and herbs including invasive weeds. Scattered depressional wetlands occur within these grasslands, especially in the northeast within a series of apparently remnant floodplain swales on the north side of the abandoned channel of Dry Creek. There are also three created stockponds within the grasslands in the northwest of the site.

A roughly 30-acre area near the center of the site was graded and set up for flood irrigation several decades ago (prior to 1957) (see historical imagery in **Appendix F**). This area is located just northeast of the downstream intersection between the spillway canal and the abandoned Dry Creek channel. There are remnant irrigation stand pipes along the southern edge and check berms directing irrigation water south to north across the area. An approximately 1.129-acre triangular agricultural tailwater pond was excavated as part of the system in the southwest edge of the field, adjacent to the spillway canal. This pond was designed to recapture and recirculate irrigation tailwater. There is no active flood irrigation being practiced at this time. This area is now divided

into several pastures with cross fencing and was being grazed by horses and cattle at the time of the field work. This area supports degraded pasture with disturbed, ruderal vegetation dominated by non-native grasses and herbs including invasive weeds. The current grazing is light with a high build up of thatch and residual dry matter.

The Big Dry Creek Dam and Reservoir, constructed in 1948, are flood control structures located on Dry Creek, immediately northeast of the study area. The dam consists of a zoned earth fill embankment, which impounds flows from Dry Creek and its tributaries. Due to safety concerns regarding seepage, the reservoir is limited to approximately 1/3 of its total capacity and is limited to a 90-day duration of storage (BOR, CDWR & CBDA, 2003). Construction of the dam and reservoir involved a re-alignment of Dry Creek and abandonment of a section of the original channel. Dry Creek is now routed into the reservoir basin and then though the spillway and down a canal below the spillway, rejoining the original Dry Creek channel approximately 2,200 feet below the spillway. The abandoned channel traverses the southwest portion of the site. The spillway runs diagonally across the center of the site, from the northeast to southwest. Within the study area, it consists of a constructed earthen channel with raised berms along both sides. This channel supports a mix of wetland vegetation and open water channel areas as described in Results.

The study area is underlain by recent alluvial (stream) deposits in areas bordering the Dry Creek channel, and older sedimentary, metasedimentary, and igneous rocks in surrounding areas (**Figures 3** and **4**). Most soil units within the study area lack an intact claypan or hardpan. This characteristic appears to contribute to relatively quick infiltration throughout much of the site and a correspondingly low rate of wetland formation even within some depressional features.

At the time of the site visit, the delineated aquatic resources and surrounding upland grasslands were experiencing summer bloom. Some ponded water remained in the deeper features on the site such as one of the stockponds and some of the deepest depressional wetland basins. Water was also flowing along the spillway canal. Precipitation was high during the 2023 wet season. Fresno has an average annual rainfall of 10.99 inches (July 1-June 30). The rainfall during the 2022-2023 rain-year (July 1-June 30) totaled 17.83 inches, 162% of the average and within the top ten rainiest years recorded since the late 1800s (NOAA, 2023). March 2023 also had high rainfall compared to average (see **Table 1**, below). These conditions caused atypical extensive and prolonged flooding in some portions of the site as discussed under Results below.

3.0 REGULATORY BACKGROUND

3.1 Federal Regulatory Framework

The federal government, through Section 404 of the Clean Water Act (CWA) and Section 10 of the Rivers and Harbors Act (RHA), has jurisdiction over all Waters of the United States. Waters of the United States are divided into four subsets – territorial seas and traditional navigable waters (TNWs); tributaries to TNWs; lakes, ponds, and impoundments of TNWs; and wetlands adjacent

to territorial seas and TNWs. Section 404 of the CWA regulates the discharge of dredged or fill material into Waters of the United States. The CWA grants dual regulatory authority of Section 404 to the U.S. Environmental Protection Agency (EPA) and USACE. The USACE is responsible for issuing and enforcing permits for activities in jurisdictional Waters in conjunction with prior permitting authorities in navigable Waters under the RHA of 1899. The EPA is responsible for providing oversight of the permit program. In this capacity, the EPA has developed guidelines for permit review (Section 404 [b][1] Guidelines) and has the authority to veto permits by designating certain sites as non-fill areas (Section 404[c] of the CWA). The EPA also has enforcement authority under Section 404. The USACE generally extends its jurisdiction to all areas meeting the criteria for Waters of the United States.

On August 30, 2021, the U.S. District Court for the District of Arizona issued a decision in *Pascua Yaqui Tribe v. U.S. Environmental Protection Agency* which vacated the then-current 2020 Navigable Waters Protection Rule. Following this decision, the EPA and USACE halted implementation of the Navigable Waters Protection Rule and are interpreting "waters of the United States" consistent with the pre-2015 regulatory regime as developed under *Rapanos* and *SWANCC* guidance. On May 25, 2023, the U.S. Supreme Court issued a decision in *Sackett v. EPA* which narrowed the jurisdiction of the CWA. The Sackett decision declared that, in order to be regulated by the CWA, wetlands adjacent to TNWs must be indistinguishably part of a body of water that itself constitutes "waters" under the CWA with a "continuous surface connection to those bodies" (Totenberg 2023). The USACE is in the process of revising its policies on the extent of federal jurisdiction over "waters".

Projects which propose activities that fall under the jurisdiction of Section 404 of the CWA and/or Section 10 of the RHA must obtain approval from the USACE through the individual or nationwide permit (NWP) process. Individual permits entail a full public interest review that includes consultation with other federal and state agencies.

3.2 California State and Regional Regulatory Framework

California Department of Fish and Wildlife

The CDFW regulates river, stream, and lake habitats through Fish and Game Code section 1600 *et seq*. Fish and Game Code section 1602 requires an entity to notify the CDFW prior to commencing any activity that may do one or more of the following:

- Substantially divert or obstruct the natural flow of any river, stream, or lake;
- Substantially change or use any material from the bed, channel, or bank of any river, stream, or lake; or
- Deposit debris, waste, or other materials that could pass into any river, stream, or lake.

A "river, stream, or lake" includes those that are episodic (i.e., they are dry for periods of time) as well as those that are perennial. This definition includes ephemeral streams, desert washes, and

watercourses with a subsurface flow. It may also apply to work undertaken within the floodplain of a body of water, the boundary of which may be identified as a topographic feature or as riparian vegetation. In addition, the CDFW does not distinguish between a "pond" and a "lake," such that relatively small bodies of water, including both natural and artificial features, may be regulated under section 1600.

The CDFW requires a Lake and Streambed Alteration (LSA) Agreement when it determines that the activity, as described in a complete LSA Notification, may substantially adversely affect existing fish or wildlife resources (ibid). A LSA Agreement includes measures necessary to protect existing fish and wildlife resources. The CDFW may suggest ways to modify a project that would eliminate or reduce harmful impacts to fish and wildlife resources. Before issuing a LSA Agreement, CDFW must comply with the California Environmental Quality Act (CEQA).

Regional Water Quality Control Board

The study area is located within the Central Valley (Region 5) Regional Water Quality Control Board (RWQCB), which has authority to regulate projects that could potentially impact wetlands and/or other Waters. According to the California State Water Resources Control Board, this authority derives from the following:

- The state's Porter-Cologne Water Quality Control Act through Waste Discharge Requirements to protect Waters of the state;
- The CWA under Section 4013;
- Governor's Executive Order W-59-93 (i.e., the "California Wetland's Policy" which requires "No Net Loss of Wetlands");
- Senate Concurrent Resolution No. 28; and
- California Water Code Section 13142.5 (applies to coastal marine wetlands).

In addition to the state directives to protect wetlands, for individual permits (but not NWPs), the Basin Plan also directs the Water Board staff to use the EPA's CWA 404(b)(1) guidelines to determine circumstances under which the filling of wetlands may be permitted and requires that attempts be made to avoid, minimize, and only lastly to mitigate for adverse impacts (ibid).

California's jurisdiction to regulate its water resources is much broader than that of the federal government. While the U.S. Supreme Court's 2001 decision in SWANCC vs. U.S. Army Corps of Engineers (the "SWANCC" Decision) called into question the extent to which the federal government may regulate isolated, intrastate, non-navigable waters as "Waters of the United States" under the CWA, state law is unaffected by that decision. The State Water Resource Control Board's (State Water Board's) Executive Director issued a memorandum directing the Regional Water Boards to regulate such waters under Porter-Cologne authorities. Porter-Cologne extends to "Waters of the State," which is broadly defined as "any surface water or groundwater, including saline waters, within the boundaries of the state." This definition includes isolated wetlands and any action that may impact isolated wetlands is subject to the Water Board's jurisdiction, which

may include the issuance of Statewide General Waste Discharge Requirements (WDRs). For projects that will impact less than 0.2 acres of "isolated" wetlands, the State Water Board issues WDRs for Dredged or Fill Discharges to Waters Deemed by the U.S. Army Corps of Engineers to be Outside of Federal Jurisdiction (General WDRs). These General WDRs streamline the permitting process for low impact projects in isolated wetlands (ibid).

Activities or discharges from a project that could affect California's surface, coastal, or ground waters require a permit from the local RWQCB. Discharging pollutants (or proposing to) into surface water requires the applicant to file a National Pollutant Discharge Elimination System permit application with the RWQCB. Other types of discharges, such as those affecting groundwater or from diffused sources (e.g., erosion from soil disturbance or waste discharges to land) are handled by filing a Report of Waste Discharge with the RWQCB to obtain WDRs. For specified situations, some permits may be waived and some discharge activities can be handled through enrollment in an existing general permit (ibid). The State is currently in the process of adopting updated Dredge and Fill procedures, which became effective May 28, 2020. These changes modify the current State definition and jurisdictional determination of State wetlands.

4.0 METHODS

4.1 Preliminary Review and Field Preparation

Prior to conducting the field delineation, the project ecologists reviewed site aerial photography, topographic data, existing preliminary wetland, stream, and watershed mapping, geologic units, and soil survey maps of the study area and surrounding areas. This information was used to help characterize the site, identify any potential aquatic resources on a preliminary basis, and guide the on-site survey. Background imagery and the study area boundary were loaded on to a professional GPS (Trimble Geo 7x or GeoXH 6000) for use in navigation and mapping in the field.

The project ecologists also reviewed rainfall data for the Fresno area for the July 1-June 30 'rain-year' period. The 2022-2023 rain-year, at 17.83 inches, was 162% of average and among the ten highest-precipitation rain years recorded since the late 1800s (NOAA, 2023). In particular, the rainfall period from December 2022-March 2023 was 226% of normal for this period, and this period is typically responsible for 70% of the annual rainfall. These conditions resulted in atypical prolonged and extensive flooding within depressional areas on the site. These conditions were considered during the delineation field work and wetland mapping on the site.

Table 1 and **Table 2**, below, present WETS tables for the fieldwork dates (USDA-NRCS 2023). April, May, and June of 2023 had average or below-average precipitation. However, these months typically contribute less than 15% of the annual precipitation; the exceptionally high rainfall over the course of the winter exerted the greater effect on the site conditions during the delineation fieldwork.

Table 1. WETS Table Analysis for the June 2023 Survey (USDA-NRCS 2023)

Precipitation Data from the Last 30 Years (1993-2023)[1]			Recent Field Conditions Compared to Precipitation Data from the Last 30 Years, and Analysis[1]					
Date	**30th Percentile (inches)**	**70th Percentile (inches)**	**Date**	**Recorded Rainfall (inches)**	**Rainfall Condition Compared to Previous 30 Years[2]**	**Numeric Condition Value[3]**	**Weighting Factor[4]**	**Product of Condition Value and Weighting Factor[5]**
May	0.13	0.42	May 2023	0.35	Normal	2	3	6
Apr	0.43	1.16	Apr 2023	0	Dry	1	2	2
Mar	0.67	2.1	Mar 2023	4	Wet	3	1	3
[1] All precipitation data is obtained from the Fresno Yosemite International, CA Weather Station. Weather Station [2] Below 30th percentile = dry; between 30th and 70th percentile = normal; above 70th percentile = wet. [3] Relative rainfall conditions are then translated to a numeric condition value, as follows: dry = 1, normal = 2, wet = 3. [4] Greater weight is given to the most recent month as this would most likely influence what hydrologic or vegetative characteristics are observed. [5] The numeric condition value is then multiplied by the weighting factor, then the subtotals are added to get the total value. Total value equivalents: 6-9 = dry; 10-14 = normal; 15-18 = wet.						**TOTAL[5]**		11 or NORMAL

Table 2. WETS Table Analysis for the July 2023 Survey (USDA-NRCS 2023)

Precipitation Data from the Last 30 Years (1993-2023)[1]			Recent Field Conditions Compared to Precipitation Data from the Last 30 Years, and Analysis[1]					
Date	**30th Percentile (inches)**	**70th Percentile (inches)**	**Date**	**Recorded Rainfall (inches)**	**Rainfall Condition Compared to Previous 30 Years[2]**	**Numeric Condition Value[3]**	**Weighting Factor[4]**	**Product of Condition Value and Weighting Factor[5]**
Jun	0	0.07	Jun 2023	0.01	Normal	2	3	6
May	0.13	0.42	May 2023	0.35	Normal	2	2	4
Apr	0.43	1.16	Apr 2023	0	Dry	1	1	1
[1] All precipitation data is obtained from the Fresno Yosemite International, CA Weather Station. Weather Station [2] Below 30th percentile = dry; between 30th and 70th percentile = normal; above 70th percentile = wet. [3] Relative rainfall conditions are then translated to a numeric condition value, as follows: dry = 1, normal = 2, wet = 3. [4] Greater weight is given to the most recent month as this would most likely influence what hydrologic or vegetative characteristics are observed. [5] The numeric condition value is then multiplied by the weighting factor, then the subtotals are added to get the total value. Total value equivalents: 6-9 = dry; 10-14 = normal; 15-18 = wet.						**TOTAL[5]**		11 or NORMAL

4.2 Field Survey

VNLC Principal Ecologist John Vollmar conducted the delineation field work on June 21 and 22, and July 24, 2023. During the field work, Mr. Vollmar traversed the entire study area, established delineation data points, recorded additional notes on plant community and study area characteristics, and took representative photographs of habitats and features of interest.

At each delineation data point, data were collected on Version 2.0 of USACE's Arid West delineation data form. Data were collected on soils, hydrology, and vegetation cover following the Routine Wetland Determination Method developed by the USACE and described in the 1987 USACE Wetlands Delineation Manual (Environmental Laboratory 1987), as well as the Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region (USACE 2008) and USACE's more recent guides to identification of OHWM in the Arid West (USACE 2022). The boundaries of potential jurisdictional aquatic resources identified in the study area were mapped using a Trimble GeoXH 6000 or Geo 7x with nominal sub-foot precision. The specific methods for collecting data on soils, hydrology, and vegetation at delineation data points are described below.

4.2.1 Soils

Soil profiles were excavated at each data point using a tile spade shovel, and the profiles were examined for positive hydric soil indicators such as low matrix chromas, redox features, gleys, and iron and manganese concretions. The color and texture of the soil layers encountered were recorded on the delineation forms. Soil color was identified using a Munsell soil color chart (Kollmorgen 2000), and a standardized soil texture chart used by the California Native Plant Society (CNPS) for assessing soils (adapted from Brewer and McCann 1982) was used to determine texture (e.g., clay versus clay loam, etc.). All soil samples were moistened before determining the color and texture. Soil map units were cross-referenced with the California hydric soils list (USDA 1993) and the national hydric soils list (USDA 1991). Determination of whether or not the hydric soil criterion was met was based upon the criteria specified by the National Technical Committee for Hydric Soils (ibid), and informed by additional information provided by the US Department of Agriculture Natural Resource Conservation Service (USDA-NRCS 2018).

Prior to the survey, the project ecologists reviewed the U.S. Department of Agriculture-Soil Conservation Service (USDA-SCS) (2023) database to identify soil map units within the study area. **Table 3** summarizes the soil map units within the study area. **Figure 3** displays the soil units mapped within the study area. **Figure 4** displays the geologic units within the study area.

4.2.2 Hydrology

Indicators of wetland hydrology were noted, such as the presence of surface soil cracks, inundation visible on aerial imagery, the presence of a biotic crust, remnants of aquatic invertebrates, and oxidized rhizospheres along living roots. It should be noted that some wetlands in the Arid West

Table 3. Soil Map Units within the Vista Ranch Project Site, Fresno County, CA.

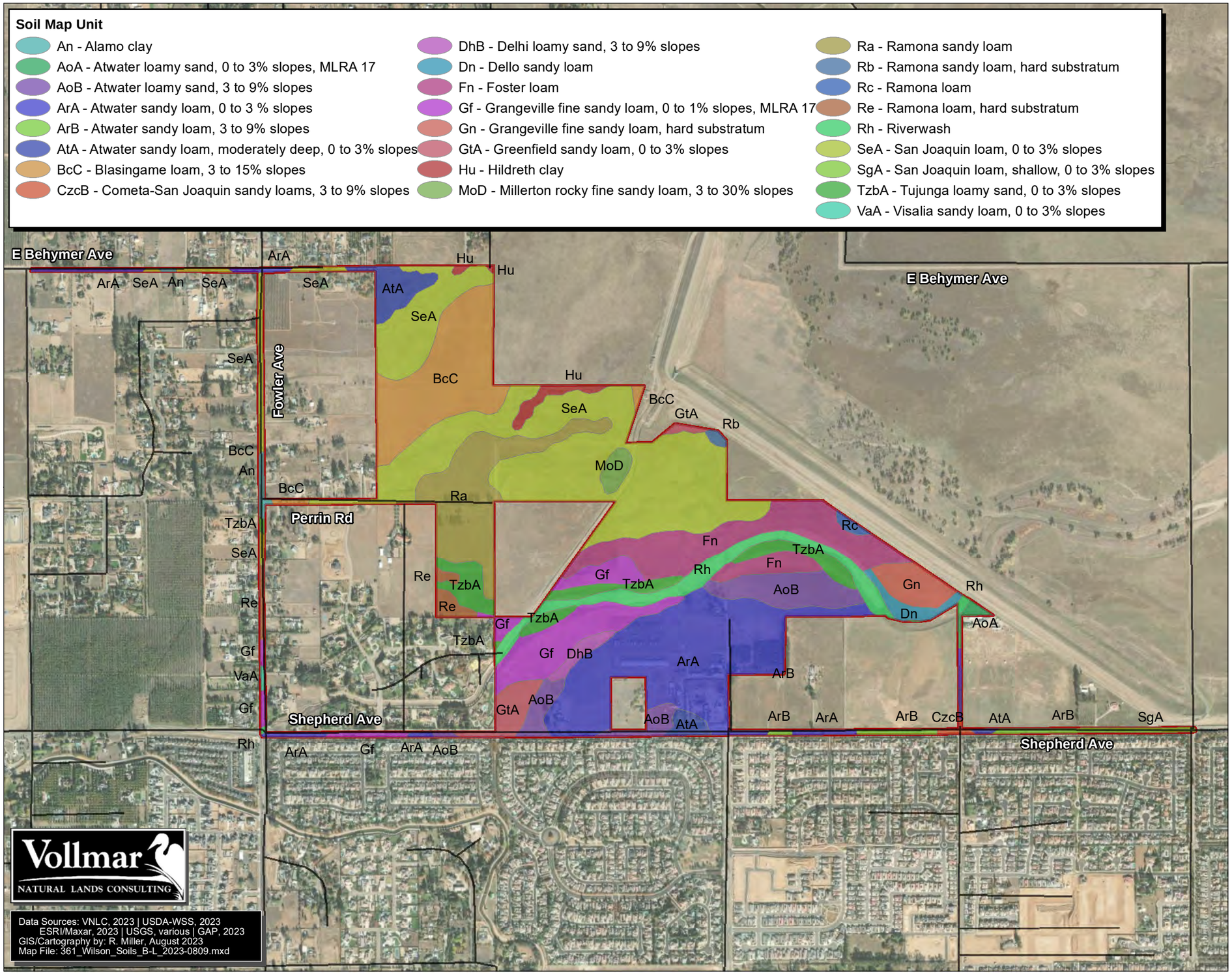
Soil Map Unit	Soil Map Unit Name	Acres in Study Area	Percent of Study Area
SeA	San Joaquin loam, 0 to 3% slopes	105.3	26.47%
ArA	Atwater sandy loam, 0 to 3 % slopes	66.9	16.84%
BcC	Blasingame loam, 3 to 15% slopes	35.9	9.02%
Fn	Foster loam	34.5	8.69%
Ra	Ramona sandy loam	28.1	7.06%
Gf	Grangeville fine sandy loam, 0 to 1% slopes, MLRA 17	24.8	6.25%
AoB	Atwater loamy sand, 3 to 9% slopes	19.6	4.93%
TzbA	Tujunga loamy sand, 0 to 3% slopes	16.3	4.10%
Rh	Riverwash	16.0	4.02%
AtA	Atwater sandy loam, moderately deep, 0 to 3% slopes	9.8	2.47%
Gn	Grangeville fine sandy loam, hard substratum	7.2	1.81%
GtA	Greenfield sandy loam, 0 to 3% slopes	6.7	1.67%
Re	Ramona loam, hard substratum	3.9	0.98%
Dn	Dello sandy loam	3.6	0.90%
ArB	Atwater sandy loam, 3 to 9% slopes	3.5	0.89%
Hu	Hildreth clay	3.3	0.83%
MoD	Millerton rocky fine sandy loam, 3 to 30% slopes	2.8	0.71%
DhB	Delhi loamy sand, 3 to 9% slopes	2.6	0.66%
An	Alamo clay	1.4	0.36%
SgA	San Joaquin loam, shallow, 0 to 3% slopes	1.4	0.34%
AoA	Atwater loamy sand, 0 to 3% slopes, MLRA 17	1.1	0.29%
Rc	Ramona loam	1.0	0.26%
Rb	Ramona sandy loam, hard substratum	0.7	0.19%
CzcB	Cometa-San Joaquin sandy loams, 3 to 9% slopes	0.7	0.17%
VaA	Visalia sandy loam, 0 to 3% slopes	0.3	0.09%

FIGURE 3
Soil Units Map

Vista Ranch Development
Fresno County, California

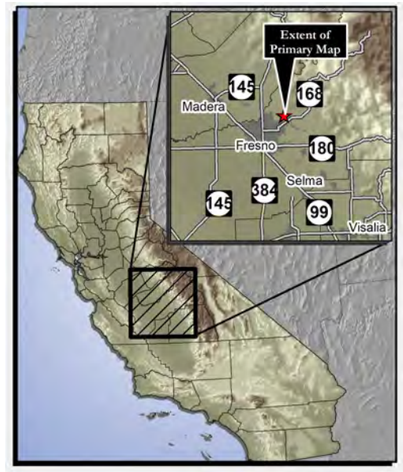
Soil Map Unit

- An - Alamo clay
- AoA - Atwater loamy sand, 0 to 3% slopes, MLRA 17
- AoB - Atwater loamy sand, 3 to 9% slopes
- ArA - Atwater sandy loam, 0 to 3 % slopes
- ArB - Atwater sandy loam, 3 to 9% slopes
- AtA - Atwater sandy loam, moderately deep, 0 to 3% slopes
- BcC - Blasingame loam, 3 to 15% slopes
- CzcB - Cometa-San Joaquin sandy loams, 3 to 9% slopes
- DhB - Delhi loamy sand, 3 to 9% slopes
- Dn - Dello sandy loam
- Fn - Foster loam
- Gf - Grangeville fine sandy loam, 0 to 1% slopes, MLRA 17
- Gn - Grangeville fine sandy loam, hard substratum
- GtA - Greenfield sandy loam, 0 to 3% slopes
- Hu - Hildreth clay
- MoD - Millerton rocky fine sandy loam, 3 to 30% slopes
- Ra - Ramona sandy loam
- Rb - Ramona sandy loam, hard substratum
- Rc - Ramona loam
- Re - Ramona loam, hard substratum
- Rh - Riverwash
- SeA - San Joaquin loam, 0 to 3% slopes
- SgA - San Joaquin loam, shallow, 0 to 3% slopes
- TzbA - Tujunga loamy sand, 0 to 3% slopes
- VaA - Visalia sandy loam, 0 to 3% slopes



Legend

- Selected Local Road
- Study Area (397.5 ac.)



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1:13,500
(1 in. = 1,125 feet. at Tabloid Layout)

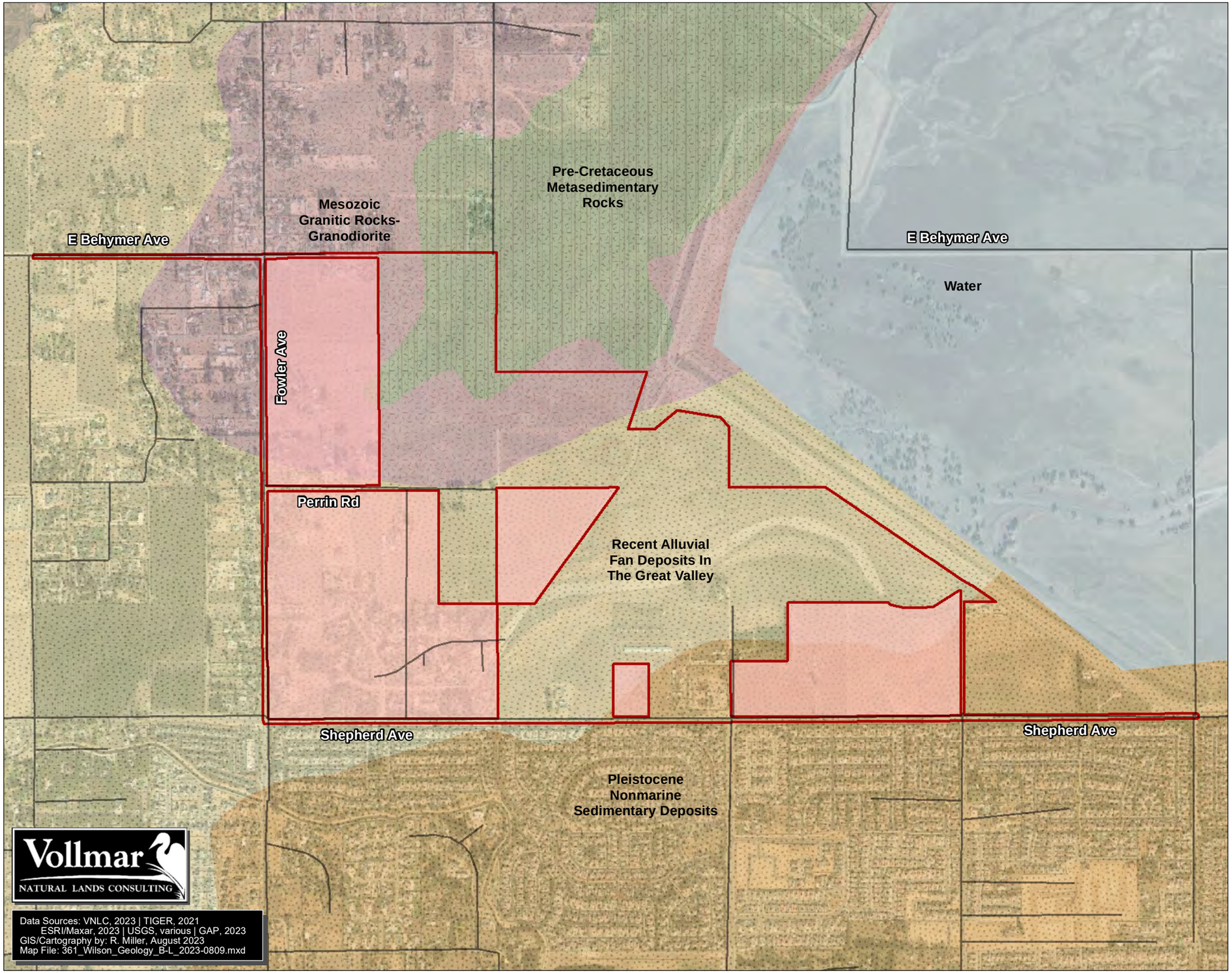
0 200 400 800 Meters
0 500 1,000 2,000 Feet

Vollmar
NATURAL LANDS CONSULTING

Data Sources: VNLC, 2023 | USDA-WSS, 2023
ESRI/Maxar, 2023 | USGS, various | GAP, 2023
GIS/Cartography by: R. Miller, August 2023
Map File: 361_Wilson_Soils_B-L_2023-0809.mxd

FIGURE 4
Geologic Units Map

Vista Ranch Development
Fresno County, California

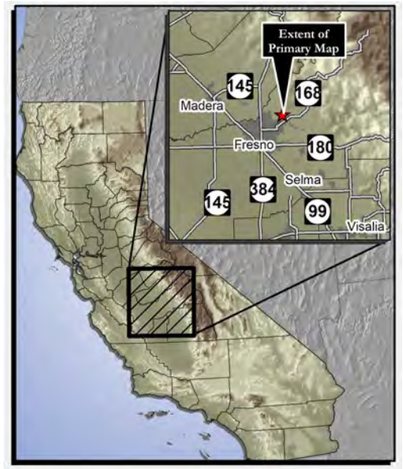


Legend

- Selected Local Road
- Study Area (397.5 ac.)
- Not Part of Study Area

Geological Map Unit

- Qf (Recent Alluvial Fan Deposits In The Great Valley)
- Qc (Pleistocene Nonmarine Sedimentary Deposits)
- gr^g (Mesozoic Granitic Rocks- Granodiorite)
- ms (Pre-Cretaceous Metasedimentary Rocks)
- Water



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1:13,500
(1 in. = 1,125 feet. at Tabloid Layout)

0 200 400 800 Meters

0 500 1,000 2,000 Feet

Vollmar
NATURAL LANDS CONSULTING

Data Sources: VNLC, 2023 | TIGER, 2021
ESRI/Maxar, 2023 | USGS, various | GAP, 2023
GIS/Cartography by: R. Miller, August 2023
Map File: 361_Wilson_Geology_B-L_2023-0809.mxd

region periodically lack indicators of wetland hydrology. If the site is in a geomorphic position where a wetland could occur, but the site visit was during the dry season (i.e., June to October) following a period of 2-3 months of below normal rainfall or was during a year of an unusually low winter snowpack, indicators of wetland hydrology might not be present. According to the Arid West Supplement, "under these conditions, a site that contains hydric soils and hydrophytic vegetation and no evidence of hydrologic manipulation should be considered a wetland" (USACE 2006). The delineation was conducted during the summer following an exceptionally rainy winter and spring as discussed above.

4.3.3 Vegetation

At each delineation data point, all herbaceous plant species within a five-foot radius were identified and a visual estimate of percent cover for each species was recorded. No trees or shrub species were present at any of the delineation data points. Plant species cover estimations were calibrated using CNPS percent cover templates (CNPS 2001).

The indicator status of each species was then checked using the most recent USACE National Wetland Plant List—Version 3.5 (Lichvar et al. 2020). Indicator status categories are as follows:

- OBL = obligate wetland; >99% probability of occurring in a wetland
- FACW = facultative wetland; 67%-99% probability of occurring in a wetland
- FAC = facultative; 33%-67% probability of occurring in a wetland
- FACU = facultative upland; 1%-33% probability of occurring in a wetland
- UPL = obligate upland; <1% probability of occurring in a wetland
- NL = not listed (plants not listed in Lichvar et al. [2020], including some known to occur occasionally or primarily in wetlands)

The wetland vegetation criterion is met when the vegetation passes the dominance test: greater than 50 percent of the dominant plants are designated as OBL, FACW, or FAC wetland indicators. The USACE defines dominant plant species as those that, when included in descending order of their percent cover, together sum up to 50 percent of the total cover in their stratum (tree, sapling/shrub/subshrub, herb, or woody vine). In addition, all species with at least 20 percent coverage of the relative cover within a given stratum are always counted as dominants. All scientific and common plant names correspond to Baldwin et al. (2023) and/or the Calflora database (2023). If the dominance test is not passed, vegetation can be considered hydrophytic if it meets the requirements of the prevalence index, morphological adaptations, or problematic wetland situations (USACE 2006).

4.3.4 Wetland Mapping

For features determined to be potential jurisdictional aquatic resources, Mr. Vollmar walked the boundaries and mapped them using a professional GPS unit with submeter accuracy (Trimble Geo

7x or GeoXH 6000). Data files were post-processed for increased accuracy and exported for analysis in a Geographic Information System (GIS).

5.0 RESULTS

5.1 Overview

The delineation identified a total of 1.924 acres of aquatic resources within the study area that may be subject to federal jurisdiction. These include 0.278 acre of potential jurisdictional Other Waters and 1.646 acres of potential jurisdictional Wetlands (**Table 4** and **Figures 5** and **5A-5H**, below). In addition, the delineation identified one 1.129-acre agricultural pond constructed entirely in uplands. This feature may not meet the criteria for a jurisdictional water of the U.S.

The potential federal jurisdictional Other Waters consist of the open water (unvegetated) areas within the Big Dry Creek Spillway canal and the culvert where Dry Creek crosses beneath the intersection of N Fowler Ave. and E Shepherd Ave. The unvegetated portion of the Big Dry Creek Spillway canal is concentrated in the central and southern portions of the canal within the site. The extent of open water likely changes from year to year and season to season. The mapping represents the extent of open water at the time of the field survey.

The potential federal jurisdictional Wetlands include three types: canal wetlands, depressional wetland basins, and stockponds. The canal wetlands consist of the vegetated portions of the spillway canal exhibiting wetland conditions (wetland soils, hydrology, and vegetation). As with the Other Waters, the extent of Wetlands within the canal likely changes from year to year and season to season. The mapping represents the extent of wetlands at the time of the field survey. The depressional wetland basins consist of basin features that exhibited wetland conditions (wetland soils, hydrology, and vegetation). A total of 22 individual features of this type were delineated within the study area. These features are concentrated in the northeast between the abandoned Dry Creek channel and the toe of the Big Dry Creek Reservoir berm but also in a few areas in the center and northwest of the site. The stockponds consist of three constructed features in a localized area in the northwest of the site.

The feature which may not be subject to federal jurisdiction is an agricultural tailwater pond. It is located immediately outside of the eastern berm confining the Big Dry Creek Spillway canal. This feature exhibited wetland conditions (wetland soils, hydrology, and vegetation) at the time of the 2023 field survey. However, earlier studies of the site that did not take place in such wet years found that the same feature lacked all three factors.

The delineated features are described in more detail below including characteristic soils, hydrology, and vegetation. **Table 4** provides a summary of the delineated features by type. **Figure 5** is a site overview map showing the locations of all delineated features. **Figures 5A-5H** are submaps of on different sections of the study area with delineated features. These figures show the boundaries of the delineated features as well as locations of delineation data points. **Appendix A**

Table 4. Potentially Jurisdictional Aquatic Resources, Vista Ranch Project Site, Fresno County, CA.

Feature ID	Classification and Location of Delineated Features			Acreage	Associated Delin. Data Points
	NWI Code	Latitude	Longitude		
Other Waters					
Canal/Culvert (Non-Wetland Channel)					
NWC-1	R4	36.869438	-119.67422	0.210	P18 (OW)
NWC-2	R4	36.866554	-119.68399	0.068	
Total Canal/Culvert (Non-Wetland Channel)				**0.278**	
Wetlands					
Canal (Wetland Channel & Fringing Margin)					
C-1-A	R4	36.874423	-119.669766	0.417	
C-1-B	R4	36.871462	-119.672261	0.004	
C-1-C	R4	36.869635	-119.67398	0.117	P31 (W); P30 (U)
C-1-D	R4	36.869425	-119.674238	0.003	
C-1-E	R4	36.869629	-119.67403	0.001	
Total Canal (Wetland Channel & Fringing Margin)				**0.542**	
Depressional Wetland Basin					
DWB-1	PEM2	36.8794	-119.678908	0.027	P29 (W); P28 (U)
DWB-2	PEM2	36.87593	-119.669705	0.060	P20 (W); P19 (U)
DWB-3	PEM2	36.873887	-119.66604	0.022	P14 (W); P13 (U)
DWB-4	PEM2	36.873014	-119.665824	0.018	
DWB-5	PEM2	36.873197	-119.665526	0.015	
DWB-6	PEM2	36.87354	-119.664022	0.050	
DWB-7	PEM2	36.873383	-119.663196	0.005	
DWB-8	PEM2	36.87335	-119.662709	0.045	P10 (W); P09 (U)
DWB-9	PEM2	36.873136	-119.662499	0.003	
DWB-10	PEM2	36.873092	-119.662369	0.012	
DWB-11	PEM2	36.872948	-119.662154	0.012	
DWB-12	PEM2	36.872587	-119.661504	0.042	
DWB-13	PEM2	36.872429	-119.660853	0.023	P04 (W); P01-03 (U)
DWB-14	PEM2	36.872512	-119.66020	0.023	
DWB-15	PEM2	36.872488	-119.660075	0.001	
DWB-16	PEM2	36.872437	-119.660113	0.005	
DWB-17	PEM2	36.871805	-119.659027	0.001	
DWB-18	PEM2	36.871748	-119.658791	0.014	P08 (W); P07 (U)
DWB-19	PEM2	36.87128	-119.658567	0.070	P06 (W); P05 (U)
DWB-20	PEM2	36.871193	-119.658211	0.050	
DWB-21	PEM2	36.875991	-119.674751	0.016	P33 (W); P32 (U)
DWB-22	PEM2	36.876146	-119.673879	0.045	P35 (W); P34 (U)
Total Depressional Wetland Basin				**0.559**	
Stockpond					
S-1	PEM2	36.879188	-119.679239	0.111	P26 (W); P25 (U)
S-2	PEM2	36.879948	-119.678203	0.390	P24 (W); P23 (U)

Feature ID	Classification and Location of Delineated Features			Acreage	Associated Delin. Data Points
	NWI Code	Latitude	Longitude		
S-3	PEM2	36.879661	-119.677304	0.044	
Total Stockpond				**0.545**	
Total Wetlands				**1.646**	

provides representative photographs of site habitats and features. **Appendix B** lists all plant species observed within the study area along with the wetland indicator status of each species. **Appendix C** provides copies of all wetland delineation data sheets. **Appendix D** provides the location of each delineation data point. **Appendix E** is an aquatic resources spreadsheet. **Appendix F** provides imagery of the flood irrigation area and pond described above.

5.2 Potential Jurisdictional Aquatic Resources

5.2.1 Other Waters: Canal (Non-wetland Channel)

The southern 0.210 acre of the Big Dry Creek Reservoir Spillway canal (NWC-1) and the culvert where Dry Creek passes beneath the intersection of N Fowler Ave. and E Shepherd Ave. (NWC-2) were delineated as non-wetland channel. These features are classified as Other Waters, with a Cowardin Code of R4, which designates intermittent, riverine features. Other Waters are either unvegetated or sparsely vegetated (<5% absolute cover) but display hydric soils and wetland hydrology indicators. NWC-2 is confined within a concrete box culvert, and lacks vegetation and soils. In total, 0.278 acre of Non-wetland channel were mapped in the study area.

Vegetation. NWC-1 conspicuously lacks any significant wetland vegetation. The steeply eroded sides of NWC-1 suggest that any previous vegetation that may have existed was blown out by recent heavy flows through the channel due to the high seasonal rains (see photo in **Appendix A**).

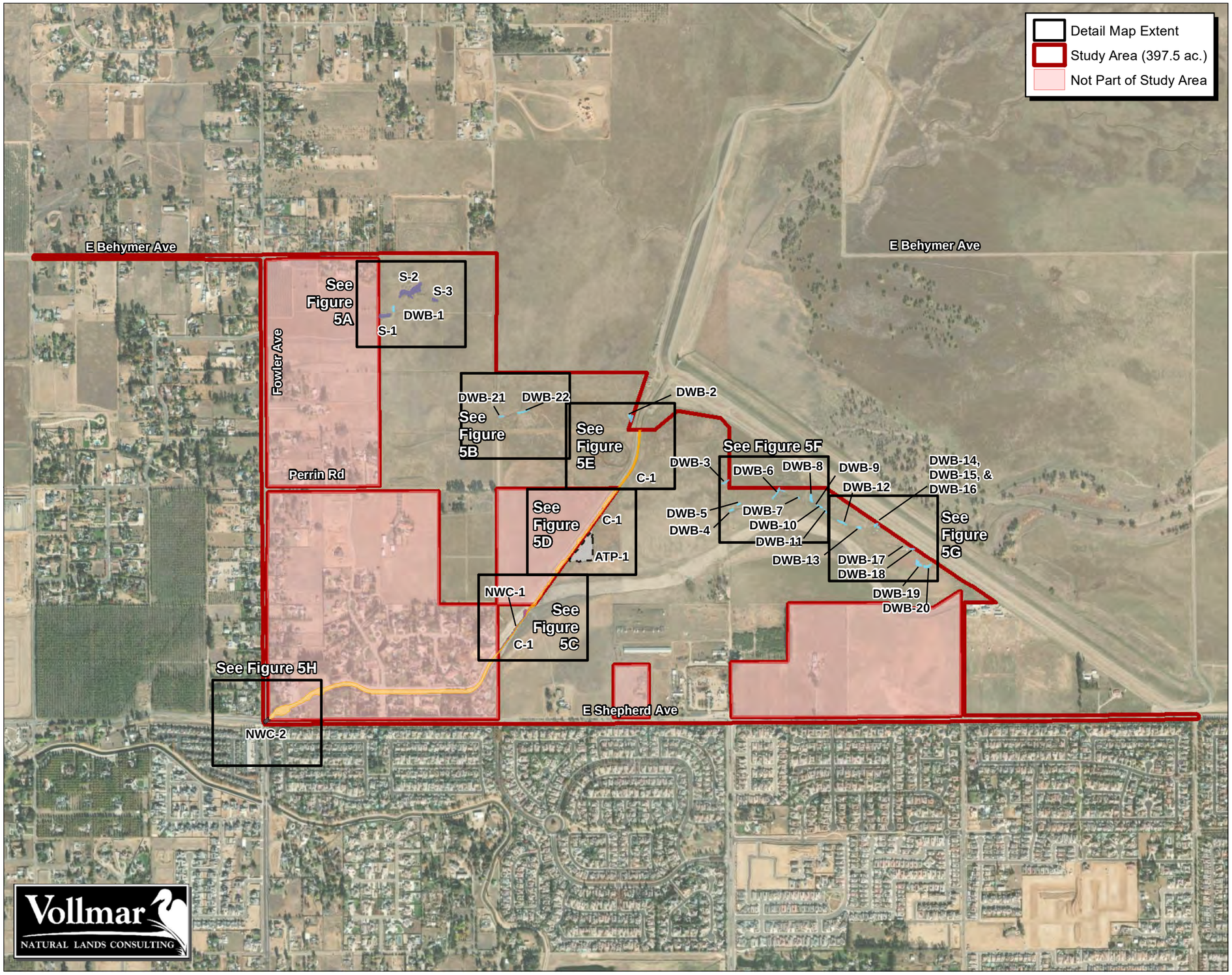
Soil. NWC-1 occurs within Riverwash and Tujunga loamy sand, 0-3% slopes, soil units. The soils were saturated to inundated within 12 inches of the surface at the time of the field survey indicating hydric soil conditions.

Hydrology. Wetland hydrology indicators observed within NWC-1 included the presence of open water. During a separate biological survey on May 10, 2023, VNLC Biologists Rachel Miller and Maria Vollmar observed the entire Big Dry Creek Reservoir Spillway, including the portion delineated as NWC-1, inundated with water to six inches below the top of bank.

Adjacent Upland. Uplands adjacent to NWC-1 are characterized by upland [UPL or NL] and facultative upland [FACU] vegetation dominated by prickly lettuce (*Lactuca serriola*) [FACU], common sunflower (*Helianthus annus*) [FACU], ripgut brome (*Bromus diandrus*) [NL], and soft chess (*Bromus hordeaceus*) [FACU]. The upland soils adjacent to feature NWC-1 were composed of coarse sand with a matrix of 10YR 4/4 and no redox features. No hydrology indicators were observed within the uplands adjacent to NWC-1.

FIGURE 5. Overview Map
Potential Jurisdictional Aquatic Resources Map

Vista Ranch Development
Fresno County, California



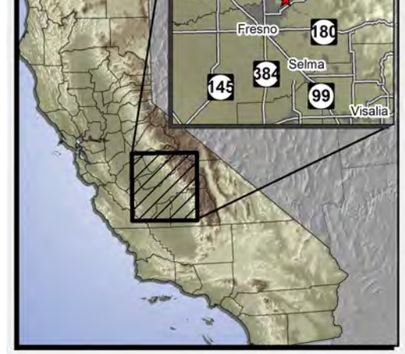
Legend

Potential Jurisdictional Aquatic Resources

- Other Waters; Canal (Non-Wetland Channel) (0.210 ac.)
- Wetland; Canal (Wetland Channel and Fringing Margin) (0.542 ac.)
- Wetland; Depressional Wetland Basin (0.559 ac.)
- Wetland; Stockpond (0.545 ac.)
- Canal (Outside Study Area) (0.858
- Other Waters; Culvert (Non-Wetland Channel) (0.068 ac.)

Features Which May Not be Jurisdictional

- Agricultural Tailwater Pond (1.129 ac.)



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1:13,500
(1 in. = 1,125 ft. at Tabloid Layout)

0 200 400 800 Meters

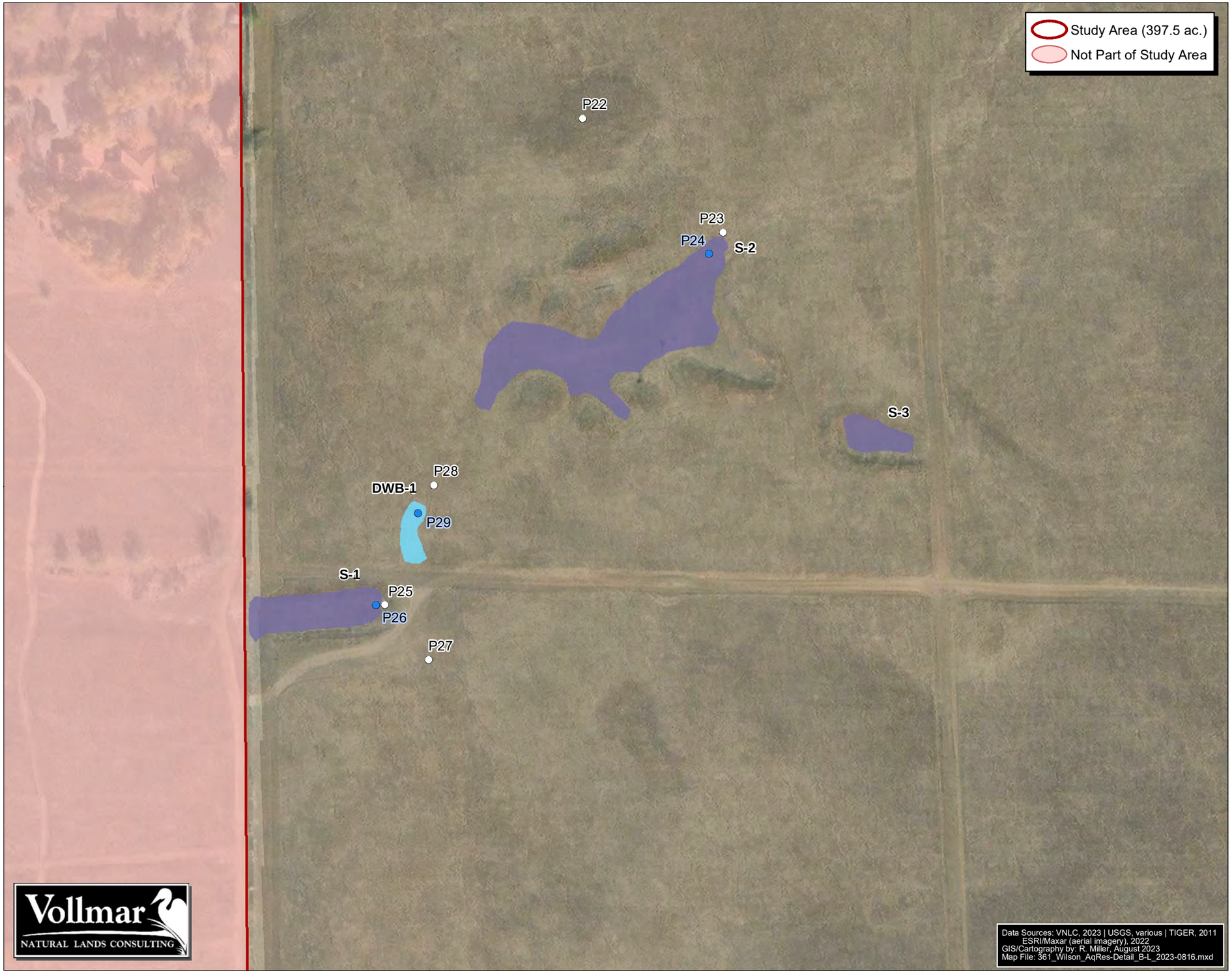
0 500 1,000 2,000 Feet

Data Sources: VNLC, 2023 | USGS, various | TIGER, 2011
ESRI/Maxar (aerial imagery), 2022
GIS/Cartography by: E. Smith and R. Miller, August 2023
Map File: 361_Wilson_AqRes-Over_B-L_2023-0816.mxd

Vollmar
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FIGURE 5A. Detail Potential Jurisdictional Aquatic Resources Map

Vista Ranch Development
Fresno County, California



Legend

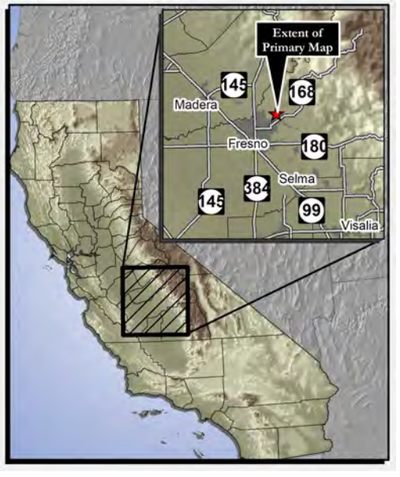
Wetland Delineation Data Point

- Delineation Data Point (Upland)
- Delineation Data Point (Wetland)

Potential Jurisdictional Aquatic Resources*

- Wetland; Depressional Wetland Basin (0.559 ac.)
- Wetland; Stockpond (0.545 ac.)

*Note: acreages shown are for entire study area



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1:1,500
(1 in. = 125 ft. at Tabloid Layout)

0 12.5 25 50 Meters
0 50 100 200 Feet

Data Sources: VNLC, 2023 | USGS, various | TIGER, 2011
ESRI/Maxar (aerial imagery), 2022
GIS/Cartography by: R. Miller, August 2023
Map File: 361_Wilson_AqRes-Detail_B-L_2023-0816.mxd

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FIGURE 5B. Detail Potential Jurisdictional Aquatic Resources Map

Vista Ranch Development
Fresno County, California

Study Area (397.5 ac.)
Not Part of Study Area

DWB-22
P34
P35
DWB-21
P32
P33

Legend

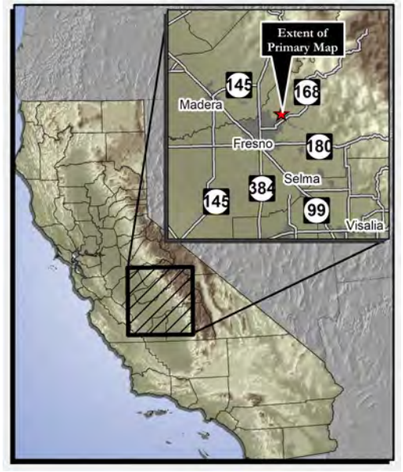
Wetland Delineation Data Point

- Delineation Data Point (Upland)
- Delineation Data Point (Wetland)

Potential Jurisdictional Aquatic Resources*

- Wetland; Depressional Wetland Basin (0.559 ac.)

*Note: acreages shown are for entire study area



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1:1,500
(1 in. = 125 ft. at Tabloid Layout)

0 12.5 25 50 Meters
0 50 100 200 Feet

Vollmar NATURAL LANDS CONSULTING

Data Sources: VNLC, 2023 | USGS, various | TIGER, 2011
ESRI/Maxar (aerial imagery), 2022
GIS/Cartography by: R. Miller, August 2023
Map File: 361_Wilson_AqRes-Detail_B-L_2023-0816.mxd

FIGURE 5C. Detail Potential Jurisdictional Aquatic Resources Map

Vista Ranch Development
Fresno County, California

Study Area (397.5 ac.)
Not Part of Study Area

P17
P31
C-1-C
P30
P18
C-1-E
C-1-D
NWC-1

Data Sources: VNLC, 2023 | USGS, various | TIGER, 2011
ESRI/Maxar (aerial imagery), 2022
GIS/Cartography by: R. Miller, August 2023
Map File: 361_Wilson_AqRes-Detail_B-L_2023-0816.mxd

Vollmar NATURAL LANDS CONSULTING

Legend

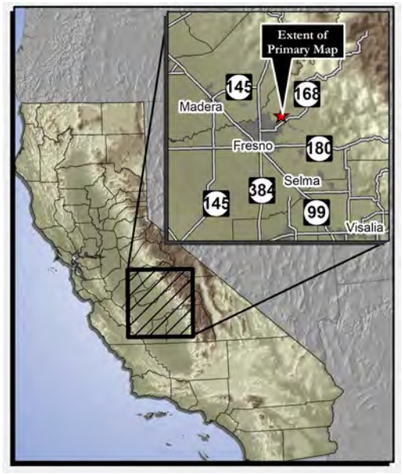
Wetland Delineation Data Point

- Delineation Data Point (Upland)
- Delineation Data Point (Wetland)

Potential Jurisdictional Aquatic Resources*

- Other Waters; Canal (Non-Wetland Channel) (0.210 ac.)
- Wetland; Canal (Wetland Channel and Fringing Margin) (0.542 ac.)
- Canal (Outside Study Area) (0.858 ac.)

*Note: acreages shown are for entire study area



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1:1,500
(1 in. = 125 ft. at Tabloid Layout)

0 12.5 25 50 Meters
0 50 100 200 Feet



FIGURE 5D. Detail Potential Jurisdictional Aquatic Resources Map

Vista Ranch Development
Fresno County, California

Legend

Wetland Delineation Data Point

- Delineation Data Point (Upland)
- Delineation Data Point (Wetland)
- Culvert

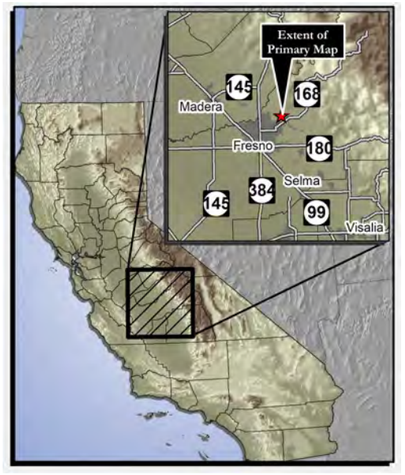
Potential Jurisdictional Aquatic Resources*

- Wetland; Canal (Wetland Channel and Fringing Margin) (0.542 ac.)
- Canal (Outside Study Area) (0.858 ac.)

Features Which May Not be Jurisdictional

- Agricultural Tailwater Pond (1.129 ac.)

*Note: acreages shown are for entire study area



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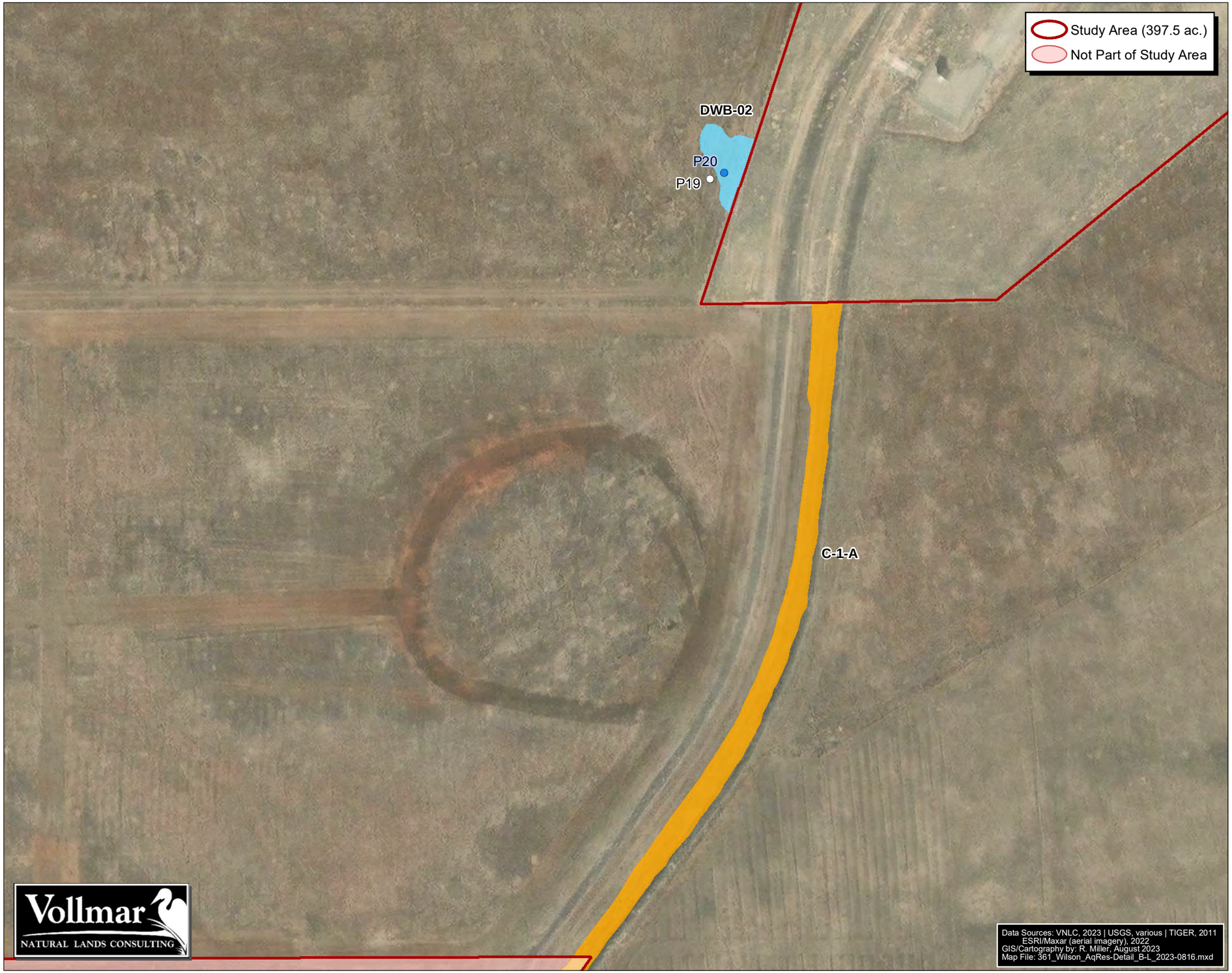
1:1,500
(1 in. = 125 ft. at Tabloid Layout)

0 12.5 25 50 Meters
0 50 100 200 Feet

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FIGURE 5E. Detail Potential Jurisdictional Aquatic Resources Map

Vista Ranch Development
Fresno County, California



Legend

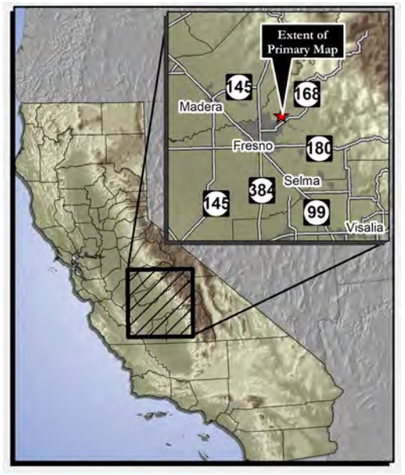
Wetland Delineation Data Point

- Delineation Data Point (Upland)
- Delineation Data Point (Wetland)

Potential Jurisdictional Aquatic Resources*

- Wetland; Canal (Wetland Channel and Fringing Margin) (0.542 ac.)
- Wetland; Depressional Wetland Basin (0.559 ac.)
- Canal (Outside Study Area) (0.858 ac.)

*Note: acreages shown are for entire study area



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1:1,500
(1 in. = 125 ft. at Tabloid Layout)

0 12.5 25 50 Meters
0 50 100 200 Feet

Vollmar NATURAL LANDS CONSULTING

Data Sources: VNLC, 2023 | USGS, various | TIGER, 2011
ESRI/Maxar (aerial imagery), 2022
GIS/Cartography by: R. Miller, August 2023
Map File: 361_Wilson_AqRes-Detail_B-L_2023-0816.mxd

FIGURE 5F. Detail Potential Jurisdictional Aquatic Resources Map

Vista Ranch Development
Fresno County, California

Study Area (397.5 ac.)
Not Part of Study Area

DWB-03
P13
P14
DWB-06
DWB-07
P11
P09
P10
DWB-08
DWB-09
DWB-10
DWB-11
DWB-05
P12
DWB-04

Legend

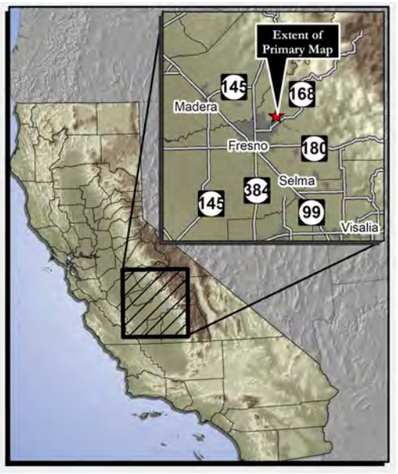
Wetland Delineation Data Point

- Delineation Data Point (Upland)
- Delineation Data Point (Wetland)

Potential Jurisdictional Aquatic Resources*

- Wetland; Depressional Wetland Basin (0.559 ac.)

*Note: acreages shown are for entire study area



N
W E
S

1:1,500
(1 in. = 125 ft. at Tabloid Layout)

0 12.5 25 50 Meters
0 50 100 200 Feet

Vollmar NATURAL LANDS CONSULTING

Data Sources: VNLC, 2023 | USGS, various | TIGER, 2011
ESRI/Maxar (aerial imagery), 2022
GIS/Cartography by: R. Miller, August 2023
Map File: 361_Wilson_AqRes-Detail_B-L_2023-0816.mxd

FIGURE 5G. Detail Potential Jurisdictional Aquatic Resources Map

Vista Ranch Development
Fresno County, California

Study Area (397.5 ac.)
Not Part of Study Area

DWB-12
DWB-13
DWB-14
DWB-15
DWB-16
DWB-17
DWB-18
DWB-19
DWB-20
P01
P02
P03
P04
P05
P06
P07
P08
P21

Legend

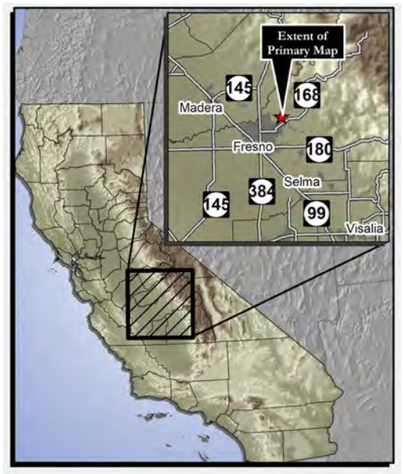
Wetland Delineation Data Point

- Delineation Data Point (Upland)
- Delineation Data Point (Wetland)

Potential Jurisdictional Aquatic Resources*

- Wetland; Depressional Wetland Basin (0.559 ac.)

*Note: acreages shown are for entire study area



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1:1,500
(1 in. = 125 ft. at Tabloid Layout)

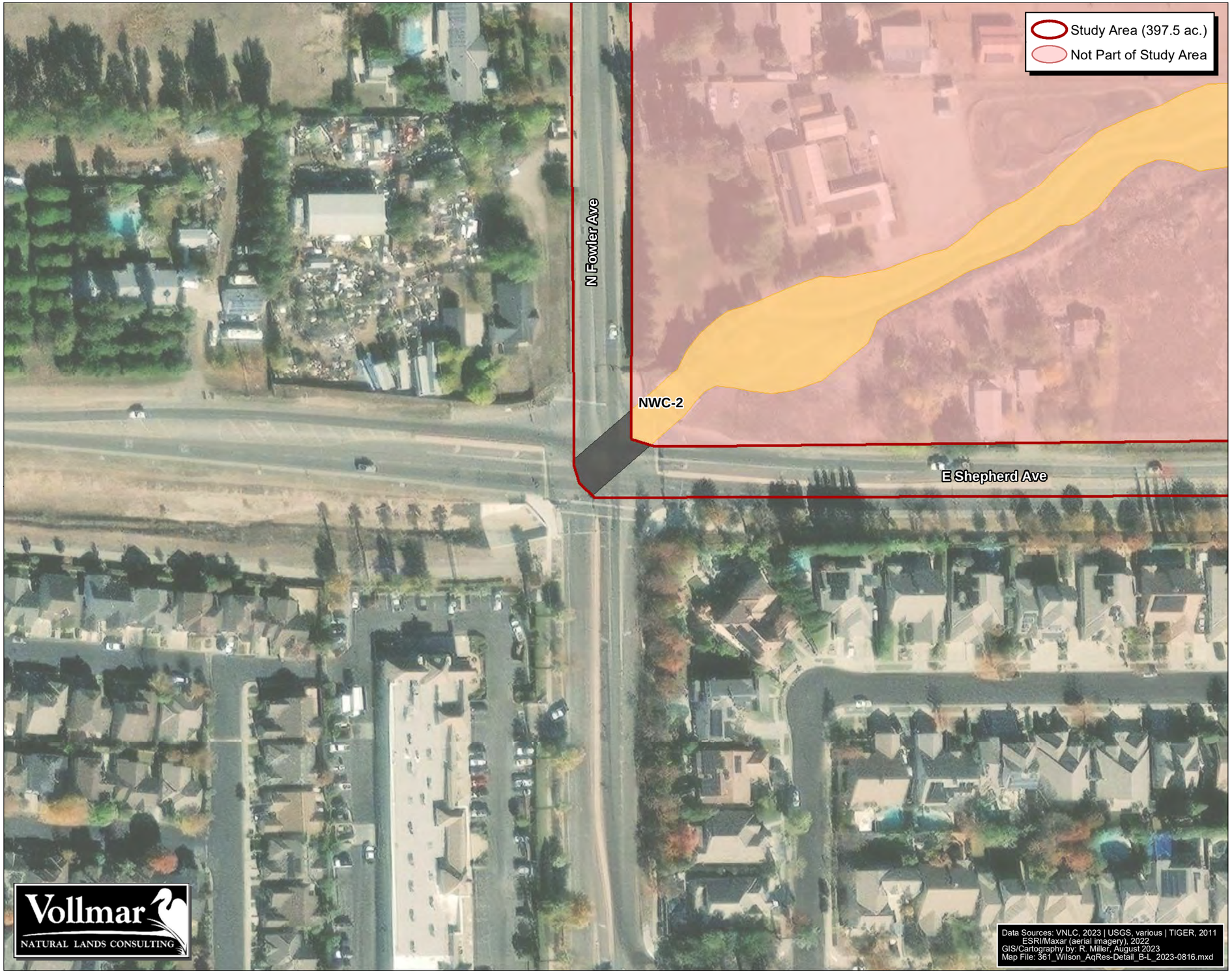
0 12.5 25 50 Meters
0 50 100 200 Feet

Data Sources: VNLC, 2023 | USGS, various | TIGER, 2011
ESRI/Maxar (aerial imagery), 2022
GIS/Cartography by: R. Miller, August 2023
Map File: 361_Wilson_AqRes-Detail_B-L_2023-0816.mxd

Vollmar
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FIGURE 5H. Detail Potential Jurisdictional Aquatic Resources Map

Vista Ranch Development
Fresno County, California

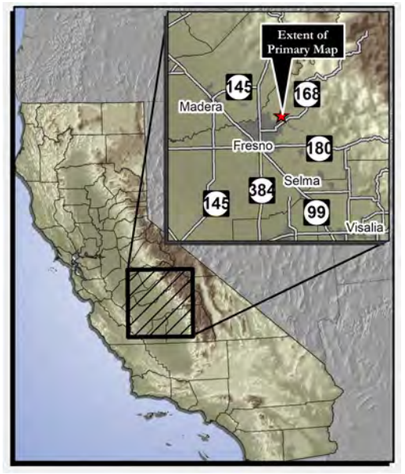


Legend

Potential Jurisdictional Aquatic Resources*

- Canal (Outside Study Area) (0.858 ac.)
- Other Waters; Culvert (Non-Wetland Channel) (0.068 ac.)

*Note: acreages shown are for entire study area



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(1 in. = 125 ft. at Tabloid Layout)

0 12.5 25 50 Meters
0 50 100 200 Feet

5.2.2 Wetland: Canal (Wetland Channel and Fringing Wetland Margin)

A total of 0.542 acre of canal wetlands (wetland channel and fringing wetland margin) were delineated within the Big Dry Creek Reservoir Spillway canal within the study area. This feature is classified as NWI Code R4SB7, which designates a riverine feature with intermittent flows and a vegetated streambed. The study area boundary along the central section of the canal runs along the eastern bank (with areas to the west outside the study area). As a result, the canal wetland habitat within the study area is synthetically split into subsections as it crosses in and out of the study area along this boundary. Five different polygons were mapped (C-1-A though C-1-E) with a combined area of 0.542 acre within the study (as shown on the figures and in **Table 4**).

Vegetation. Vegetation within feature C-1 was dominated by wetland plants including burhead (*Echinodorus berteroi*) [OBL], rough cocklebur (*Xanthium strumarium*) [FAC], tall flatsedge (*Cyperus eragrostris*) [FACW] and common spikerush (*Eleocharis macrostachya*) [OBL].

Soil. Feature C-1 occurs within several mapped soil units. These include San Joaquin loam, 0-3% slopes, Grangeville fine sandy loam, 0-1% slopes, Riverwash, and Tujunga loamy sand, 0-3% slopes. Soils examined within C-1 were composed of sandy loam with a matrix of 10YR 4/2 with 10% distinct redox manganese (Mn) concentrations (10YR 2/1) occurring in the matrix. This soil qualifies as a hydric soil as F3 Depleted Matrix.

Hydrology. Wetland hydrology indicators observed within C-1 included surface soil cracks (B6), a biotic crust (B12), water-stained leaves (B9), and observed inundation and saturation.

Adjacent Upland. The uplands adjacent to feature C-1 had soil, hydrology, and vegetation characteristics similar to those recorded for uplands adjacent to the NWC-1.

5.2.3 Wetland: Depressional Wetland Basins

A total of 0.559 acre of depressional wetland basins were delineated within the study area. These features (DWB-1 through DWB-22) are classified as NWI Code PEM2, which designates nonpersistent (seasonal) palustrine features with emergent vegetation. Most of these delineated features are located in the northeast of the site between the abandoned Dry Creek channel and the toe of the Big Dry Creek Reservoir berm. One additional feature (DWB-2) is located near the spillway on the west side of the canal. Two additional features are located near the center of the site (DWB-21 and 22) and another is located in the northwest near the stockponds (DWB-1).

The delineated depressional wetland basins in the northeast (DWB-3 through DWB-20) are situated within a series of apparently remnant swales on the historic floodplain of Dry Creek. The soils in this area are primarily Grangeville fine sandy loam and Foster loam (**Figure 3**) both of which are floodplain soils lacking a subsurface hardpan. The soils in the northwest of this area and some areas further to the west are primarily San Joaquin loam which has a subsurface hardpan. These soils differences appear to influence the water-holding capacity of depressional basins and

the extent of wetland habitat within the swales in this area. The swales and associated depressional basins on the Grangeville and Foster soils appear prone to relatively rapid draining after rain events. The heavy rains in the winter and spring of 2023 caused extensive and prolonged flooding of the swales that was considered atypical. During an April 17, 2023 site visit (following heavy March rains) by Mr. Vollmar, the swales were all flooded with some features ponded in excess of two feet. During a follow up site visit on May 16, 2023, nearly all of the swales were drained with water remaining in only the lowest portion of some of the swales – most of which were later delineated as depressional wetland basins. This quick drawdown reflects the underlying soils that lack a subsurface hardpan and are thus moderately to well drained.

The extensive flooding seems to have increased the extent of wetland vegetation observed within the swales during the delineation field work. Careful examination of the soils within the swales showed that many areas dominated by moderate wetland vegetation (FAC and FACW species) lacked hydric soils and were thus delineated as upland (non-wetland) habitats since they didn't exhibit all three wetland parameters (wetland soils, hydrology, and vegetation). It is assumed that during a more typical (average) rain year, these swales would be prone to only temporary inundation or saturation following rain events and would generally lack clear wetland vegetation except in the deepest basins within the swales. Also, during heavy rain years that fill the Big Dry Creek Reservoir, water tends to seep from the foot of the levee bordering the site, also enhancing the extent and duration of ponding within the swales during heavy rain years. The soil, hydrology, and vegetation conditions observed during the field surveys are discussed in more detail below, including within delineated depressional wetland basins as well as areas around the margins of the delineated features with moderate wetland vegetation and hydrology but lacking hydric soils.

Vegetation. Common dominant vegetation within the delineated depressional wetland basins included common lippia (*Phyla nodiflora*) [FACW], swamp pricklegrass (*Crypsis schoenoides*) [FACW] and saltgrass (*Distichlis spicata*) [FAC]. Common subdominant species included Mediterranean barley (*Hordeum marinum* ssp. *gussoneanum*) [FAC], common vernal pool allocarya (*Plagiobothrys stipitatus* var. *micranthus*) [FACW], great valley button celery (*Eryngium castrense*) [OBL], hyssop loosestrife (*Lythrum hyssopifolia*), and Italian rye grass (*Festuca perennis*) [FAC]. Many of the basins had a low cover of vegetation and became colonized by a upland species once they dried down such as pigweed amaranth (*Amaranthus albus*) [FACU], common sunflower (*Helianthus annuus*) [FACU], seaside heliotrope (*Heliotropium curassavicum*) [FACU], lamb's quarter's (*Chenopodium album*) [FACU], alkali mallow (*Malvella leprosa*), and puncture vine (*Tribilus terrestris*) [NL].

Soil. Depressional wetland basins occur within the following soil units: San Joaquin loam, 0-3% slopes, Hildreth clay, Foster loam, Riverwash, and Grangeville fine sandy loam, hard substratum. Soils examined within depressional wetland basins consisted of loamy clay, clay loam, and some sandy clay. Matrix colors in depressional wetland basin soil pits ranged from 10YR 3/2 to 10YR

2/1, 10YR 2/2, or 10YR 4/3. Distinct and prominent redox features are present at 2% to 30%, with colors ranging from 7.5YR 4/6 to 7.5YR 3/4. Redox features occur as concentrations and depressions within the matrix and occur at the surface or occur between 4 to 9 inches below the surface. All soils within delineated depressional wetland basins qualify for F3 Depleted Matrix.

Hydrology. Hydrology indicators observed within depressional wetland basins included sediment deposits, surface soil cracks, the presence of water table and soil saturation, and inundation visible on aerial imagery.

Adjacent Upland. Common dominant plant species at upland delineation points located along the swales adjacent to mapped depressional wetland basins included most of the same plant species documented in the depressional wetland basins though the FACW and OBL species tended to have a moderately lower cover and the FAC and FACU species tended to have a moderately higher cover. In general, these areas supported a dominance of wetland plant species and met the criteria for supporting wetland vegetation.

The soils at upland delineation points in adjacent swales areas were composed of clay loam, silty clay loam, and sandy clay loam. Matrix colors of upland soils include 100% 10YR 3/2 or 10YR 4/3 without redox features (or less than 2%). These soils do not qualify for any hydric soil indicators. Point P03 (adjacent to DWB-13 and paired with wetland delineation data point P04) displayed 15% prominent (7.5YR 3/4) depressions in the matrix, starting below 16 inches. Due to the depth of the redox features, this point does not qualify for any hydric soil indicators.

Wetland hydrology indicators were observed within many points mapped as uplands along the swales adjacent to delineated depressional wetland basins. Common hydrology indicators included surface soil cracks, sediment deposits, and the presence of inundation observed during separate biological surveys conducted in April 2023 by Mr. Vollmar. As with the vegetation, these wetland hydrology indicators were likely enhanced by the extensive and prolonged atypical flooding earlier in the year.

5.2.4 Wetland: Stockponds

A total of 0.545 acre of stockponds were delineated within the study area, with three ponds (S-1, S-2, and S-3) located in the northwest of the site. These stockponds are classified as NWI Code PEM2, which designates nonpersistent (seasonal) palustrine features with emergent vegetation.

Vegetation. The stockponds were dominated by obligate [OBL] and facultative wetland [FACW] plant species, including common spikerush [OBL], burhead [OBL], and curly dock [FAC]. The upper rim of Stockpond S-2 also supported some additional wetland plant species such as Great Valley button celery (*Eryngium castrense*) [OBL], hyssop loosestrife (*Lythrum hyssopifolia*) [OBL], and Mediterranean barley [FAC].

Soil. The stockponds occur within the following soil units: San Joaquin loam, 0-3% slopes and Atwater sandy loam, moderately deep, 0-3% slopes. Soils within the stockponds consist of clay loam, clay, and silty clay loam. The most common matrix colors observed in soil pits were 7.5YR 3/2, with some matrices of 7.5YR 2.5/3, 7.5YR 2.5/2, or 7.5YR 3/1. Distinct (5YR 3/4 or 5YR 4/6) redox features occur at densities of 5%-30%, and layers with higher densities of redox features occur at 3-8 inches below the surface. All of these soils qualify for indicator F3 Depleted Matrix.

Hydrology. Wetland hydrology indicators observed within the stockponds included sediment deposits, surface soil cracks, and observed ponding by Mr. Vollmar during a separate biological survey in April 2023.

Adjacent Upland. At upland delineation points adjacent to stockponds, vegetation was dominated by a mix of upland and facultative vegetation. Common dominant species included curly dock [FAC], summer mustard (*Hirschfeldia incana*) [NL], slender wild oat (*Avena barbata*) [NL], hood canary grass (*Phalaris paradoxa*) [FAC], soft chess [FACU], common sunflower [FACU], and seaside heliotrope [FACU]. The elevated cover of facultative [FAC] species such as curly dock is likely due to excess ponding from the heavier-than-normal 2023 wet season. Such vegetation is likely not present or as prominent in a normal rain year in upland areas around the stock ponds.

Soil pits in uplands adjacent to the stockponds are composed of clay and clay loam with matrix values ranging from 7.5YR 3/3 to 7.5YR 3/2. A low density (2%) of distinct (5YR 4/4 or 5YR 3/4) redox features is present in some areas. These redox features begin 4-10 inches below the surface and occur as depletions in the matrix. All soils at upland soil pits contained redox features at densities which are too low to qualify for any hydric soil indicator.

Upland areas adjacent to the stockponds generally lacked wetland hydrology indicators. In some areas, such as swales leading into stockponds, sediment deposits were observed. These deposits were likely caused by high seasonal flooding due to atypically high rain conditions during the 2023 wet season. As with the depressional wetland basins described above, the lack of hydric soil indicators within upland delineation points indicates that, during typical rain years, surrounding uplands and non-wetland swales would not remain inundated for at least 5% of the growing season (14 consecutive days).

5.3 Uplands and Other Non-jurisdictional Areas

The areas within the site that were not delineated as potential jurisdictional Wetlands or Other Waters of the US are considered uplands or otherwise non-jurisdictional habitats. As discussed above, some of these areas (swales) had wetland vegetation and indicators of wetland hydrology but did not exhibit indicators of hydric soils. This was likely due to the effects of the heavy rains during the preceding winter and spring that caused extensive and prolonged atypical flooding in low areas on the site. Since these areas lacked hydric soil indicators, they were delineated as upland

habitats. Delineation data points P01, P02, P03, P05, P07, P09, P12, P13, P19, P22, P23, P25, P27, P28, P32, and P34 exhibit these characteristics.

As described above, there is a roughly 30-acre pasture in the central portion of the site that was graded and set-up for flood irrigation in the 1950s (see historical aerial imagery in **Appendix F**). A large (1.129-acre) triangular agricultural tailwater pond was constructed as part of this system. It is located in the southwest of the field adjacent to the outer toe of the berm bordering the Big Dry Creek Reservoir Spillway canal. Delineation data points P15 and P16 are located at the northern edge of this pond. The pond is mapped in **Figure 5D**. It appears that the system was set up such that the stand pipes released irrigation water along the south end of the field, the water flowed across the field to the north, and excess tailwater passively flowed back and into the tailwater pond through a ditch that ran along the north end of the field to the west and then south along the outer toe of the spillway channel berm. Flood irrigation is no longer conducted in this area but the remnant standpipes, flood berms, and pond remain. There is a culvert at the north end of the pond (location shown on **Figure 5D**) that appears to have been installed to allow excess water in the pond to drain into the adjacent spillway canal. This culvert may allow communication between the tailwater pond and the spillway channel. The pond likely still receives sheet flow from the graded field via remnant tailwater ditch during storms. The pond was fully inundated in 2023, and remained ponded at least four feet deep at the time of the June field work. This prolonged ponding caused the establishment of a narrow band (average three-feet wide) of habitat with wetland vegetation and soils around the upper rim of the pond. This area is documented in delineation data point P16 and shown in the photograph in **Appendix A**. An earlier investigation of the site conducted in August 2022 found that the pond lacked wetland vegetation, soils, or hydrology (ECORP 2023). This pond is an artificial feature that was originally constructed in an upland area as part of an agricultural operation. Based on these characteristics, it appears that this feature qualifies as non-jurisdictional under current federal regulations.

The abandoned Dry Creek channel section on the site exhibited strictly upland habitat characteristics including soils, hydrology, and vegetation. This channel section was cut-off from flow along Dry Creek in 1948 when the Big Dry Creek Dam and Reservoir were constructed and the creek re-routed through the reservoir and down the newly-created channel below the spillway. This is visible in the 1937, 1946, and 1950 historical aerial images presented in **Appendix F**. The soils in the abandoned channel are highly permeable coarse sands, and there were no indications, even with the heavy rains of the past winter and spring, that any water flows in this channel. Delineation data points P21 and P17 are located in the upper and lower ends of the abandoned channel on the site, respectively.

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APPENDIX A

Representative Site Photographs



Photo 1. Representative depressional wetland basin (DWB-13), showing typical low basin within adjacent non-wetland swale. Facing northwest. (6/21/23)



Photo 2. Depressional wetland basin DWB-18, showing typical low basin within adjacent non-wetland swale. Facing northwest. (6/10/23)



Photo 3. Upland delineation point P12, within a non-wetland swale dominated by alkali mallow (*Malvella leprosa*) [FACU] and saltgrass (*Cynodon dactylon*) [FAC]. Facing east. (6/10/23)



Photo 4. Agricultural tailwater pond with upland grassland on right and sparsely vegetated wetland margin in foreground. Facing south. (6/10/23)



Photo 5. Upland delineation point P17, within west end of abandoned channel of Dry Creek. Facing east. (6/10/23)



Photo 6. Stockpond S-2 dominated by curly dock (*Rumex crispus*) [FAC] and common spikerush and (*Eleocharis macrostachya*) [OBL]. Facing northeast. (6/10/23)



Photo 7. Representative photo of canal (wetland channel and fringing wetland margin) feature C-1, showing wetland vegetation dominated by burhead (*Echinodorus berteroi*). Facing southwest. (6/29/23)



Photo 8. Non-wetland channel NWC-1, showing steep, eroded sides of the channel with unvegetated bottom. Facing southwest. (6/29/23).



Photo 9. Upland berm adjacent to Big Dry Creek Reservoir Spillway (feature C-1), showing upland vegetation dominated by non-native annual grasses and weeds. Facing northeast. (6/29/23)

APPENDIX B

Plant List

The indicator status of each species was checked using the most recent ACOE National Wetland Plant List—Version 3.5 (Lichvar et al. 2020). Indicator status categories are as follows:

- OBL = obligate wetland; >99% probability of occurring in a wetland
- FACW = facultative wetland; 67%-99% probability of occurring in a wetland
- FAC = facultative; 33%-67% probability of occurring in a wetland
- FACU = facultative upland; 1%-33% probability of occurring in a wetland
- UPL = obligate upland; <1% probability of occurring in a wetland
- NL = not listed (plants not listed in Lichvar et al. [2020], including some known to occur occasionally or primarily in wetlands)

Table B-1. Plant List

Scientific Name	Common Name	WIS
Alisma triviale	Northern water plantain	OBL
Alopecurus saccatus	Pacific foxtail	OBL
Amaranthus albus	Pigweed amaranth	FACU
Amsinckia menziesii	Small flowered fiddleneck	NL
Avena barbata	Slender oat	NL
Brassica nigra	Black mustard	NL
Bromus diandrus	Ripgut brome	NL
Bromus hordeaceus	Soft chess	FACU
Bromus madritensis	Spanish brome	UPL
Centaurea solstitialis	Yellow star thistle	NL
Centromadia pungens	Common tarweed	FAC
Chenopodium album	Lamb's quarters	FACU
Croton setiger	Turkey-mullein	NL
Crypsis schoenoides	Swamp picklegrass	FACW
Cynodon dactylon	Bermuda grass	FACU
Cyperus eragrostis	Tall flatsedge	FACW
Distichlis spicata	Saltgrass	FAC
Echinodorus berteroi	Burhead	OBL
Eleocharis macrostachya	Common spikerush	OBL
Eriogonum gracile	Slender buckwheat	NL
Erodium moschatum	Musky stork's bill	NL
Eryngium castrense	Great valley button celery	OBL
Festuca bromoides	Brome fescue	FACU
Festuca myuros	Rattail sixweeks grass	FACU
Festuca perennis	Italian rye grass	FAC
Helianthus annuus	Common sunflower	FACU
Heliotropium curassavicum	Seaside heliotrope	FACU
Hirschfeldia incana	Summer mustard	NL
Hordeum marinum ssp. *gussoneanum*	Mediterranean barley	FAC
Lactuca serriola	Prickly lettuce	FACU

Scientific Name	Common Name	WIS
Layia platyglossa	Coastal tidytips	NL
Lupinus formosus	Western lupine	NL
Lythrum hyssopifolia	Hyssop loosestrife	OBL
Malvella leprosa	Alkali mallow	FACU
Marsilea vestita	Hairy waterclover	OBL
Medicago polymorpha	California burclover	FACU
Phalaris paradoxa	Hood canary grass	FAC
Phyla nodiflora	Common lippia	FACW
Plagiobothrys stipitatus var. *micranthus*	Common vernal pool allocarya	FACW
Polypogon monspeliensis	Annual beard grass	FACW
Rumex crispus	Curly dock	FAC
Rumex dentatus	Toothed dock	FACW
Sonchus oleraceus	Common sowthistle	UPL
Spergularia rubra	Ruby sandspurry	FAC
Tribulus terrestris	Puncture vine	NL
Triglochin scilloides	Flowering-quillwort	OBL
Typha angustifolia	Narrow leaf cattail	OBL
Vicia villosa	Hairy vetch	NL
Xanthium strumarium	Rough cocklebur	FAC

APPENDIX C

Wetland Delineation Data Sheets

WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: Vista Ranch | City/County: Fresno County, CA | Sampling Date: 6/21/23

Applicant/Owner: Wilson Premier Homes | State: CA | Sampling Point: P01

Investigator(s): John Vollmar | Section, Township, Range: S22, T12S, R21E

Landform (hillslope, terrace, etc.): Remnant Floodplain | Local relief (concave, convex, none): Concave | Slope (%): 1

Subregion (LRR): C - Mediterranean California | Lat: 36.872372 | Long: -119.660584 | Datum: NAD83

Soil Map Unit Name: Foster Loam | NWI classification: N/A

Are climatic / hydrologic conditions on the site typical for this time of year? Yes (●) No ( ) (If no, explain in Remarks.)

Are Vegetation [ ] Soil [ ] or Hydrology [ ] significantly disturbed? Are "Normal Circumstances" present? Yes ( ) No (●)

Are Vegetation [ ] Soil [ ] or Hydrology [ ] naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes (●)	No ( )
Hydric Soil Present?	Yes ( )	No (●)
Wetland Hydrology Present?	Yes (●)	No ( )
Is the Sampled Area within a Wetland?	**Yes** ( )	**No** (●)

Remarks:

Point is along a remnant swale on the historic floodplain of Dry Creek with P02, P03, and P04. High winter rains caused atypical seasonal flooding but point lacks hydric soils.

VEGETATION - Use scientific names of plants.

Tree Stratum Plot size: 25 feet	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	%		
Sapling/Shrub Stratum Plot size: 15 feet			
1.			
2.			
3.			
4.			
5.			
Total Cover:	%		
Herb Stratum Plot size: 5 feet			
1. *Phyla nodiflora*	15	Yes	FACW
2. *Hordeum marinum ssp. gussoneanum*	10	Yes	FAC
3. *Festuca perennis*	10	Yes	FAC
4. *Amaranthus albus*	5	No	FACU
5. *Lythrum hyssopifolia*	2	No	OBL
6. *Centromadia pungens*	1	No	FAC
7.			
8.			
Total Cover:	43 %		
Woody Vine Stratum Plot size:			
1.			
2.			
Total Cover:	%		

% Bare Ground in Herb Stratum 57 % | % Cover of Biotic Crust %

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 3 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100.0 % (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	2	x 1 =	2
FACW species	15	x 2 =	30
FAC species	21	x 3 =	63
FACU species	5	x 4 =	20
UPL species		x 5 =	0
Column Totals:	43 (A)		115 (B)

Prevalence Index = B/A = 2.67

Hydrophytic Vegetation Indicators:

- [X] Dominance Test is >50%
- [X] Prevalence Index is ≤3.0[1]
- [ ] Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- [ ] Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? Yes (●) No ( )

Remarks:

Wetland vegetation enhanced this season by atypical prolonged flooding from heavy winter rains.

SOIL

Sampling Point: P01

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture[3]	Remarks
0-12+	10YR 4/3	100					silty clay loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2] CS=Covered or Coated Sand Grains. Location: PL=Pore Lining, M=Matrix.
[3]Soil Textures: Clay, Silty Clay, Sandy Clay, Loam, Sandy Clay Loam, Sandy Loam, Clay Loam, Silty Clay Loam, Silt Loam, Silt, Loamy Sand, Sand.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (**LRR C**)
- ☐ 1 cm Muck (A9) (**LRR D**)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Vernal Pools (F9)

Indicators for Problematic Hydric Soils

- ☐ 1 cm Muck (A9) (**LRR C**)
- ☐ 2 cm Muck (A10) (**LRR B**)
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☐ Other (Explain in Remarks)

[4]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ○ No ◉

Remarks:

Soils non-hydric, indicate non-hydric conditions during normal rain years

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1) (**Nonriverine**)
- ☒ Sediment Deposits (B2) (**Nonriverine**)
- ☐ Drift Deposits (B3) (**Nonriverine**)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Salt Crust (B11)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water Marks (B1) (**Riverine**)
- ☐ Sediment Deposits (B2) (**Riverine**)
- ☐ Drift Deposits (B3) (**Riverine**)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ○ No ◉ Depth (inches): _____

Water Table Present? Yes ○ No ◉ Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes ○ No ◉ Depth (inches): _____

Wetland Hydrology Present? Yes ◉ No ○

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Area inundated during winter due to unusual heavy rains causing sediment deposits, but no other surface indicators of wetland hydrology.

WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: Vista Ranch | City/County: Fresno County, CA | Sampling Date: 6/21/23

Applicant/Owner: Wilson Premier Homes | State: CA | Sampling Point: P02

Investigator(s): John Vollmar | Section, Township, Range: S22, T12S, R21E

Landform (hillslope, terrace, etc.): Remnant Floodplain | Local relief (concave, convex, none): Concave | Slope (%): 1

Subregion (LRR): C - Mediterranean California | Lat: 36.872369 | Long: -119.660695 | Datum: NAD83

Soil Map Unit Name: Foster Loam | NWI classification: N/A

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ○ No ◉ (If no, explain in Remarks.)

Are Vegetation ☐ Soil ☐ or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ○ No ◉

Are Vegetation ☐ Soil ☐ or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ◉	No ○	
Hydric Soil Present?	Yes ○	No ◉	**Is the Sampled Area within a Wetland?** Yes ○ No ◉
Wetland Hydrology Present?	Yes ◉	No ○	

Remarks:

Point is along a remnant swale on the historic floodplain of Dry Creek with P01, P03, and P04. High winter rains caused atypical seasonal flooding but point lacks hydric soils.

VEGETATION - Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum Plot size: 25 feet			
1.			
2.			
3.			
4.			
	%		
Sapling/Shrub Stratum Plot size: 15 feet			
1.			
2.			
3.			
4.			
5.			
Total Cover:	%		
Herb Stratum Plot size: 5 feet			
1. *Phyla nodiflora*	45	Yes	FACW
2. *Hordeum marinum ssp. gussoneanum*	5	No	FAC
3. *Festuca perennis*	1	No	FAC
4. *Amaranthus albus*	5	No	FACU
5. *Lythrum hyssopifolia*	1	No	OBL
6. *Tribulus terrestris*	1	No	FAC
7. *Helianthus annuus*	1	No	
8.			
Total Cover:	59 %		
Woody Vine Stratum Plot size:			
1.			
2.			
Total Cover:	%		

% Bare Ground in Herb Stratum 41 % | % Cover of Biotic Crust %

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100.0 % (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	1	x 1 =	1
FACW species	45	x 2 =	90
FAC species	7	x 3 =	21
FACU species	5	x 4 =	20
UPL species		x 5 =	0
Column Totals:	58 (A)		132 (B)

Prevalence Index = B/A = 2.28

Hydrophytic Vegetation Indicators:

- ☒ Dominance Test is >50%
- ☒ Prevalence Index is ≤3.0[1]
- ☐ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? Yes ◉ No ○

Remarks:

Wetland vegetation enhanced this season by atypical prolonged flooding from heavy winter rains.

SOIL

Sampling Point: P02

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture[3]	Remarks
0-16+	10YR 3/2	100					silty clay loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2] CS=Covered or Coated Sand Grains. Location: PL=Pore Lining, M=Matrix.
[3]Soil Textures: Clay, Silty Clay, Sandy Clay, Loam, Sandy Clay Loam, Sandy Loam, Clay Loam, Silty Clay Loam, Silt Loam, Silt, Loamy Sand, Sand.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (**LRR C**)
- ☐ 1 cm Muck (A9) (**LRR D**)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Vernal Pools (F9)

Indicators for Problematic Hydric Soils

- ☐ 1 cm Muck (A9) (**LRR C**)
- ☐ 2 cm Muck (A10) (**LRR B**)
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☐ Other (Explain in Remarks)

[4]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ○ No ◉

Remarks:

Soils non-hydric, indicate non-hydric conditions during normal rain years

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1) (**Nonriverine**)
- ☒ Sediment Deposits (B2) (**Nonriverine**)
- ☐ Drift Deposits (B3) (**Nonriverine**)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Salt Crust (B11)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water Marks (B1) (**Riverine**)
- ☐ Sediment Deposits (B2) (**Riverine**)
- ☐ Drift Deposits (B3) (**Riverine**)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ○ No ◉ Depth (inches): _____

Water Table Present? Yes ○ No ◉ Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes ○ No ◉ Depth (inches): _____

Wetland Hydrology Present? Yes ◉ No ○

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Area inundated during winter due to unusual heavy rains causing sediment deposits, but no other surface indicators of wetland hydrology.

WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: Vista Ranch | City/County: Fresno County, CA | Sampling Date: 6/21/23

Applicant/Owner: Wilson Premier Homes | State: CA | Sampling Point: P03

Investigator(s): John Vollmar | Section, Township, Range: S22, T12S, R21E

Landform (hillslope, terrace, etc.): Remnant Floodplain | Local relief (concave, convex, none): Concave | Slope (%): 2

Subregion (LRR): C - Mediterranean California | Lat: 36.872384 | Long: -119.660759 | Datum: NAD83

Soil Map Unit Name: Foster Loam | NWI classification: N/A

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ○ No ◉ (If no, explain in Remarks.)

Are Vegetation ☐ Soil ☐ or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ○ No ◉

Are Vegetation ☐ Soil ☐ or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ◉	No ○	
Hydric Soil Present?	Yes ○	No ◉	**Is the Sampled Area within a Wetland?** Yes ○ No ◉
Wetland Hydrology Present?	Yes ◉	No ○	

Remarks:

Point is along a remnant swale on the historic floodplain of Dry Creek with P01, P02, and P04. High winter rains caused atypical seasonal flooding but point lacks hydric soils.

VEGETATION - Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum Plot size: 25 feet			
1.			
2.			
3.			
4.			
	%		
Sapling/Shrub Stratum Plot size: 15 feet			
1.			
2.			
3.			
4.			
5.			
Total Cover:	%		
Herb Stratum Plot size: 5 feet			
1. *Phyla nodiflora*	50	Yes	FACW
2. *Crypsis schoenoides*	30	Yes	FACW
3. *Tribulus terrestris*	5	No	Not Listed
4. *Amaranthus albus*	5	No	FACU
5.			
6.			
7.			
8.			
Total Cover:	90 %		
Woody Vine Stratum Plot size:			
1.			
2.			
Total Cover:	%		

% Bare Ground in Herb Stratum 10 % | % Cover of Biotic Crust %

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100.0 % (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species		x 1 =	0
FACW species	80	x 2 =	160
FAC species		x 3 =	0
FACU species	5	x 4 =	20
UPL species		x 5 =	0
Column Totals:	85 (A)		180 (B)

Prevalence Index = B/A = 2.12

Hydrophytic Vegetation Indicators:

- ☒ Dominance Test is >50%
- ☒ Prevalence Index is ≤3.0[1]
- ☐ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? Yes ◉ No ○

Remarks:

Wetland vegetation enhanced this season by atypical prolonged flooding from heavy winter rains.

SOIL

Sampling Point: P03

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture[3]	Remarks
0-16	10YR 3/2	100					sandy clay loam	
16-20+	10YR 3/2	85	7.5YR3/4	15	D	M	sandy clay loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2] CS=Covered or Coated Sand Grains. Location: PL=Pore Lining, M=Matrix.
[3]Soil Textures: Clay, Silty Clay, Sandy Clay, Loam, Sandy Clay Loam, Sandy Loam, Clay Loam, Silty Clay Loam, Silt Loam, Silt, Loamy Sand, Sand.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (**LRR C**)
- ☐ 1 cm Muck (A9) (**LRR D**)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Vernal Pools (F9)

Indicators for Problematic Hydric Soils

- ☐ 1 cm Muck (A9) (**LRR C**)
- ☐ 2 cm Muck (A10) (**LRR B**)
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☐ Other (Explain in Remarks)

[4]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ○ No ◉

Remarks:

Soils non-hydric, indicate non-hydric conditions during normal rain years

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1) (**Nonriverine**)
- ☒ Sediment Deposits (B2) (**Nonriverine**)
- ☐ Drift Deposits (B3) (**Nonriverine**)
- ☒ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Salt Crust (B11)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water Marks (B1) (**Riverine**)
- ☐ Sediment Deposits (B2) (**Riverine**)
- ☐ Drift Deposits (B3) (**Riverine**)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ○ No ◉ Depth (inches): _____

Water Table Present? Yes ○ No ◉ Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes ○ No ◉ Depth (inches): _____

Wetland Hydrology Present? Yes ◉ No ○

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Area inundated during winter due to unusual heavy rains causing sediment deposits and surface soil cracks, but no other surface indicators of wetland hydrology.

WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: Vista Ranch | City/County: Fresno County, CA | Sampling Date: 6/21/23

Applicant/Owner: Wilson Premier Homes | State: CA | Sampling Point: P04

Investigator(s): John Vollmar | Section, Township, Range: S22, T12S, R21E

Landform (hillslope, terrace, etc.): Remnant Floodplain | Local relief (concave, convex, none): Concave | Slope (%): 0

Subregion (LRR): C - Mediterranean California | Lat: 36.872408 | Long: -119.660814 | Datum: NAD83

Soil Map Unit Name: Foster Loam | NWI classification: N/A

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ○ No ◉ (If no, explain in Remarks.)

Are Vegetation ☐ Soil ☐ or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ○ No ◉

Are Vegetation ☐ Soil ☐ or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ◉	No ○	
Hydric Soil Present?	Yes ◉	No ○	**Is the Sampled Area within a Wetland?** Yes ◉ No ○
Wetland Hydrology Present?	Yes ◉	No ○	

Remarks:

Low basin area along swale system - likely pends or becomes saturated for prolonged periods during normal or even drought years.

VEGETATION - Use scientific names of plants.

Tree Stratum Plot size: 25 feet	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	%		
Sapling/Shrub Stratum Plot size: 15 feet			
1.			
2.			
3.			
4.			
5.			
Total Cover:	%		
Herb Stratum Plot size: 5 feet			
1. *Phyla nodiflora*	5	Yes	FACW
2. *Crypsis schoenoides*	15	Yes	FACW
3. *Tribulus terrestris*	1	No	Not Listed
4. *Amaranthus albus*	1	No	FACU
5.			
6.			
7.			
8.			
Total Cover:	22 %		
Woody Vine Stratum Plot size:			
1.			
2.			
Total Cover:	%		

% Bare Ground in Herb Stratum 78 % | % Cover of Biotic Crust %

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100.0 % (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species		x 1 =	0
FACW species	20	x 2 =	40
FAC species		x 3 =	0
FACU species	1	x 4 =	4
UPL species		x 5 =	0
Column Totals:	21 (A)		44 (B)

Prevalence Index = B/A = 2.10

Hydrophytic Vegetation Indicators:

- ☒ Dominance Test is >50%
- ☒ Prevalence Index is ≤3.0[1]
- ☐ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? Yes ◉ No ○

Remarks:

SOIL

Sampling Point: P04

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture[3]	Remarks
0-4	10YR 3/2	100					loamy clay	
4-12+	10YR 3/2	70	7.5YR3/4	30	D	M	sandy clay	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2] CS=Covered or Coated Sand Grains. Location: PL=Pore Lining, M=Matrix.
[3]Soil Textures: Clay, Silty Clay, Sandy Clay, Loam, Sandy Clay Loam, Sandy Loam, Clay Loam, Silty Clay Loam, Silt Loam, Silt, Loamy Sand, Sand.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (**LRR C**)
- ☐ 1 cm Muck (A9) (**LRR D**)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☒ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☒ Redox Depressions (F8)
- ☐ Vernal Pools (F9)

Indicators for Problematic Hydric Soils

- ☐ 1 cm Muck (A9) (**LRR C**)
- ☐ 2 cm Muck (A10) (**LRR B**)
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☐ Other (Explain in Remarks)

[4]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ◉ No ○

Remarks:

Soils moist at time of survey

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1) (**Nonriverine**)
- ☒ Sediment Deposits (B2) (**Nonriverine**)
- ☐ Drift Deposits (B3) (**Nonriverine**)
- ☒ Surface Soil Cracks (B6)
- ☒ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Salt Crust (B11)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water Marks (B1) (**Riverine**)
- ☐ Sediment Deposits (B2) (**Riverine**)
- ☐ Drift Deposits (B3) (**Riverine**)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ○ No ◉ Depth (inches): _____

Water Table Present? Yes ○ No ◉ Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes ○ No ◉ Depth (inches): _____

Wetland Hydrology Present? Yes ◉ No ○

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Deeply ponded (24+") during April 17 site visit for other surveys.

WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: Vista Ranch | City/County: Fresno County, CA | Sampling Date: 6/21/23

Applicant/Owner: Wilson Premier Homes | State: CA | Sampling Point: P05

Investigator(s): John Vollmar | Section, Township, Range: S22, T12S, R21E

Landform (hillslope, terrace, etc.): Remnant Floodplain | Local relief (concave, convex, none): Concave | Slope (%): 2

Subregion (LRR): C - Mediterranean California | Lat: 36.872408 | Long: -119.660814 | Datum: NAD83

Soil Map Unit Name: Grangeville fine sandy loam, hard substratum | NWI classification: N/A

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ○ No ◉ (If no, explain in Remarks.)

Are Vegetation ☐ Soil ☐ or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ○ No ◉

Are Vegetation ☐ Soil ☐ or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ◉	No ○	
Hydric Soil Present?	Yes ○	No ◉	**Is the Sampled Area within a Wetland?** Yes ○ No ◉
Wetland Hydrology Present?	Yes ○	No ◉	

Remarks:

Upland slope adjacent to shallow basin at P06, wetland vegetation enhanced by heavy seasonal flooding.

VEGETATION - Use scientific names of plants.

Tree Stratum Plot size: 25 feet	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	%		
Sapling/Shrub Stratum Plot size: 15 feet			
1.			
2.			
3.			
4.			
5.			
Total Cover:	%		
Herb Stratum Plot size: 5 feet			
1. *Distichlis spicata*	5	No	FAC
2. *Festuca perennis*	15	Yes	FAC
3. *Hordeum marinum ssp. gussoneanum*	5	No	FAC
4. *Phyla nodiflora*	25	Yes	FACW
5. *Heliotropium curassavicum*	1	No	FACU
6. *Lythrum hyssopifolia*	1	No	OBL
7. *Malvella leprosa*	8	No	Not Listed
8.			
Total Cover:	60 %		
Woody Vine Stratum Plot size:			
1.			
2.			
Total Cover:	%		

% Bare Ground in Herb Stratum 40 % | % Cover of Biotic Crust %

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100.0 % (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	1	x 1 =	1
FACW species	25	x 2 =	50
FAC species	25	x 3 =	75
FACU species	1	x 4 =	4
UPL species		x 5 =	0
Column Totals:	52 (A)		130 (B)

Prevalence Index = B/A = 2.50

Hydrophytic Vegetation Indicators:

- ☒ Dominance Test is >50%
- ☒ Prevalence Index is ≤3.0[1]
- ☐ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? Yes ◉ No ○

Remarks:

SOIL

Sampling Point: P05

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture[3]	Remarks
0-16+	10YR 3/2	100					sandy clay loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2] CS=Covered or Coated Sand Grains. Location: PL=Pore Lining, M=Matrix.
[3]Soil Textures: Clay, Silty Clay, Sandy Clay, Loam, Sandy Clay Loam, Sandy Loam, Clay Loam, Silty Clay Loam, Silt Loam, Silt, Loamy Sand, Sand.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (**LRR C**)
- ☐ 1 cm Muck (A9) (**LRR D**)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Vernal Pools (F9)

Indicators for Problematic Hydric Soils

- ☐ 1 cm Muck (A9) (**LRR C**)
- ☐ 2 cm Muck (A10) (**LRR B**)
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☐ Other (Explain in Remarks)

[4]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ○ No ◉

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1) (**Nonriverine**)
- ☐ Sediment Deposits (B2) (**Nonriverine**)
- ☐ Drift Deposits (B3) (**Nonriverine**)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Salt Crust (B11)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water Marks (B1) (**Riverine**)
- ☐ Sediment Deposits (B2) (**Riverine**)
- ☐ Drift Deposits (B3) (**Riverine**)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ○ No ◉ Depth (inches): 0

Water Table Present? Yes ○ No ◉ Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes ○ No ◉ Depth (inches): 0

Wetland Hydrology Present? Yes ○ No ◉

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

No surface indicators of wetland hydrology.

WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: Vista Ranch | City/County: Fresno County, CA | Sampling Date: 6/21/23

Applicant/Owner: Wilson Premier Homes | State: CA | Sampling Point: P06

Investigator(s): John Vollmar | Section, Township, Range: S22, T12S, R21E

Landform (hillslope, terrace, etc.): Remnant Floodplain | Local relief (concave, convex, none): Concave | Slope (%): 0

Subregion (LRR): C - Mediterranean California | Lat: 36.871217 | Long: -119.658458 | Datum: NAD83

Soil Map Unit Name: Grangeville fine sandy loam, hard substratum | NWI classification: N/A

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ○ No ◉ (If no, explain in Remarks.)

Are Vegetation ☐ Soil ☐ or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ○ No ◉

Are Vegetation ☐ Soil ☐ or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ◉	No ○	
Hydric Soil Present?	Yes ◉	No ○	**Is the Sampled Area within a Wetland?** Yes ◉ No ○
Wetland Hydrology Present?	Yes ◉	No ○	

Remarks:

Shallow basin along swale system. A typical heavy winter rains likely enhanced wetland conditions.

VEGETATION - Use scientific names of plants.

Tree Stratum (Plot size: 25 feet)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	%		
Sapling/Shrub Stratum (Plot size: 15 feet)			
1.			
2.			
3.			
4.			
5.			
Total Cover:	%		
Herb Stratum (Plot size: 5 feet)			
1. *Crypsis schoenoides*	12	Yes	FACW
2. *Amaranthus albus*	2	No	FACU
3. *Heliotropium curassavicum*	1	No	FACU
4. *Phyla nodiflora*	1	No	FACW
5.			
6.			
7.			
8.			
Total Cover:	16 %		
Woody Vine Stratum (Plot size:)			
1.			
2.			
Total Cover:	%		

% Bare Ground in Herb Stratum 84 % | % Cover of Biotic Crust %

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100.0 % (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species		x 1 =	0
FACW species	13	x 2 =	26
FAC species		x 3 =	0
FACU species	3	x 4 =	12
UPL species		x 5 =	0
Column Totals:	16 (A)		38 (B)

Prevalence Index = B/A = 2.38

Hydrophytic Vegetation Indicators:

- ☒ Dominance Test is >50%
- ☒ Prevalence Index is ≤3.0[1]
- ☐ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? Yes ◉ No ○

Remarks:

SOIL

Sampling Point: P06

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture[3]	Remarks
0-8	10YR 3/2	100					sandy clay loam	
8-12+	10YR 3/2	90	7.5YR3/4	10	D	M	loamy clay	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2] CS=Covered or Coated Sand Grains. Location: PL=Pore Lining, M=Matrix.
[3]Soil Textures: Clay, Silty Clay, Sandy Clay, Loam, Sandy Clay Loam, Sandy Loam, Clay Loam, Silty Clay Loam, Silt Loam, Silt, Loamy Sand, Sand.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (**LRR C**)
- ☐ 1 cm Muck (A9) (**LRR D**)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☒ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☒ Redox Depressions (F8)
- ☐ Vernal Pools (F9)

Indicators for Problematic Hydric Soils

- ☐ 1 cm Muck (A9) (**LRR C**)
- ☐ 2 cm Muck (A10) (**LRR B**)
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☐ Other (Explain in Remarks)

[4]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ◉ No ○

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1) (**Nonriverine**)
- ☒ Sediment Deposits (B2) (**Nonriverine**)
- ☐ Drift Deposits (B3) (**Nonriverine**)
- ☒ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Salt Crust (B11)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water Marks (B1) (**Riverine**)
- ☐ Sediment Deposits (B2) (**Riverine**)
- ☐ Drift Deposits (B3) (**Riverine**)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ○ No ◉ Depth (inches): _____

Water Table Present? Yes ○ No ◉ Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes ○ No ◉ Depth (inches): _____

Wetland Hydrology Present? Yes ◉ No ○

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Ponded 12+" deep during April 17 site visit for other surveys.

WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: Vista Ranch | City/County: Fresno County, CA | Sampling Date: 6/21/23

Applicant/Owner: Wilson Premier Homes | State: CA | Sampling Point: P07

Investigator(s): John Vollmar | Section, Township, Range: S22, T12S, R21E

Landform (hillslope, terrace, etc.): Remnant Floodplain | Local relief (concave, convex, none): | Slope (%):

Subregion (LRR): C - Mediterranean California | Lat: 36.871745 | Long: -119.658927 | Datum: NAD83

Soil Map Unit Name: Foster loam | NWI classification: N/A

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ○ No ◉ (If no, explain in Remarks.)

Are Vegetation ☐ Soil ☐ or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ○ No ◉

Are Vegetation ☐ Soil ☐ or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ◉	No ○	
Hydric Soil Present?	Yes ○	No ◉	**Is the Sampled Area within a Wetland?** Yes ○ No ◉
Wetland Hydrology Present?	Yes ◉	No ○	

Remarks:

Swale connected to basin at P08. Wetland vegetation likely enhanced by heavy winter rains causing atypical prolonged site flooding, but non-hydric soils.

VEGETATION - Use scientific names of plants.

Tree Stratum Plot size: 25 feet	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	%		
Sapling/Shrub Stratum Plot size: 15 feet			
1.			
2.			
3.			
4.			
5.			
Total Cover:	%		
Herb Stratum Plot size: 5 feet			
1. *Centromadia pungens*	20	Yes	FAC
2. *Hordeum marinum ssp. gussoneanum*	9	Yes	FAC
3. *Bromus hordeaceus*	1	No	FACU
4. *Lythrum hyssopifolia*	1	No	OBL
5.			
6.			
7.			
8.			
Total Cover:	31 %		
Woody Vine Stratum Plot size:			
1.			
2.			
Total Cover:	%		

% Bare Ground in Herb Stratum 69 % | % Cover of Biotic Crust %

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100.0 % (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	1	x 1 =	1
FACW species		x 2 =	0
FAC species	29	x 3 =	87
FACU species	1	x 4 =	4
UPL species		x 5 =	0
Column Totals:	31 (A)		92 (B)

Prevalence Index = B/A = 2.97

Hydrophytic Vegetation Indicators:

- ☒ Dominance Test is >50%
- ☒ Prevalence Index is ≤3.0[1]
- ☐ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? Yes ◉ No ○

Remarks:

SOIL

Sampling Point: P07

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture[3]	Remarks
0-16+	10YR4/2						silty clay loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2] CS=Covered or Coated Sand Grains. Location: PL=Pore Lining, M=Matrix.
[3]Soil Textures: Clay, Silty Clay, Sandy Clay, Loam, Sandy Clay Loam, Sandy Loam, Clay Loam, Silty Clay Loam, Silt Loam, Silt, Loamy Sand, Sand.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (**LRR C**)
- ☐ 1 cm Muck (A9) (**LRR D**)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Vernal Pools (F9)

Indicators for Problematic Hydric Soils

- ☐ 1 cm Muck (A9) (**LRR C**)
- ☐ 2 cm Muck (A10) (**LRR B**)
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☐ Other (Explain in Remarks)

[4]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type:

Depth (inches):

Hydric Soil Present? Yes ○ No ◉

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1) (**Nonriverine**)
- ☒ Sediment Deposits (B2) (**Nonriverine**)
- ☐ Drift Deposits (B3) (**Nonriverine**)
- ☒ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Salt Crust (B11)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water Marks (B1) (**Riverine**)
- ☐ Sediment Deposits (B2) (**Riverine**)
- ☐ Drift Deposits (B3) (**Riverine**)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ○ No ◉ Depth (inches): 0

Water Table Present? Yes ○ No ◉ Depth (inches):

Saturation Present? (includes capillary fringe) Yes ○ No ◉ Depth (inches): 0

Wetland Hydrology Present? Yes ◉ No ○

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Ponded during April 17 site visit for other surveys. Sediment deposits/surface soil cracks due to flooding from atypical heavy season rains.

WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: Vista Ranch | City/County: Fresno County, CA | Sampling Date: 6/21/23

Applicant/Owner: Wilson Premier Homes | State: CA | Sampling Point: P08

Investigator(s): John Vollmar | Section, Township, Range: S22, T12S, R21E

Landform (hillslope, terrace, etc.): Remnant Floodplain | Local relief (concave, convex, none): Concave | Slope (%): 0

Subregion (LRR): C - Mediterranean California | Lat: 36.871764 | Long: -119.658877 | Datum: NAD83

Soil Map Unit Name: Foster loam | NWI classification: N/A

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ○ No ◉ (If no, explain in Remarks.)

Are Vegetation ☐ Soil ☐ or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ○ No ◉

Are Vegetation ☐ Soil ☐ or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ◉	No ○	
Hydric Soil Present?	Yes ◉	No ○	**Is the Sampled Area within a Wetland?** Yes ◉ No ○
Wetland Hydrology Present?	Yes ◉	No ○	

Remarks:

Small, shallow basin within swale system..

VEGETATION - Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum Plot size: 25 feet			
1.			
2.			
3.			
4.			
	%		
Sapling/Shrub Stratum Plot size: 15 feet			
1.			
2.			
3.			
4.			
5.			
Total Cover:	%		
Herb Stratum Plot size: 5 feet			
1. *Distichlis spicata*	10	Yes	FAC
2. *Centromadia pungens*	3	No	FAC
3. *Hordeum marinum ssp. gussoneanum*	5	Yes	FAC
4. *Chenopodium album*	1	No	FACU
5. *Typha angustifolia*	1	No	OBL
6.			
7.			
8.			
Total Cover:	20 %		
Woody Vine Stratum Plot size:			
1.			
2.			
Total Cover:	%		

% Bare Ground in Herb Stratum 80 % | % Cover of Biotic Crust %

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100.0 % (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	1	x 1 =	1
FACW species		x 2 =	0
FAC species	18	x 3 =	54
FACU species	1	x 4 =	4
UPL species		x 5 =	0
Column Totals:	20 (A)		59 (B)

Prevalence Index = B/A = 2.95

Hydrophytic Vegetation Indicators:

- ☒ Dominance Test is >50%
- ☒ Prevalence Index is ≤3.0[1]
- ☐ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? Yes ◉ No ○

Remarks:

SOIL

Sampling Point: P08

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture[3]	Remarks
0-9	10YR4/2	100					silty clay	
9-12+	10YR3/2	80	7.5YR3/4	20			silty clay	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2] CS=Covered or Coated Sand Grains. Location: PL=Pore Lining, M=Matrix.
[3]Soil Textures: Clay, Silty Clay, Sandy Clay, Loam, Sandy Clay Loam, Sandy Loam, Clay Loam, Silty Clay Loam, Silt Loam, Silt, Loamy Sand, Sand.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (**LRR C**)
- ☐ 1 cm Muck (A9) (**LRR D**)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☒ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☒ Redox Depressions (F8)
- ☐ Vernal Pools (F9)

Indicators for Problematic Hydric Soils

- ☐ 1 cm Muck (A9) (**LRR C**)
- ☐ 2 cm Muck (A10) (**LRR B**)
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☐ Other (Explain in Remarks)

[4]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ◉ No ○

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1) (**Nonriverine**)
- ☒ Sediment Deposits (B2) (**Nonriverine**)
- ☐ Drift Deposits (B3) (**Nonriverine**)
- ☒ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Salt Crust (B11)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water Marks (B1) (**Riverine**)
- ☐ Sediment Deposits (B2) (**Riverine**)
- ☐ Drift Deposits (B3) (**Riverine**)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes ○	No ◉	Depth (inches): 0
Water Table Present?	Yes ○	No ◉	Depth (inches): 0
Saturation Present? (includes capillary fringe)	Yes ○	No ◉	Depth (inches): 0

Wetland Hydrology Present? Yes ◉ No ○

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: Vista Ranch | City/County: Fresno County, CA | Sampling Date: 6/21/23

Applicant/Owner: Wilson Premier Homes | State: CA | Sampling Point: P09

Investigator(s): John Vollmar | Section, Township, Range: S22, T12S, R21E

Landform (hillslope, terrace, etc.): Remnant Floodplain | Local relief (concave, convex, none): none - flat | Slope (%): 0

Subregion (LRR): C - Mediterranean California | Lat: 36.873506 | Long: -119.662731 | Datum: NAD83

Soil Map Unit Name: Foster loam | NWI classification: N/A

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ○ No ◉ (If no, explain in Remarks.)

Are Vegetation ☐ Soil ☐ or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ○ No ◉

Are Vegetation ☐ Soil ☐ or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ○	No ◉	
Hydric Soil Present?	Yes ○	No ◉	**Is the Sampled Area within a Wetland?** Yes ○ No ◉
Wetland Hydrology Present?	Yes ◉	No ○	

Remarks:

Flat adjacent to basin at P10, along swale. Wetland conditions likely enhanced by prolonged flooding from atypical heavy winter rains.

VEGETATION - Use scientific names of plants.

Tree Stratum Plot size: 25 feet	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	%		
Sapling/Shrub Stratum Plot size: 15 feet			
1.			
2.			
3.			
4.			
5.			
Total Cover:	%		
Herb Stratum Plot size: 5 feet			
1. *Amaranthus albus*	30	Yes	FACU
2. *Heliotropium curassavicum*	10	No	FACU
3. *Crypsis schoenoides*	25	Yes	FACW
4. *Tribulus terrestris*	5	No	Not Listed
5. *Chenopodium album*	1	No	FACU
6.			
7.			
8.			
Total Cover:	71 %		
Woody Vine Stratum Plot size:			
1.			
2.			
Total Cover:	%		

% Bare Ground in Herb Stratum 29 % | % Cover of Biotic Crust %

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 50.0 % (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species		x 1 =	0
FACW species	25	x 2 =	50
FAC species		x 3 =	0
FACU species	41	x 4 =	164
UPL species		x 5 =	0
Column Totals:	66 (A)		214 (B)

Prevalence Index = B/A = 3.24

Hydrophytic Vegetation Indicators:

- ◉ Dominance Test is >50%
- ◉ Prevalence Index is ≤3.0[1]
- ☐ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? Yes ○ No ◉

Remarks:

SOIL

Sampling Point: P09

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture[3]	Remarks
0-16+	10YR3/2	100					clay loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2] CS=Covered or Coated Sand Grains. Location: PL=Pore Lining, M=Matrix.
[3]Soil Textures: Clay, Silty Clay, Sandy Clay, Loam, Sandy Clay Loam, Sandy Loam, Clay Loam, Silty Clay Loam, Silt Loam, Silt, Loamy Sand, Sand.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (**LRR C**)
- ☐ 1 cm Muck (A9) (**LRR D**)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Vernal Pools (F9)

Indicators for Problematic Hydric Soils

- ☐ 1 cm Muck (A9) (**LRR C**)
- ☐ 2 cm Muck (A10) (**LRR B**)
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☐ Other (Explain in Remarks)

[4]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ○ No ◉

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1) (**Nonriverine**)
- ☒ Sediment Deposits (B2) (**Nonriverine**)
- ☐ Drift Deposits (B3) (**Nonriverine**)
- ☒ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Salt Crust (B11)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water Marks (B1) (**Riverine**)
- ☐ Sediment Deposits (B2) (**Riverine**)
- ☐ Drift Deposits (B3) (**Riverine**)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ○ No ◉ Depth (inches): 0

Water Table Present? Yes ○ No ◉ Depth (inches): 0

Saturation Present? (includes capillary fringe) Yes ○ No ◉ Depth (inches): 0

Wetland Hydrology Present? Yes ◉ No ○

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Flooded at time of April 17 site visit for other surveys, sediment deposits due to high seasonal flooding from atypical heavy rains, surface soil cracks from high clay component in soil.

WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: Vista Ranch | City/County: Fresno County, CA | Sampling Date: 6/21/23

Applicant/Owner: Wilson Premier Homes | State: CA | Sampling Point: P10

Investigator(s): John Vollmar | Section, Township, Range: S22, T12S, R21E

Landform (hillslope, terrace, etc.): Remnant Floodplain | Local relief (concave, convex, none): concave | Slope (%): 2

Subregion (LRR): C - Mediterranean California | Lat: 36.873469 | Long: -119.662726 | Datum: NAD83

Soil Map Unit Name: Foster loam | NWI classification: N/A

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ○ No ◉ (If no, explain in Remarks.)

Are Vegetation ☐ Soil ☐ or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ○ No ◉

Are Vegetation ☐ Soil ☐ or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ◉	No ○	
Hydric Soil Present?	Yes ◉	No ○	**Is the Sampled Area within a Wetland?** Yes ◉ No ○
Wetland Hydrology Present?	Yes ◉	No ○	

Remarks:

Deep basin, unvegetated except under upper rim. 6" ponding max depth at time of survey.

VEGETATION - Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum Plot size: 25 feet			
1.			
2.			
3.			
4.			
	%		
Sapling/Shrub Stratum Plot size: 15 feet			
1.			
2.			
3.			
4.			
5.			
Total Cover:	%		
Herb Stratum Plot size: 5 feet			
1. *Crypsis schoenoides*	5	Yes	FACW
2. *Phyla nodiflora*	4	Yes	FACW
3. *Helianthus annuus*	1	No	FACU
4. *Amaranthus albus*	1	No	FACU
5.			
6.			
7.			
8.			
Total Cover:	11 %		
Woody Vine Stratum Plot size:			
1.			
2.			
Total Cover:	%		

% Bare Ground in Herb Stratum 89 % | % Cover of Biotic Crust %

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100.0 % (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species		x 1 =	0
FACW species	9	x 2 =	18
FAC species		x 3 =	0
FACU species	2	x 4 =	8
UPL species		x 5 =	0
Column Totals:	11 (A)		26 (B)

Prevalence Index = B/A = 2.36

Hydrophytic Vegetation Indicators:

- ☒ Dominance Test is >50%
- ☒ Prevalence Index is ≤3.0[1]
- ☐ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? Yes ◉ No ○

Remarks:

SOIL

Sampling Point: P10

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture[3]	Remarks
0-6	10YR2/2	100					loamy clay	
6-12	10YR2/1	100					loamy lay	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2] CS=Covered or Coated Sand Grains. Location: PL=Pore Lining, M=Matrix.
[3]Soil Textures: Clay, Silty Clay, Sandy Clay, Loam, Sandy Clay Loam, Sandy Loam, Clay Loam, Silty Clay Loam, Silt Loam, Silt, Loamy Sand, Sand.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (**LRR C**)
- ☐ 1 cm Muck (A9) (**LRR D**)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☒ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Vernal Pools (F9)

Indicators for Problematic Hydric Soils

- ☐ 1 cm Muck (A9) (**LRR C**)
- ☐ 2 cm Muck (A10) (**LRR B**)
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☐ Other (Explain in Remarks)

[4]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ◉ No ○

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ☐ Surface Water (A1)
- ☒ High Water Table (A2)
- ☒ Saturation (A3)
- ☐ Water Marks (B1) (**Nonriverine**)
- ☐ Sediment Deposits (B2) (**Nonriverine**)
- ☐ Drift Deposits (B3) (**Nonriverine**)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Salt Crust (B11)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water Marks (B1) (**Riverine**)
- ☐ Sediment Deposits (B2) (**Riverine**)
- ☐ Drift Deposits (B3) (**Riverine**)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes ○	No ◉	Depth (inches): 0
Water Table Present?	Yes ○	No ◉	Depth (inches): 10
Saturation Present? (includes capillary fringe)	Yes ○	No ◉	Depth (inches): 6

Wetland Hydrology Present? Yes ◉ No ○

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: Vista Ranch | City/County: Fresno County, CA | Sampling Date: 6/21/23

Applicant/Owner: Wilson Premier Homes | State: CA | Sampling Point: P11

Investigator(s): John Vollmar | Section, Township, Range: S22, T12S, R21E

Landform (hillslope, terrace, etc.): Remnant Floodplain | Local relief (concave, convex, none): Concave | Slope (%): 0

Subregion (LRR): C - Mediterranean California | Lat: 36.873372 | Long: -119.663191 | Datum: NAD83

Soil Map Unit Name: Foster loam | NWI classification: N/A

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ○ No ◉ (If no, explain in Remarks.)

Are Vegetation ☐ Soil ☐ or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ○ No ◉

Are Vegetation ☐ Soil ☐ or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ◉	No ○	
Hydric Soil Present?	Yes ◉	No ○	**Is the Sampled Area within a Wetland?** Yes ◉ No ○
Wetland Hydrology Present?	Yes ◉	No ○	

Remarks:

Small basin with mix VP/seasonal marsh vegetation.

VEGETATION - Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum Plot size: 25 feet			
1.			
2.			
3.			
4.			
	%		
Sapling/Shrub Stratum Plot size: 15 feet			
1.			
2.			
3.			
4.			
5.			
Total Cover:	%		
Herb Stratum Plot size: 5 feet			
1. *Plagiobothrys stipitatus var. micranthus*	5	Yes	FACW
2. *Alopecurus saccatus*	2	No	OBL
3. *Crypsis schoenoides*	5	Yes	FACW
4. *Amaranthus albus*	5	Yes	FACU
5. *Hordeum marinum ssp. gussoneanum*	3	No	FAC
6. *Triglochin scilloides*	2	No	OBL
7.			
8.			
Total Cover:	22 %		
Woody Vine Stratum Plot size:			
1.			
2.			
Total Cover:	%		

% Bare Ground in Herb Stratum 78 % | % Cover of Biotic Crust %

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 66.7 % (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	4	x 1 =	4
FACW species	10	x 2 =	20
FAC species	3	x 3 =	9
FACU species	5	x 4 =	20
UPL species		x 5 =	0
Column Totals:	22 (A)		53 (B)

Prevalence Index = B/A = 2.41

Hydrophytic Vegetation Indicators:

- ☒ Dominance Test is >50%
- ☒ Prevalence Index is ≤3.0[1]
- ☐ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? Yes ◉ No ○

Remarks:

SOIL

Sampling Point: P11

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture[3]	Remarks
0-9	10YR3/2	100					loamy clay	
9-12+	10YR3/2	90	75YR4/6	10	C	PL	clay	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2] CS=Covered or Coated Sand Grains. Location: PL=Pore Lining, M=Matrix.
[3]Soil Textures: Clay, Silty Clay, Sandy Clay, Loam, Sandy Clay Loam, Sandy Loam, Clay Loam, Silty Clay Loam, Silt Loam, Silt, Loamy Sand, Sand.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (**LRR C**)
- ☐ 1 cm Muck (A9) (**LRR D**)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☒ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☒ Redox Depressions (F8)
- ☐ Vernal Pools (F9)

Indicators for Problematic Hydric Soils

- ☐ 1 cm Muck (A9) (**LRR C**)
- ☐ 2 cm Muck (A10) (**LRR B**)
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☐ Other (Explain in Remarks)

[4]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ◉ No ○

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1) (**Nonriverine**)
- ☒ Sediment Deposits (B2) (**Nonriverine**)
- ☐ Drift Deposits (B3) (**Nonriverine**)
- ☒ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Salt Crust (B11)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water Marks (B1) (**Riverine**)
- ☐ Sediment Deposits (B2) (**Riverine**)
- ☐ Drift Deposits (B3) (**Riverine**)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ○ No ◉ Depth (inches): 0

Water Table Present? Yes ○ No ◉ Depth (inches): 0

Saturation Present? (includes capillary fringe) Yes ○ No ◉ Depth (inches): 0

Wetland Hydrology Present? Yes ◉ No ○

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: Vista Ranch | City/County: Fresno County, CA | Sampling Date: 6/21/23

Applicant/Owner: Wilson Premier Homes | State: CA | Sampling Point: P12

Investigator(s): John Vollmar | Section, Township, Range: S22, T12S, R21E

Landform (hillslope, terrace, etc.): Remnant Floodplain | Local relief (concave, convex, none): | Slope (%):

Subregion (LRR): C - Mediterranean California | Lat: 36.873063 | Long: -119.665044 | Datum: NAD83

Soil Map Unit Name: Foster loam | NWI classification: N/A

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ○ No ◉ (If no, explain in Remarks.)

Are Vegetation ☐ Soil ☐ or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ○ No ◉

Are Vegetation ☐ Soil ☐ or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ○	No ◉	
Hydric Soil Present?	Yes ○	No ◉	**Is the Sampled Area within a Wetland?** Yes ○ No ◉
Wetland Hydrology Present?	Yes ◉	No ○	

Remarks:

Deep basin along swale but no wetland characteristics. Soils have poor water-holding capacity and lack claypan or hardpan.

VEGETATION - Use scientific names of plants.

Tree Stratum Plot size: 25 feet	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	%		
Sapling/Shrub Stratum Plot size: 15 feet			
1.			
2.			
3.			
4.			
5.			
Total Cover:	%		
Herb Stratum Plot size: 5 feet			
1. *Cynodon dactylon*	10		FACU
2. *Malvella leprosa*	15		FACU
3. *Centromadia pungens*	3		FAC
4. *Croton setiger*	2		Not Listed
5. *Hordeum marinum ssp. gussoneanum*	5		FAC
6. *Amaranthus Albus*	1		FACU
7.			
8.			
Total Cover:	36 %		
Woody Vine Stratum Plot size:			
1.			
2.			
Total Cover:	%		

% Bare Ground in Herb Stratum 64 % | % Cover of Biotic Crust %

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across All Strata: 0 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0 % (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species		x 1 =	0
FACW species		x 2 =	0
FAC species	8	x 3 =	24
FACU species	26	x 4 =	104
UPL species		x 5 =	0
Column Totals:	34 (A)		128 (B)

Prevalence Index = B/A = 3.76

Hydrophytic Vegetation Indicators:

- ◉ Dominance Test is >50%
- ◉ Prevalence Index is ≤3.0[1]
- ☐ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? Yes ○ No ◉

Remarks:

SOIL

Sampling Point: P12

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture[3]	Remarks
0-16+	10YR4/3	100					clay loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2] CS=Covered or Coated Sand Grains. Location: PL=Pore Lining, M=Matrix.
[3]Soil Textures: Clay, Silty Clay, Sandy Clay, Loam, Sandy Clay Loam, Sandy Loam, Clay Loam, Silty Clay Loam, Silt Loam, Silt, Loamy Sand, Sand.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (**LRR C**)
- ☐ 1 cm Muck (A9) (**LRR D**)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Vernal Pools (F9)

Indicators for Problematic Hydric Soils

- ☐ 1 cm Muck (A9) (**LRR C**)
- ☐ 2 cm Muck (A10) (**LRR B**)
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☐ Other (Explain in Remarks)

[4]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ○ No ◉

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1) (**Nonriverine**)
- ☒ Sediment Deposits (B2) (**Nonriverine**)
- ☐ Drift Deposits (B3) (**Nonriverine**)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Salt Crust (B11)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water Marks (B1) (**Riverine**)
- ☐ Sediment Deposits (B2) (**Riverine**)
- ☐ Drift Deposits (B3) (**Riverine**)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ○ No ◉ Depth (inches): _____

Water Table Present? Yes ○ No ◉ Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes ○ No ◉ Depth (inches): _____

Wetland Hydrology Present? Yes ◉ No ○

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Ponded at time of April 17 site visit for other surveys due to heavy winter rains, but quickly drained after rains subsided.

WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: Vista Ranch | City/County: Fresno County, CA | Sampling Date: 6/21/23

Applicant/Owner: Wilson Premier Homes | State: CA | Sampling Point: P13

Investigator(s): John Vollmar | Section, Township, Range: S22, T12S, R21E

Landform (hillslope, terrace, etc.): Remnant Floodplain | Local relief (concave, convex, none): | Slope (%):

Subregion (LRR): C - Mediterranean California | Lat: 36.873877 | Long: -119.666214 | Datum: NAD83

Soil Map Unit Name: Foster loam | NWI classification: N/A

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ○ No ◉ (If no, explain in Remarks.)

Are Vegetation ☐ Soil ☐ or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ○ No ◉

Are Vegetation ☐ Soil ☐ or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ○	No ◉	
Hydric Soil Present?	Yes ○	No ◉	**Is the Sampled Area within a Wetland?** Yes ○ No ◉
Wetland Hydrology Present?	Yes ◉	No ○	

Remarks:

Shallow swale/flat connected to VP at P14.

VEGETATION - Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum Plot size: 25 feet			
1.			
2.			
3.			
4.			
	%		
Sapling/Shrub Stratum Plot size: 15 feet			
1.			
2.			
3.			
4.			
5.			
Total Cover:	%		
Herb Stratum Plot size: 5 feet			
1. *Cynodon dactylon*	2	No	FACU
2. *Croton setiger*	10	Yes	Not Listed
3. *Hordeum marinum ssp. gussoneanum*	10	Yes	FAC
4. *Bromus hordeaceus*	1	No	FACU
5. *Eryngium castrense*	2	No	OBL
6. *Festuca bromoides*	20	Yes	FACU
7.			
8.			
Total Cover:	45 %		
Woody Vine Stratum Plot size:			
1.			
2.			
Total Cover:	%		

% Bare Ground in Herb Stratum 55 % | % Cover of Biotic Crust %

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 33.3 % (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	2	x 1 =	2
FACW species		x 2 =	0
FAC species	10	x 3 =	30
FACU species	23	x 4 =	92
UPL species		x 5 =	0
Column Totals:	35 (A)		124 (B)

Prevalence Index = B/A = 3.54

Hydrophytic Vegetation Indicators:

- ◉ Dominance Test is >50%
- ◉ Prevalence Index is ≤3.0[1]
- ☐ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? Yes ○ No ◉

Remarks:

SOIL

Sampling Point: P13

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture[3]	Remarks
0-8	10YR4/3	100					clay loam	
8-16+	10YR3/2	100					clay loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2] CS=Covered or Coated Sand Grains. Location: PL=Pore Lining, M=Matrix.
[3]Soil Textures: Clay, Silty Clay, Sandy Clay, Loam, Sandy Clay Loam, Sandy Loam, Clay Loam, Silty Clay Loam, Silt Loam, Silt, Loamy Sand, Sand.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (**LRR C**)
- ☐ 1 cm Muck (A9) (**LRR D**)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Vernal Pools (F9)

Indicators for Problematic Hydric Soils

- ☐ 1 cm Muck (A9) (**LRR C**)
- ☐ 2 cm Muck (A10) (**LRR B**)
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☐ Other (Explain in Remarks)

[4]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ○ No ◉

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ☒ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1) (**Nonriverine**)
- ☒ Sediment Deposits (B2) (**Nonriverine**)
- ☐ Drift Deposits (B3) (**Nonriverine**)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Salt Crust (B11)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water Marks (B1) (**Riverine**)
- ☐ Sediment Deposits (B2) (**Riverine**)
- ☐ Drift Deposits (B3) (**Riverine**)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ○ No ◉ Depth (inches): _____

Water Table Present? Yes ○ No ◉ Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes ○ No ◉ Depth (inches): _____

Wetland Hydrology Present? Yes ◉ No ○

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Ponded during April 17 site visit for other surveys due to flooding from atypical heavy winter rains, remnant sediment deposits. No other indicators of wetland hydrology.

WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: Vista Ranch | City/County: Fresno County, CA | Sampling Date: 6/21/23

Applicant/Owner: Wilson Premier Homes | State: CA | Sampling Point: P14

Investigator(s): John Vollmar | Section, Township, Range: S22, T12S, R21E

Landform (hillslope, terrace, etc.): Remnant Floodplain | Local relief (concave, convex, none): Concave | Slope (%): 0

Subregion (LRR): C - Mediterranean California | Lat: 36.873836 | Long: -119.666166 | Datum: NAD83

Soil Map Unit Name: San Joaquin loam, 0-3% slopes | NWI classification: N/A

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ○ No ◉ (If no, explain in Remarks.)

Are Vegetation ☐ Soil ☐ or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ○ No ◉

Are Vegetation ☐ Soil ☐ or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ◉	No ○	
Hydric Soil Present?	Yes ◉	No ○	**Is the Sampled Area within a Wetland?** Yes ◉ No ○
Wetland Hydrology Present?	Yes ◉	No ○	

Remarks:

Upper end of basin along swale, vernal pool wetland; connects to much deeper feature on adjacent BR land to the east.

VEGETATION - Use scientific names of plants.

Tree Stratum Plot size: 25 feet	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	%		
Sapling/Shrub Stratum Plot size: 15 feet			
1.			
2.			
3.			
4.			
5.			
Total Cover:	%		
Herb Stratum Plot size: 5 feet			
1. *Eryngium castrense*	10	Yes	OBL
2. *Lythrum hyssopifolia*	1	No	OBL
3. *Hordeum marinum ssp. gussoneanum*	3	Yes	FAC
4. *Plagiobothrys stipitatus var. micranthus*	1	No	FACW
5.			
6.			
7.			
8.			
Total Cover:	15 %		
Woody Vine Stratum Plot size:			
1.			
2.			
Total Cover:	%		

% Bare Ground in Herb Stratum 85 % | % Cover of Biotic Crust %

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100.0 % (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	11	x 1 =	11
FACW species	1	x 2 =	2
FAC species	3	x 3 =	9
FACU species		x 4 =	0
UPL species		x 5 =	0
Column Totals:	15 (A)		22 (B)

Prevalence Index = B/A = 1.47

Hydrophytic Vegetation Indicators:

- ☒ Dominance Test is >50%
- ☒ Prevalence Index is ≤3.0[1]
- ☐ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? Yes ◉ No ○

Remarks:

SOIL

Sampling Point: P14

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture[3]	Remarks
0-4	10YR3/2	98	7.5YR4/6	2	C	PL	clay loam	
4-10	10YR3/2	90	7.5YR4/6	10	C	PL	clay loam	
10-12+	10YR3/2	85	7.5YR4/6	15	C	PL	loamy clay	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2] CS=Covered or Coated Sand Grains. Location: PL=Pore Lining, M=Matrix.
[3]Soil Textures: Clay, Silty Clay, Sandy Clay, Loam, Sandy Clay Loam, Sandy Loam, Clay Loam, Silty Clay Loam, Silt Loam, Silt, Loamy Sand, Sand.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (**LRR C**)
- ☐ 1 cm Muck (A9) (**LRR D**)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☒ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☒ Redox Depressions (F8)
- ☐ Vernal Pools (F9)

Indicators for Problematic Hydric Soils

- ☐ 1 cm Muck (A9) (**LRR C**)
- ☐ 2 cm Muck (A10) (**LRR B**)
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☐ Other (Explain in Remarks)

[4]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ◉ No ○

Remarks:

Soil develops increasing redox concentrations with depth.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ☒ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1) (**Nonriverine**)
- ☒ Sediment Deposits (B2) (**Nonriverine**)
- ☐ Drift Deposits (B3) (**Nonriverine**)
- ☒ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Salt Crust (B11)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water Marks (B1) (**Riverine**)
- ☐ Sediment Deposits (B2) (**Riverine**)
- ☐ Drift Deposits (B3) (**Riverine**)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ○ No ◉ Depth (inches): 0

Water Table Present? Yes ○ No ◉ Depth (inches): 0

Saturation Present? (includes capillary fringe) Yes ○ No ◉ Depth (inches): 0

Wetland Hydrology Present? Yes ◉ No ○

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Ponded during April 17 site visit for other surveys, hydrology directly connected to deeper swale/basin feature to east on adjacent BOR land.

WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: Vista Ranch | City/County: Fresno County, CA | Sampling Date: 6/21/23

Applicant/Owner: Wilson Premier Homes | State: CA | Sampling Point: P15

Investigator(s): John Vollmar | Section, Township, Range: S22, T12S, R21E

Landform (hillslope, terrace, etc.): Remnant Floodplain | Local relief (concave, convex, none): Convex | Slope (%): 1

Subregion (LRR): C - Mediterranean California | Lat: 36.872346 | Long: -119.671208 | Datum: NAD83

Soil Map Unit Name: Foster loam | NWI classification: N/A

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ○ No ◉ (If no, explain in Remarks.)

Are Vegetation ☐ Soil ☐ or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ○ No ◉

Are Vegetation ☐ Soil ☐ or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ○	No ◉	
Hydric Soil Present?	Yes ○	No ◉	**Is the Sampled Area within a Wetland?** Yes ○ No ◉
Wetland Hydrology Present?	Yes ○	No ◉	

Remarks:

Upland grassland adjacent to agricultural tailwater pond at P16

VEGETATION - Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum Plot size: 25 feet			
1.			
2.			
3.			
4.			
	%		
Sapling/Shrub Stratum Plot size: 15 feet			
1.			
2.			
3.			
4.			
5.			
Total Cover:	%		
Herb Stratum Plot size: 5 feet			
1. *Bromus diandrus*	40	Yes	Not Listed
2. *Bromus hordeaceus*	20	Yes	FACU
3. *Avena barbata*	10	No	Not Listed
4. *Centaurea solstitialis*	5	No	Not Listed
5. *Vicia villosa*	2	No	Not Listed
6. *Medicago polymorpha*	3	No	FACU
7.			
8.			
Total Cover:	80 %		
Woody Vine Stratum Plot size:			
1.			
2.			
Total Cover:	%		

% Bare Ground in Herb Stratum 20 % | % Cover of Biotic Crust %

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0.0 % (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species		x 1 =	0
FACW species		x 2 =	0
FAC species		x 3 =	0
FACU species	23	x 4 =	92
UPL species		x 5 =	0
Column Totals:	23 (A)		92 (B)

Prevalence Index = B/A = 4.00

Hydrophytic Vegetation Indicators:

- ◉ Dominance Test is >50%
- ◉ Prevalence Index is ≤3.0[1]
- ☐ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? Yes ○ No ◉

Remarks:

SOIL

Sampling Point: P15

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture[3]	Remarks
0-16+	10YR4/3	100					clay loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2] CS=Covered or Coated Sand Grains. Location: PL=Pore Lining, M=Matrix.
[3]Soil Textures: Clay, Silty Clay, Sandy Clay, Loam, Sandy Clay Loam, Sandy Loam, Clay Loam, Silty Clay Loam, Silt Loam, Silt, Loamy Sand, Sand.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (**LRR C**)
- ☐ 1 cm Muck (A9) (**LRR D**)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Vernal Pools (F9)

Indicators for Problematic Hydric Soils

- ☐ 1 cm Muck (A9) (**LRR C**)
- ☐ 2 cm Muck (A10) (**LRR B**)
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☐ Other (Explain in Remarks)

[4]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ○ No ◉

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1) (**Nonriverine**)
- ☐ Sediment Deposits (B2) (**Nonriverine**)
- ☐ Drift Deposits (B3) (**Nonriverine**)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Salt Crust (B11)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water Marks (B1) (**Riverine**)
- ☐ Sediment Deposits (B2) (**Riverine**)
- ☐ Drift Deposits (B3) (**Riverine**)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ○ No ◉ Depth (inches): _____

Water Table Present? Yes ○ No ◉ Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes ○ No ◉ Depth (inches): _____

Wetland Hydrology Present? Yes ○ No ◉

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

No indicators of wetland hydrology.

WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: Vista Ranch | City/County: Fresno County, CA | Sampling Date: 6/21/23

Applicant/Owner: Wilson Premier Homes | State: CA | Sampling Point: P16

Investigator(s): John Vollmar | Section, Township, Range: S22, T12S, R21E

Landform (hillslope, terrace, etc.): Remnant Floodplain | Local relief (concave, convex, none): Concave | Slope (%): 3

Subregion (LRR): C - Mediterranean California | Lat: 36.872342 | Long: -119.671241 | Datum: NAD83

Soil Map Unit Name: Foster loam | NWI classification: N/A

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ○ No ◉ (If no, explain in Remarks.)

Are Vegetation ☐ Soil ☐ or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ○ No ◉

Are Vegetation ☐ Soil ☐ or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ◉	No ○	
Hydric Soil Present?	Yes ◉	No ○	**Is the Sampled Area within a Wetland?** Yes ◉ No ○
Wetland Hydrology Present?	Yes ◉	No ○	

Remarks:

Edge of agricultural tailwater pond. Inundated 4+ feet deep at time of survey. Rainwater directed to pond by check berms, ditches in adjacent field. Depth and persistence of inundation enhanced by atypical heavy seasonal rains.

VEGETATION - Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum Plot size: 25 feet			
1.			
2.			
3.			
4.			
	%		
Sapling/Shrub Stratum Plot size: 15 feet			
1.			
2.			
3.			
4.			
5.			
Total Cover:	%		
Herb Stratum Plot size: 5 feet			
1. *Alisma triviale*	4	Yes	OBL
2. *Eleocharis macrostachya*	1	No	OBL
3. *Lythrum hyssopifolia*	1	No	OBL
4.			
5.			
6.			
7.			
8.			
Total Cover:	6 %		
Woody Vine Stratum Plot size:			
1.			
2.			
Total Cover:	%		

% Bare Ground in Herb Stratum 94 % | % Cover of Biotic Crust %

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100.0 % (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	6	x 1 =	6
FACW species		x 2 =	0
FAC species		x 3 =	0
FACU species		x 4 =	0
UPL species		x 5 =	0
Column Totals:	6 (A)		6 (B)

Prevalence Index = B/A = 1.00

Hydrophytic Vegetation Indicators:

- ☒ Dominance Test is >50%
- ☒ Prevalence Index is ≤3.0[1]
- ☐ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? Yes ◉ No ○

Remarks:

Wetland vegetation is restricted to an approximately 3 foot wide strip along the pond upper rim. Otherwise, it has unvegetated open water.

SOIL

Sampling Point: P16

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture[3]	Remarks
0-6	10YR2/1	100					coarse sandy clay	
6-12+	10YR2/1	70	7.5YR3/3	30	D	M	sandy clay	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2] CS=Covered or Coated Sand Grains. Location: PL=Pore Lining, M=Matrix.
[3]Soil Textures: Clay, Silty Clay, Sandy Clay, Loam, Sandy Clay Loam, Sandy Loam, Clay Loam, Silty Clay Loam, Silt Loam, Silt, Loamy Sand, Sand.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (**LRR C**)
- ☐ 1 cm Muck (A9) (**LRR D**)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☒ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☒ Redox Depressions (F8)
- ☐ Vernal Pools (F9)

Indicators for Problematic Hydric Soils

- ☐ 1 cm Muck (A9) (**LRR C**)
- ☐ 2 cm Muck (A10) (**LRR B**)
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☐ Other (Explain in Remarks)

[4]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ◉ No ○

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ☒ Surface Water (A1)
- ☒ High Water Table (A2)
- ☒ Saturation (A3)
- ☐ Water Marks (B1) (**Nonriverine**)
- ☐ Sediment Deposits (B2) (**Nonriverine**)
- ☐ Drift Deposits (B3) (**Nonriverine**)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Salt Crust (B11)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water Marks (B1) (**Riverine**)
- ☐ Sediment Deposits (B2) (**Riverine**)
- ☐ Drift Deposits (B3) (**Riverine**)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ○ No ◉ Depth (inches): 0

Water Table Present? Yes ○ No ◉ Depth (inches): 4

Saturation Present? (includes capillary fringe) Yes ○ No ◉ Depth (inches): 2

Wetland Hydrology Present? Yes ◉ No ○

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Data Point is at edge of pond. Inundation is 3 feet out from data point location.

WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: Vista Ranch | City/County: Fresno County, CA | Sampling Date: 6/21/23

Applicant/Owner: Wilson Premier Homes | State: CA | Sampling Point: P17

Investigator(s): John Vollmar | Section, Township, Range: S22, T12S, R21E

Landform (hillslope, terrace, etc.): Abandoned creek channel | Local relief (concave, convex, none): Flat | Slope (%): 0

Subregion (LRR): C - Mediterranean California | Lat: 36.870678 | Long: -119.672572 | Datum: NAD83

Soil Map Unit Name: Riverwash | NWI classification: Riverine (historical)

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ○ No ◉ (If no, explain in Remarks.)

Are Vegetation ☐ Soil ☐ or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ○ No ◉

Are Vegetation ☐ Soil ☐ or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ○	No ◉	
Hydric Soil Present?	Yes ○	No ◉	**Is the Sampled Area within a Wetland?** Yes ○ No ◉
Wetland Hydrology Present?	Yes ○	No ◉	

Remarks:

West end of abandoned Dry Creek channel. No indications of wetland conditions in spite of heavy winter rains. Coarse sandy soils are highly permeable.

VEGETATION - Use scientific names of plants.

Tree Stratum Plot size: 25 feet	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	%		
Sapling/Shrub Stratum Plot size: 15 feet			
1.			
2.			
3.			
4.			
5.			
Total Cover:	%		
Herb Stratum Plot size: 5 feet			
1. *Festuca myuros*	2	No	FACU
2. *Erodium moschatum*	10	Yes	Not Listed
3. *Eriogonum gracile*	3	No	Not Listed
4. *Bromus madritensis*	1	No	UPL
5.			
6.			
7.			
8.			
Total Cover:	16 %		
Woody Vine Stratum Plot size:			
1.			
2.			
Total Cover:	%		

% Bare Ground in Herb Stratum 84 % | % Cover of Biotic Crust %

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0.0 % (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species		x 1 =	0
FACW species		x 2 =	0
FAC species		x 3 =	0
FACU species	2	x 4 =	8
UPL species	1	x 5 =	5
Column Totals:	3 (A)		13 (B)

Prevalence Index = B/A = 4.33

Hydrophytic Vegetation Indicators:

- ◉ Dominance Test is >50%
- ◉ Prevalence Index is ≤3.0[1]
- ☐ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? Yes ○ No ◉

Remarks:

SOIL

Sampling Point: P17

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture[3]	Remarks
0-16+	10YR4/4	100					coarse sand	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2] CS=Covered or Coated Sand Grains. Location: PL=Pore Lining, M=Matrix.
[3]Soil Textures: Clay, Silty Clay, Sandy Clay, Loam, Sandy Clay Loam, Sandy Loam, Clay Loam, Silty Clay Loam, Silt Loam, Silt, Loamy Sand, Sand.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (**LRR C**)
- ☐ 1 cm Muck (A9) (**LRR D**)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Vernal Pools (F9)

Indicators for Problematic Hydric Soils

- ☐ 1 cm Muck (A9) (**LRR C**)
- ☐ 2 cm Muck (A10) (**LRR B**)
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☐ Other (Explain in Remarks)

[4]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ○ No ◉

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1) (**Nonriverine**)
- ☐ Sediment Deposits (B2) (**Nonriverine**)
- ☐ Drift Deposits (B3) (**Nonriverine**)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Salt Crust (B11)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water Marks (B1) (**Riverine**)
- ☐ Sediment Deposits (B2) (**Riverine**)
- ☐ Drift Deposits (B3) (**Riverine**)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ○ No ◉ Depth (inches): _____

Water Table Present? Yes ○ No ◉ Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes ○ No ◉ Depth (inches): _____

Wetland Hydrology Present? Yes ○ No ◉

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

No indicators of wetland hydrology.

WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: Vista Ranch City/County: Fresno County, CA Sampling Date: 6/21/23

Applicant/Owner: Wilson Premier Homes State: CA Sampling Point: P18

Investigator(s): John Vollmar Section, Township, Range: S22, T12S, R21E

Landform (hillslope, terrace, etc.): Reservoir outflow channel Local relief (concave, convex, none): Concave Slope (%): 0

Subregion (LRR): C - Mediterranean California Lat: 36.870678 Long: -119.672572 Datum: NAD83

Soil Map Unit Name: Riverwash NWI classification: N/A

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ○ No ◉ (If no, explain in Remarks.)

Are Vegetation ☐ Soil ☐ or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ○ No ◉

Are Vegetation ☐ Soil ☐ or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ○	No ◉	
Hydric Soil Present?	Yes ◉	No ○	**Is the Sampled Area within a Wetland?** Yes ○ No ◉
Wetland Hydrology Present?	Yes ◉	No ○	

Remarks:

Point within open water area of outflow channel below Big Dry Creek Reservoir spillway. Channel flowing at time of survey, with 2' maximum water depth. Appears to be a perennial waters feature.

VEGETATION - Use scientific names of plants.

Tree Stratum Plot size: 25 feet	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	%		
Sapling/Shrub Stratum Plot size: 15 feet			
1.			
2.			
3.			
4.			
5.			
Total Cover:	%		
Herb Stratum Plot size: 5 feet			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
Total Cover:	%		
Woody Vine Stratum Plot size:			
1.			
2.			
Total Cover:	%		

% Bare Ground in Herb Stratum 100% % Cover of Biotic Crust %

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across All Strata: 0 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0 % (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species		x 1 =	0
FACW species		x 2 =	0
FAC species		x 3 =	0
FACU species		x 4 =	0
UPL species		x 5 =	0
Column Totals:	(A)		0 (B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

- ◉ Dominance Test is >50%
- ◉ Prevalence Index is ≤3.0[1]
- ☐ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? Yes ○ No ◉

Remarks:

Unvegetated area within outflow channel below reservoir spillway.

SOIL

Sampling Point: P18

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture[3]	Remarks
0-16+	10YR3/1						silty clay	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2] CS=Covered or Coated Sand Grains. Location: PL=Pore Lining, M=Matrix.
[3]Soil Textures: Clay, Silty Clay, Sandy Clay, Loam, Sandy Clay Loam, Sandy Loam, Clay Loam, Silty Clay Loam, Silt Loam, Silt, Loamy Sand, Sand.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (**LRR C**)
- ☐ 1 cm Muck (A9) (**LRR D**)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☒ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Vernal Pools (F9)

Indicators for Problematic Hydric Soils

- ☐ 1 cm Muck (A9) (**LRR C**)
- ☐ 2 cm Muck (A10) (**LRR B**)
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☐ Other (Explain in Remarks)

[4]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type:

Depth (inches):

Hydric Soil Present? Yes ◉ No ○

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ☒ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1) (**Nonriverine**)
- ☒ Sediment Deposits (B2) (**Nonriverine**)
- ☐ Drift Deposits (B3) (**Nonriverine**)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Salt Crust (B11)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water Marks (B1) (**Riverine**)
- ☐ Sediment Deposits (B2) (**Riverine**)
- ☐ Drift Deposits (B3) (**Riverine**)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes ◉	No ○	Depth (inches):	12
Water Table Present?	Yes ◉	No ○	Depth (inches):	0
Saturation Present? (includes capillary fringe)	Yes ◉	No ○	Depth (inches):	0

Wetland Hydrology Present? Yes ◉ No ○

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: Vista Ranch | City/County: Fresno County, CA | Sampling Date: 6/21/23

Applicant/Owner: Wilson Premier Homes | State: CA | Sampling Point: P19

Investigator(s): John Vollmar | Section, Township, Range: S22, T12S, R21E

Landform (hillslope, terrace, etc.): Terrace | Local relief (concave, convex, none): Convex | Slope (%): 1

Subregion (LRR): C - Mediterranean California | Lat: 36.875877 | Long: -119.669762 | Datum: NAD83

Soil Map Unit Name: San Joaquin loam, 0-3% slopes | NWI classification: N/A

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ○ No ◉ (If no, explain in Remarks.)

Are Vegetation ☐ Soil ☐ or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ○ No ◉

Are Vegetation ☐ Soil ☐ or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ◉	No ○	
Hydric Soil Present?	Yes ○	No ◉	**Is the Sampled Area within a Wetland?** Yes ○ No ◉
Wetland Hydrology Present?	Yes ○	No ◉	

Remarks:

Upland habitat adjacent to wetland at P20. Marginal wetland vegetation likely due to extensive flooding due to atypical heavy winter rains.

VEGETATION - Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum Plot size: 25 feet			
1.			
2.			
3.			
4.			
	%		
Sapling/Shrub Stratum Plot size: 15 feet			
1.			
2.			
3.			
4.			
5.			
Total Cover:	%		
Herb Stratum Plot size: 5 feet			
1. *Centaurea solstitialis*	25	Yes	Not Listed
2. *Festuca perennis*	30	Yes	FAC
3. *Centromadia pungens*	10	No	FAC
4. *Avena barbata*	2	No	Not Listed
5. *Bromus hordeaceus*	2	No	FACU
6. *Hordeum marinum ssp. gussoneanum*	15	No	FAC
7. *Lactuca serriola*	1	No	FACU
8.			
Total Cover:	85 %		
Woody Vine Stratum Plot size:			
1.			
2.			
Total Cover:	%		

% Bare Ground in Herb Stratum 15 % | % Cover of Biotic Crust %

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 50.0 % (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species		x 1 =	0
FACW species		x 2 =	0
FAC species	55	x 3 =	165
FACU species	3	x 4 =	12
UPL species		x 5 =	0
Column Totals:	58 (A)		177 (B)

Prevalence Index = B/A = 3.05

Hydrophytic Vegetation Indicators:

- ◉ Dominance Test is >50%
- ◉ Prevalence Index is ≤3.0[1]
- ☐ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? Yes ◉ No ○

Remarks:

SOIL

Sampling Point: P19

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture[3]	Remarks
0-12+	10YR3/2	100					clay loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2] CS=Covered or Coated Sand Grains. Location: PL=Pore Lining, M=Matrix.
[3]Soil Textures: Clay, Silty Clay, Sandy Clay, Loam, Sandy Clay Loam, Sandy Loam, Clay Loam, Silty Clay Loam, Silt Loam, Silt, Loamy Sand, Sand.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (**LRR C**)
- ☐ 1 cm Muck (A9) (**LRR D**)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Vernal Pools (F9)

Indicators for Problematic Hydric Soils

- ☐ 1 cm Muck (A9) (**LRR C**)
- ☐ 2 cm Muck (A10) (**LRR B**)
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☐ Other (Explain in Remarks)

[4]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ○ No ◉

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1) (**Nonriverine**)
- ☐ Sediment Deposits (B2) (**Nonriverine**)
- ☐ Drift Deposits (B3) (**Nonriverine**)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Salt Crust (B11)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water Marks (B1) (**Riverine**)
- ☐ Sediment Deposits (B2) (**Riverine**)
- ☐ Drift Deposits (B3) (**Riverine**)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ○ No ◉ Depth (inches): _____

Water Table Present? Yes ○ No ◉ Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes ○ No ◉ Depth (inches): _____

Wetland Hydrology Present? Yes ○ No ◉

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

No indicators of wetland hydrology.

WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: Vista Ranch | City/County: Fresno County, CA | Sampling Date: 6/21/23

Applicant/Owner: Wilson Premier Homes | State: CA | Sampling Point: P20

Investigator(s): John Vollmar | Section, Township, Range: S22, T12S, R21E

Landform (hillslope, terrace, etc.): Swale | Local relief (concave, convex, none): Concave | Slope (%): 1

Subregion (LRR): C - Mediterranean California | Lat: 36.875894 | Long: -119.669712 | Datum: NAD83

Soil Map Unit Name: San Joaquin loam, 0-3% slopes | NWI classification: N/A

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ○ No ◉ (If no, explain in Remarks.)

Are Vegetation ☐ Soil ☐ or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ◉ No ○

Are Vegetation ☐ Soil ☐ or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ◉	No ○	
Hydric Soil Present?	Yes ◉	No ○	**Is the Sampled Area within a Wetland?** Yes ◉ No ○
Wetland Hydrology Present?	Yes ◉	No ○	

Remarks:

Basin along swale formed adjacent to reservoir outflow channel berm.

VEGETATION - Use scientific names of plants.

Tree Stratum Plot size: 25 feet	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	%		
Sapling/Shrub Stratum Plot size: 15 feet			
1.			
2.			
3.			
4.			
5.			
Total Cover:	%		
Herb Stratum Plot size: 5 feet			
1. *Lythrum hyssopifolia*	30	Yes	OBL
2. *Rumex crispus*	5	No	FAC
3. *Festuca perennis*	15	Yes	FAC
4. *Plagiobothrys stipitatus var. micranthus*	3	No	FACW
5. *Triglochin scilloides*	2	No	OBL
6. *Eleocharis macrostachya*	3	No	OBL
7. *Polypogon monspeliensis*	2	No	FACW
8.			
Total Cover:	60 %		
Woody Vine Stratum Plot size:			
1.			
2.			
Total Cover:	%		

% Bare Ground in Herb Stratum 40 % | % Cover of Biotic Crust %

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100.0 % (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	35	x 1 =	35
FACW species	5	x 2 =	10
FAC species	20	x 3 =	60
FACU species		x 4 =	0
UPL species		x 5 =	0
Column Totals:	60 (A)		105 (B)

Prevalence Index = B/A = 1.75

Hydrophytic Vegetation Indicators:

- ☒ Dominance Test is >50%
- ☒ Prevalence Index is ≤3.0[1]
- ☐ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? Yes ◉ No ○

Remarks:

SOIL

Sampling Point: P20

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture[3]	Remarks
0-16+	10YR3/2	80	7.5YR4/6	20	D	M	loamy clay	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2] CS=Covered or Coated Sand Grains. Location: PL=Pore Lining, M=Matrix.
[3]Soil Textures: Clay, Silty Clay, Sandy Clay, Loam, Sandy Clay Loam, Sandy Loam, Clay Loam, Silty Clay Loam, Silt Loam, Silt, Loamy Sand, Sand.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (**LRR C**)
- ☐ 1 cm Muck (A9) (**LRR D**)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☒ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☒ Redox Depressions (F8)
- ☐ Vernal Pools (F9)

Indicators for Problematic Hydric Soils

- ☐ 1 cm Muck (A9) (**LRR C**)
- ☐ 2 cm Muck (A10) (**LRR B**)
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☐ Other (Explain in Remarks)

[4]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ◉ No ○

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1) (**Nonriverine**)
- ☒ Sediment Deposits (B2) (**Nonriverine**)
- ☐ Drift Deposits (B3) (**Nonriverine**)
- ☒ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Salt Crust (B11)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water Marks (B1) (**Riverine**)
- ☐ Sediment Deposits (B2) (**Riverine**)
- ☐ Drift Deposits (B3) (**Riverine**)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ○ No ◉ Depth (inches): _____

Water Table Present? Yes ○ No ◉ Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes ○ No ◉ Depth (inches): _____

Wetland Hydrology Present? Yes ◉ No ○

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: Vista Ranch | City/County: Fresno County, CA | Sampling Date: 6/21/23

Applicant/Owner: Wilson Premier Homes | State: CA | Sampling Point: P21

Investigator(s): John Vollmar | Section, Township, Range: S22, T12S, R21E

Landform (hillslope, terrace, etc.): Creek Channel (abandoned) | Local relief (concave, convex, none): None: flat | Slope (%): 0

Subregion (LRR): C - Mediterranean California | Lat: 36.872269 | Long: -119.661903 | Datum: NAD83

Soil Map Unit Name: Riverwash | NWI classification: N/A

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ○ No ◉ (If no, explain in Remarks.)

Are Vegetation ☐ Soil ☐ or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ○ No ◉

Are Vegetation ☐ Soil ☐ or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ○	No ◉	
Hydric Soil Present?	Yes ○	No ◉	**Is the Sampled Area within a Wetland?** Yes ○ No ◉
Wetland Hydrology Present?	Yes ○	No ◉	

Remarks:

Abandoned remnant Dry Creek channel. No indications of wetlands or other waters in spite of heavy winter rains this season.

VEGETATION - Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum Plot size: 25 feet			
1.			
2.			
3.			
4.			
	%		
Sapling/Shrub Stratum Plot size: 15 feet			
1.			
2.			
3.			
4.			
5.			
Total Cover:	%		
Herb Stratum Plot size: 5 feet			
1. *Lupinus formosus*	12	Yes	Not Listed
2. *Bromus madritensis*	8	Yes	UPL
3. *Eriogonum gracile*	2	No	Not Listed
4. *Festuca myuros*	5	No	FACU
5. *Erodium moschatum*	5	No	Not Listed
6. *Layia platyglossa*	1	No	Not Listed
7. *Amsinckia menziesii*	1	No	Not Listed
8.			
Total Cover:	34 %		
Woody Vine Stratum Plot size:			
1.			
2.			
Total Cover:	%		

% Bare Ground in Herb Stratum 66 % | % Cover of Biotic Crust %

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0.0 % (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species		x 1 =	0
FACW species		x 2 =	0
FAC species		x 3 =	0
FACU species	5	x 4 =	20
UPL species	8	x 5 =	40
Column Totals:	13 (A)		60 (B)

Prevalence Index = B/A = 4.62

Hydrophytic Vegetation Indicators:

- ◉ Dominance Test is >50%
- ◉ Prevalence Index is ≤3.0[1]
- ☐ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? Yes ○ No ◉

Remarks:

SOIL

Sampling Point: P21

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture[3]	Remarks
0-16+	10YR4/4	100					Coarse sand	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2] CS=Covered or Coated Sand Grains. Location: PL=Pore Lining, M=Matrix.
[3]Soil Textures: Clay, Silty Clay, Sandy Clay, Loam, Sandy Clay Loam, Sandy Loam, Clay Loam, Silty Clay Loam, Silt Loam, Silt, Loamy Sand, Sand.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (**LRR C**)
- ☐ 1 cm Muck (A9) (**LRR D**)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Vernal Pools (F9)

Indicators for Problematic Hydric Soils

- ☐ 1 cm Muck (A9) (**LRR C**)
- ☐ 2 cm Muck (A10) (**LRR B**)
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☐ Other (Explain in Remarks)

[4]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ○ No ◉

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1) (**Nonriverine**)
- ☐ Sediment Deposits (B2) (**Nonriverine**)
- ☐ Drift Deposits (B3) (**Nonriverine**)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Salt Crust (B11)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water Marks (B1) (**Riverine**)
- ☐ Sediment Deposits (B2) (**Riverine**)
- ☐ Drift Deposits (B3) (**Riverine**)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ○ No ◉ Depth (inches): _____

Water Table Present? Yes ○ No ◉ Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes ○ No ◉ Depth (inches): _____

Wetland Hydrology Present? Yes ○ No ◉

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

No indicators of wetland hydrology.

WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: Vista Ranch | City/County: Fresno County, CA | Sampling Date: 6/21/23

Applicant/Owner: Wilson Premier Homes | State: CA | Sampling Point: P22

Investigator(s): John Vollmar | Section, Township, Range: S21, T12S, R21E

Landform (hillslope, terrace, etc.): Terrace | Local relief (concave, convex, none): None: flat | Slope (%): 0

Subregion (LRR): C - Mediterranean California | Lat: 36.880550 | Long: -119.678306 | Datum: NAD83

Soil Map Unit Name: Atwater sandy loam, moderately deep, 0-3% slopes | NWI classification: N/A

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ○ No ◉ (If no, explain in Remarks.)

Are Vegetation ☐ Soil ☐ or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ○ No ◉

Are Vegetation ☐ Soil ☐ or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ◉	No ○
Hydric Soil Present?	Yes ○	No ◉
Wetland Hydrology Present?	Yes ◉	No ○

Is the Sampled Area within a Wetland? Yes ○ No ◉

Remarks:

Broad, flat, shallow depression. Presence/cover of wetland plants likely enhanced by high seasonal flooding. Non-hydric soils indicate not a wetland habitat.

VEGETATION - Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum Plot size: 25 feet			
1.			
2.			
3.			
4.			
	%		
Sapling/Shrub Stratum Plot size: 15 feet			
1.			
2.			
3.			
4.			
5.			
Total Cover:	%		
Herb Stratum Plot size: 5 feet			
1. *Phalaris paradoxa*	4	No	FAC
2. *Hirschfeldia incana*	9	Yes	Not Listed
3. *Avena barbata*	5	No	Not Listed
4. *Lactuca serriola*	1	No	FACU
5. *Festuca myuros*	1	No	FACU
6. *Hordeum marinum ssp. gussoneanum*	1	No	FAC
7. *Rumex crispus*	8	Yes	FAC
8. *Lythrum hyssopifolia*	2	No	OBL
Total Cover:	31 %		
Woody Vine Stratum Plot size:			
1.			
2.			
Total Cover:	%		

% Bare Ground in Herb Stratum 69 % | % Cover of Biotic Crust %

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 50.0 % (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	2	x 1 =	2
FACW species		x 2 =	0
FAC species	13	x 3 =	39
FACU species	2	x 4 =	8
UPL species		x 5 =	0
Column Totals:	17 (A)		49 (B)

Prevalence Index = B/A = 2.88

Hydrophytic Vegetation Indicators:

- ☐ Dominance Test is >50%
- ☒ Prevalence Index is ≤3.0[1]
- ☐ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? Yes ◉ No ○

Remarks:

Heavy thatch of upland annual grasses, likely due to previous years without unusual flooding.

SOIL

Sampling Point: P22

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture[3]	Remarks
0-4	7.5YR3/3	100					Loamy clay	
4-12+	7.5YR3/3	98	5YR4/4	2	D	M	Clay	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2] CS=Covered or Coated Sand Grains. Location: PL=Pore Lining, M=Matrix.
[3]Soil Textures: Clay, Silty Clay, Sandy Clay, Loam, Sandy Clay Loam, Sandy Loam, Clay Loam, Silty Clay Loam, Silt Loam, Silt, Loamy Sand, Sand.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (**LRR C**)
- ☐ 1 cm Muck (A9) (**LRR D**)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Vernal Pools (F9)

Indicators for Problematic Hydric Soils

- ☐ 1 cm Muck (A9) (**LRR C**)
- ☐ 2 cm Muck (A10) (**LRR B**)
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☐ Other (Explain in Remarks)

[4]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ○ No ◉

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1) (**Nonriverine**)
- ☒ Sediment Deposits (B2) (**Nonriverine**)
- ☐ Drift Deposits (B3) (**Nonriverine**)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Salt Crust (B11)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water Marks (B1) (**Riverine**)
- ☐ Sediment Deposits (B2) (**Riverine**)
- ☐ Drift Deposits (B3) (**Riverine**)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ○ No ◉ Depth (inches): _____

Water Table Present? Yes ○ No ◉ Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes ○ No ◉ Depth (inches): _____

Wetland Hydrology Present? Yes ◉ No ○

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

High seasonal flooding caused atypical sediment deposits.

WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: Vista Ranch | City/County: Fresno County, CA | Sampling Date: 6/21/23

Applicant/Owner: Wilson Premier Homes | State: CA | Sampling Point: P23

Investigator(s): John Vollmar | Section, Township, Range: S21, T12S, R21E

Landform (hillslope, terrace, etc.): Swale | Local relief (concave, convex, none): Concave | Slope (%): 1

Subregion (LRR): C - Mediterranean California | Lat: 36.880229 | Long: -119.677822 | Datum: NAD83

Soil Map Unit Name: Atwater sandy loam, moderately deep, 0-3% slopes | NWI classification: N/A

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ○ No ◉ (If no, explain in Remarks.)

Are Vegetation ☐ Soil ☐ or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ○ No ◉

Are Vegetation ☐ Soil ☐ or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ○	No ◉	
Hydric Soil Present?	Yes ○	No ◉	**Is the Sampled Area within a Wetland?** Yes ○ No ◉
Wetland Hydrology Present?	Yes ◉	No ○	

Remarks:

Upland habitat along swale leading into stockpond at P24. Wetland conditions likely enhanced by atypical heavy winter rains, non-hydric soils indicate non-wetland.

VEGETATION - Use scientific names of plants.

Tree Stratum Plot size: 25 feet	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	%		
Sapling/Shrub Stratum Plot size: 15 feet			
1.			
2.			
3.			
4.			
5.			
Total Cover:	%		
Herb Stratum Plot size: 5 feet			
1. *Phalaris paradoxa*	10	Yes	FAC
2. *Rumex crispus*	5	No	FAC
3. *Lythrum hyssopifolia*	5	No	OBL
4. *Bromus hordeaceus*	10	Yes	FACU
5. *Avena barbata*	1	No	Not Listed
6. *Croton setiger*	1	No	Not Listed
7. *Sonchus oleraceus*	1	No	UPL
8. *Vicia villosa*	1	No	Not Listed
Total Cover:	34 %		
Woody Vine Stratum Plot size:			
1.			
2.			
Total Cover:	%		

% Bare Ground in Herb Stratum 66 % | % Cover of Biotic Crust %

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 50.0 % (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	5	x 1 =	5
FACW species		x 2 =	0
FAC species	15	x 3 =	45
FACU species	10	x 4 =	40
UPL species	1	x 5 =	5
Column Totals:	31 (A)		95 (B)

Prevalence Index = B/A = 3.06

Hydrophytic Vegetation Indicators:

- ◉ Dominance Test is >50%
- ◉ Prevalence Index is ≤3.0[1]
- ☐ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? Yes ○ No ◉

Remarks:

SOIL

Sampling Point: P23

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture[3]	Remarks
0-8	7.5YR3/3	100					Clay loam	
8	7.5YR3/3	98	5YR3/4	2	D	M	Clay loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2] CS=Covered or Coated Sand Grains. Location: PL=Pore Lining, M=Matrix.
[3]Soil Textures: Clay, Silty Clay, Sandy Clay, Loam, Sandy Clay Loam, Sandy Loam, Clay Loam, Silty Clay Loam, Silt Loam, Silt, Loamy Sand, Sand.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (**LRR C**)
- ☐ 1 cm Muck (A9) (**LRR D**)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Vernal Pools (F9)

Indicators for Problematic Hydric Soils

- ☐ 1 cm Muck (A9) (**LRR C**)
- ☐ 2 cm Muck (A10) (**LRR B**)
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☐ Other (Explain in Remarks)

[4]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ○ No ◉

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1) (**Nonriverine**)
- ☒ Sediment Deposits (B2) (**Nonriverine**)
- ☐ Drift Deposits (B3) (**Nonriverine**)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Salt Crust (B11)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water Marks (B1) (**Riverine**)
- ☐ Sediment Deposits (B2) (**Riverine**)
- ☐ Drift Deposits (B3) (**Riverine**)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ○ No ◉ Depth (inches): _____

Water Table Present? Yes ○ No ◉ Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes ○ No ◉ Depth (inches): _____

Wetland Hydrology Present? Yes ◉ No ○

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Area subject to flooding due to unusual heavy seasonal rains. This accounts for sediment deposits, atypical.

WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: Vista Ranch | City/County: Fresno County, CA | Sampling Date: 6/21/23

Applicant/Owner: Wilson Premier Homes | State: CA | Sampling Point: P24

Investigator(s): John Vollmar | Section, Township, Range: S21, T12S, R21E

Landform (hillslope, terrace, etc.): Terrace | Local relief (concave, convex, none): Concave | Slope (%): 1

Subregion (LRR): C - Mediterranean California | Lat: 36.880170 | Long: -119.677872 | Datum: NAD83

Soil Map Unit Name: Atwater sandy loam, moderately deep, 0-3% slopes | NWI classification: N/A

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ○ No ◉ (If no, explain in Remarks.)

Are Vegetation ☐ Soil ☐ or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ○ No ◉

Are Vegetation ☐ Soil ☐ or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ◉	No ○	
Hydric Soil Present?	Yes ◉	No ○	**Is the Sampled Area within a Wetland?** Yes ◉ No ○
Wetland Hydrology Present?	Yes ◉	No ○	

Remarks:

Upper margin of stockpond excavated in upland area.

VEGETATION - Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum Plot size: 25 feet			
1.			
2.			
3.			
4.			
	%		
Sapling/Shrub Stratum Plot size: 15 feet			
1.			
2.			
3.			
4.			
5.			
Total Cover:	%		
Herb Stratum Plot size: 5 feet			
1. *Eleocharis macrostachya*	7	Yes	OBL
2. *Phalaris paradoxa*	6	Yes	FAC
3. *Rumex crispus*	10	Yes	FAC
4. *Hordeum marinum ssp. gussoneanum*	3	No	FAC
5. *Lythrm hyssopifolia*	1	No	OBL
6. *Eryngium castrense*	1	No	OBL
7. *Amaranthus albus*	1	No	FACU
8.			
Total Cover:	29 %		
Woody Vine Stratum Plot size:			
1.			
2.			
Total Cover:	%		

% Bare Ground in Herb Stratum 71 % | % Cover of Biotic Crust %

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 3 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100.0 % (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	9	x 1 =	9
FACW species		x 2 =	0
FAC species	19	x 3 =	57
FACU species	1	x 4 =	4
UPL species		x 5 =	0
Column Totals:	29 (A)		70 (B)

Prevalence Index = B/A = 2.41

Hydrophytic Vegetation Indicators:

- ☒ Dominance Test is >50%
- ☒ Prevalence Index is ≤3.0[1]
- ☐ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? Yes ◉ No ○

Remarks:

Heavy thatch cover.

SOIL

Sampling Point: P24

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture[3]	Remarks
0-6	7.5YR2.5/3	95	5YR3/4	5	D	M	Clay loam	
6-10	7.5YR2.5/3	70	5YR3/4	30	D	M	Clay	
10-16+	7.5YR2.5/3	90	5YR4/6	10	D	M	Clay	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2] CS=Covered or Coated Sand Grains. Location: PL=Pore Lining, M=Matrix.
[3]Soil Textures: Clay, Silty Clay, Sandy Clay, Loam, Sandy Clay Loam, Sandy Loam, Clay Loam, Silty Clay Loam, Silt Loam, Silt, Loamy Sand, Sand.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (**LRR C**)
- ☐ 1 cm Muck (A9) (**LRR D**)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☒ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☒ Redox Depressions (F8)
- ☐ Vernal Pools (F9)

Indicators for Problematic Hydric Soils

- ☐ 1 cm Muck (A9) (**LRR C**)
- ☐ 2 cm Muck (A10) (**LRR B**)
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☐ Other (Explain in Remarks)

[4]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ◉ No ○

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1) (**Nonriverine**)
- ☒ Sediment Deposits (B2) (**Nonriverine**)
- ☐ Drift Deposits (B3) (**Nonriverine**)
- ☒ Surface Soil Cracks (B6)
- ☒ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Salt Crust (B11)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water Marks (B1) (**Riverine**)
- ☐ Sediment Deposits (B2) (**Riverine**)
- ☐ Drift Deposits (B3) (**Riverine**)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ○ No ◉ Depth (inches): _____

Water Table Present? Yes ○ No ◉ Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes ○ No ◉ Depth (inches): _____

Wetland Hydrology Present? Yes ◉ No ○

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Flooded at time of April 17 site visit for other surveys. Within OHWM of stock pond.

WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: Vista Ranch | City/County: Fresno County, CA | Sampling Date: 6/21/23

Applicant/Owner: Wilson Premier Homes | State: CA | Sampling Point: P25

Investigator(s): John Vollmar | Section, Township, Range: S21, T12S, R21E

Landform (hillslope, terrace, etc.): Terrace | Local relief (concave, convex, none): None: flat | Slope (%): 1

Subregion (LRR): C - Mediterranean California | Lat: 36.879202 | Long: -119.679005 | Datum: NAD83

Soil Map Unit Name: Atwater sandy loam, moderately deep, 0 to 3% slopes | NWI classification: N/A

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ○ No ◉ (If no, explain in Remarks.)

Are Vegetation ☐ Soil ☐ or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ○ No ◉

Are Vegetation ☐ Soil ☐ or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ◉	No ○	
Hydric Soil Present?	Yes ○	No ◉	**Is the Sampled Area within a Wetland?** Yes ○ No ◉
Wetland Hydrology Present?	Yes ◉	No ○	

Remarks:

Upland habitat adjacent to upper margin of constructed stockpond, just above stockpond OHWM. Presence/cover of wetland plants likely enhanced this season by atypical heavy winter rains.

VEGETATION - Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum Plot size: 25 feet			
1.			
2.			
3.			
4.			
	%		
Sapling/Shrub Stratum Plot size: 15 feet			
1.			
2.			
3.			
4.			
5.			
Total Cover:	%		
Herb Stratum Plot size: 5 feet			
1. *Helianthus annuus*	50	Yes	FACU
2. *Eleocharis macrostachya*	10	No	OBL
3. *Amaranthus albus*	10	No	FACU
4. *Rumex crispus*	2	No	FAC
5. *Sonchus oleraceus*	1	No	UPL
6. *Lythrum hyssopifolia*	1	No	OBL
7. *Brassica nigra*	1	No	Not Listed
8. *Vicia villosa*	1	No	Not Listed
Total Cover:	76 %		
Woody Vine Stratum Plot size:			
1.			
2.			
Total Cover:	%		

% Bare Ground in Herb Stratum 24 % | % Cover of Biotic Crust %

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0.0 % (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	11	x 1 =	11
FACW species		x 2 =	0
FAC species	2	x 3 =	6
FACU species	60	x 4 =	240
UPL species	1	x 5 =	5
Column Totals:	74 (A)		262 (B)

Prevalence Index = B/A = 3.54

Hydrophytic Vegetation Indicators:

- ◉ Dominance Test is >50%
- ◉ Prevalence Index is ≤3.0[1]
- ☐ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? Yes ◉ No ○

Remarks:

High cover of ELEMAC likely due to excess ponding from heavy rains, atypical.

SOIL

Sampling Point: P25

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture[3]	Remarks
0-4	7.5YR3/3						Clay loam	
4-16+	7.5YR3/2	98	5YR3/4	2	D	M	Clay loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2] CS=Covered or Coated Sand Grains. Location: PL=Pore Lining, M=Matrix.
[3]Soil Textures: Clay, Silty Clay, Sandy Clay, Loam, Sandy Clay Loam, Sandy Loam, Clay Loam, Silty Clay Loam, Silt Loam, Silt, Loamy Sand, Sand.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (**LRR C**)
- ☐ 1 cm Muck (A9) (**LRR D**)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Vernal Pools (F9)

Indicators for Problematic Hydric Soils

- ☐ 1 cm Muck (A9) (**LRR C**)
- ☐ 2 cm Muck (A10) (**LRR B**)
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☐ Other (Explain in Remarks)

[4]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ○ No ◉

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1) (**Nonriverine**)
- ☒ Sediment Deposits (B2) (**Nonriverine**)
- ☐ Drift Deposits (B3) (**Nonriverine**)
- ☒ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Salt Crust (B11)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water Marks (B1) (**Riverine**)
- ☐ Sediment Deposits (B2) (**Riverine**)
- ☐ Drift Deposits (B3) (**Riverine**)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ○ No ◉ Depth (inches): _____

Water Table Present? Yes ○ No ◉ Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes ○ No ◉ Depth (inches): _____

Wetland Hydrology Present? Yes ◉ No ○

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Above pond OHWM. Just above ponded area during winter survey. Sediment deposits and surface soil cracks likely due to excess atypical flooding from heavy winter rains.

WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: Vista Ranch | City/County: Fresno County, CA | Sampling Date: 6/21/23

Applicant/Owner: Wilson Premier Homes | State: CA | Sampling Point: P26

Investigator(s): John Vollmar | Section, Township, Range: S21, T12S, R21E

Landform (hillslope, terrace, etc.): Terrace | Local relief (concave, convex, none): Concave | Slope (%): 5

Subregion (LRR): C - Mediterranean California | Lat: 36.879201 | Long: -119.679036 | Datum: NAD83

Soil Map Unit Name: Atwater sandy loam, moderately deep, 0 to 3% slopes | NWI classification: N/A

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ○ No ◉ (If no, explain in Remarks.)

Are Vegetation ☐ Soil ☐ or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ○ No ◉

Are Vegetation ☐ Soil ☐ or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ◉	No ○	
Hydric Soil Present?	Yes ◉	No ○	**Is the Sampled Area within a Wetland?** Yes ◉ No ○
Wetland Hydrology Present?	Yes ◉	No ○	

Remarks:

Upper margin of stockpond within OHWM. 12+ deep ponded water at time of survey in pond basin.

VEGETATION - Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum Plot size: 25 feet			
1.			
2.			
3.			
4.			
	%		
Sapling/Shrub Stratum Plot size: 15 feet			
1.			
2.			
3.			
4.			
5.			
Total Cover:	%		
Herb Stratum Plot size: 5 feet			
1. *Eleocharis macrostachya*	40	Yes	OBL
2. *Echinodorus berteroi*	20	Yes	OBL
3. *Helianthus annuus*	5	No	FACU
4.	1	No	
5.			
6.			
7.			
8.			
Total Cover:	66 %		
Woody Vine Stratum Plot size:			
1.			
2.			
Total Cover:	%		

% Bare Ground in Herb Stratum 34 % | % Cover of Biotic Crust %

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100.0 % (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	60	x 1 =	60
FACW species		x 2 =	0
FAC species		x 3 =	0
FACU species	5	x 4 =	20
UPL species		x 5 =	0
Column Totals:	65 (A)		80 (B)

Prevalence Index = B/A = 1.23

Hydrophytic Vegetation Indicators:

- ☒ Dominance Test is >50%
- ☒ Prevalence Index is ≤3.0[1]
- ☐ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? Yes ◉ No ○

Remarks:

SOIL

Sampling Point: P26

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture[3]	Remarks
0-8	7.5YR3/2	95	5YR4/6	5	D	M	Silty clay loam	
8-10	7.5YR3/2	80	5YR4/6	20	D	M	Silty clay	
10-14+	7.5YR3/1	100					Silty clay	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2] CS=Covered or Coated Sand Grains. Location: PL=Pore Lining, M=Matrix.
[3]Soil Textures: Clay, Silty Clay, Sandy Clay, Loam, Sandy Clay Loam, Sandy Loam, Clay Loam, Silty Clay Loam, Silt Loam, Silt, Loamy Sand, Sand.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (**LRR C**)
- ☐ 1 cm Muck (A9) (**LRR D**)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☒ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☒ Redox Depressions (F8)
- ☐ Vernal Pools (F9)

Indicators for Problematic Hydric Soils

- ☐ 1 cm Muck (A9) (**LRR C**)
- ☐ 2 cm Muck (A10) (**LRR B**)
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☐ Other (Explain in Remarks)

[4]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ◉ No ○

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1) (**Nonriverine**)
- ☒ Sediment Deposits (B2) (**Nonriverine**)
- ☐ Drift Deposits (B3) (**Nonriverine**)
- ☒ Surface Soil Cracks (B6)
- ☒ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Salt Crust (B11)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☒ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water Marks (B1) (**Riverine**)
- ☐ Sediment Deposits (B2) (**Riverine**)
- ☐ Drift Deposits (B3) (**Riverine**)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ○ No ◉ Depth (inches): _____

Water Table Present? Yes ○ No ◉ Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes ○ No ◉ Depth (inches): _____

Wetland Hydrology Present? Yes ◉ No ○

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

With OHWM of man-made stockpond.

WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: Vista Ranch | City/County: Fresno County, CA | Sampling Date: 6/21/23

Applicant/Owner: Wilson Premier Homes | State: CA | Sampling Point: P27

Investigator(s): John Vollmar | Section, Township, Range: S21, T12S, R21E

Landform (hillslope, terrace, etc.): Terrace | Local relief (concave, convex, none): None: flat | Slope (%): 1

Subregion (LRR): C - Mediterranean California | Lat: 36.879201 | Long: -119.679036 | Datum: NAD83

Soil Map Unit Name: San Joaquin loam, 0-3% slopes | NWI classification: N/A

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ○ No ◉ (If no, explain in Remarks.)

Are Vegetation ☐ Soil ☐ or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ○ No ◉

Are Vegetation ☐ Soil ☐ or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ◉	No ○	
Hydric Soil Present?	Yes ○	No ◉	**Is the Sampled Area within a Wetland?** Yes ○ No ◉
Wetland Hydrology Present?	Yes ◉	No ○	

Remarks:

Shallow, broad swale, likely subject to unusual flooding this season due to heavy rains.

VEGETATION - Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum Plot size: 25 feet			
1.			
2.			
3.			
4.			
	%		
Sapling/Shrub Stratum Plot size: 15 feet			
1.			
2.			
3.			
4.			
5.			
Total Cover:	%		
Herb Stratum Plot size: 5 feet			
1. *Rumex crispus*	15	Yes	FAC
2. *Bromus hordeaceus*	5	No	FACU
3. *Bromus diandrus*	2	No	Not Listed
4. *Avena barbata*	10	Yes	Not Listed
5. *Centromadia pungens*	1	No	FAC
6. *Helianthus annuus*	1	No	FACU
7. *Lythrum hyssopifolia*	1	No	OBL
8. *Centaurea solstitialis*	1	No	Not Listed
Total Cover:	36 %		
Woody Vine Stratum Plot size:			
1.			
2.			
Total Cover:	%		

% Bare Ground in Herb Stratum 64 % | % Cover of Biotic Crust %

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 50.0 % (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	1	x 1 =	1
FACW species		x 2 =	0
FAC species	16	x 3 =	48
FACU species	6	x 4 =	24
UPL species		x 5 =	0
Column Totals:	23 (A)		73 (B)

Prevalence Index = B/A = 3.17

Hydrophytic Vegetation Indicators:

- ◉ Dominance Test is >50%
- ◉ Prevalence Index is ≤3.0[1]
- ☐ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? Yes ◉ No ○

Remarks:

Elevated cover of RUMCRI likely due to flooding from atypical heavy seasonal rains.
Heavy thatch cover from upland annual grasses indicates likely upland vegetation during normal rain years.

SOIL

Sampling Point: P27

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture[3]	Remarks
0-10	7.5YR3/3	100					Clay loam	
10-14+	7.5YR3/2	98	5YR3/4	2			Clay loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2] CS=Covered or Coated Sand Grains. Location: PL=Pore Lining, M=Matrix.
[3]Soil Textures: Clay, Silty Clay, Sandy Clay, Loam, Sandy Clay Loam, Sandy Loam, Clay Loam, Silty Clay Loam, Silt Loam, Silt, Loamy Sand, Sand.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (**LRR C**)
- ☐ 1 cm Muck (A9) (**LRR D**)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Vernal Pools (F9)

Indicators for Problematic Hydric Soils

- ☐ 1 cm Muck (A9) (**LRR C**)
- ☐ 2 cm Muck (A10) (**LRR B**)
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☐ Other (Explain in Remarks)

[4]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ○ No ◉

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1) (**Nonriverine**)
- ☒ Sediment Deposits (B2) (**Nonriverine**)
- ☐ Drift Deposits (B3) (**Nonriverine**)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Salt Crust (B11)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water Marks (B1) (**Riverine**)
- ☐ Sediment Deposits (B2) (**Riverine**)
- ☐ Drift Deposits (B3) (**Riverine**)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ○ No ◉ Depth (inches): _____

Water Table Present? Yes ○ No ◉ Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes ○ No ◉ Depth (inches): _____

Wetland Hydrology Present? Yes ◉ No ○

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Sediment deposits due to unusual flooding this season from heavy rains. No other wetland hydrology indicators.

WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: Vista Ranch | City/County: Fresno County, CA | Sampling Date: 6/21/23

Applicant/Owner: Wilson Premier Homes | State: CA | Sampling Point: P28

Investigator(s): John Vollmar | Section, Township, Range: S21, T12S, R21E

Landform (hillslope, terrace, etc.): Terrace | Local relief (concave, convex, none): None: flat | Slope (%): 1

Subregion (LRR): C - Mediterranean California | Lat: 36.879534 | Long: -119.678832 | Datum: NAD83

Soil Map Unit Name: Atwater sandy loam, moderately deep, 0 to 3% slopes | NWI classification: N/A

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ○ No ◉ (If no, explain in Remarks.)

Are Vegetation ☐ Soil ☐ or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ○ No ◉

Are Vegetation ☐ Soil ☐ or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ◉	No ○	
Hydric Soil Present?	Yes ○	No ◉	**Is the Sampled Area within a Wetland?** Yes ○ No ◉
Wetland Hydrology Present?	Yes ◉	No ○	

Remarks:

Broad, shallow swale between stockponds to north and south. Presence/cover of wetland plants likely enhanced by atypical heavy seasonal rains.

VEGETATION - Use scientific names of plants.

Tree Stratum Plot size: 25 feet	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	%		
Sapling/Shrub Stratum Plot size: 15 feet			
1.			
2.			
3.			
4.			
5.			
Total Cover:	%		
Herb Stratum Plot size: 5 feet			
1. *Rumex crispus*	20	Yes	FAC
2. *Bromus diandrus*	5	No	Not Listed
3. *Avena barbata*	3	No	Not Listed
4. *Lythrum hyssopifolia*	1	No	OBL
5. *Croton setiger*	3	No	Not Listed
6. *Centromadia pungens*	1	No	FAC
7. *Phalaris paradoxa*	4	No	FAC
8. *Bromus hordeaceus*	5	No	FACU
Total Cover:	42 %		
Woody Vine Stratum Plot size:			
1.			
2.			
Total Cover:	%		

% Bare Ground in Herb Stratum 58 % | % Cover of Biotic Crust %

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100.0 % (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	1	x 1 =	1
FACW species		x 2 =	0
FAC species	25	x 3 =	75
FACU species	5	x 4 =	20
UPL species		x 5 =	0
Column Totals:	31 (A)		96 (B)

Prevalence Index = B/A = 3.10

Hydrophytic Vegetation Indicators:

- ☒ Dominance Test is >50%
- ☐ Prevalence Index is ≤3.0[1]
- ☐ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? Yes ◉ No ○

Remarks:

RUMCRI cover likely enhanced this season by heavy rains. Heavy thatch cover from upland annual grasses indicates high cover during typical rain years.

SOIL

Sampling Point: P28

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture[3]	Remarks
0-10	7.5YR3/3	100					Clay loam	
10-14+	7.5YR3/2	98	5YR3/4	2			Clay	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2] CS=Covered or Coated Sand Grains. Location: PL=Pore Lining, M=Matrix.
[3]Soil Textures: Clay, Silty Clay, Sandy Clay, Loam, Sandy Clay Loam, Sandy Loam, Clay Loam, Silty Clay Loam, Silt Loam, Silt, Loamy Sand, Sand.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (**LRR C**)
- ☐ 1 cm Muck (A9) (**LRR D**)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Vernal Pools (F9)

Indicators for Problematic Hydric Soils

- ☐ 1 cm Muck (A9) (**LRR C**)
- ☐ 2 cm Muck (A10) (**LRR B**)
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☐ Other (Explain in Remarks)

[4]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ○ No ◉

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1) (**Nonriverine**)
- ☒ Sediment Deposits (B2) (**Nonriverine**)
- ☐ Drift Deposits (B3) (**Nonriverine**)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Salt Crust (B11)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water Marks (B1) (**Riverine**)
- ☐ Sediment Deposits (B2) (**Riverine**)
- ☐ Drift Deposits (B3) (**Riverine**)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ○ No ◉ Depth (inches): _____

Water Table Present? Yes ○ No ◉ Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes ○ No ◉ Depth (inches): _____

Wetland Hydrology Present? Yes ◉ No ○

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Sediment deposits atypical, from flooding this season due to heavy rains. No other wetland hydrology indicators.

WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: Vista Ranch | City/County: Fresno County, CA | Sampling Date: 6/21/23

Applicant/Owner: Wilson Premier Homes | State: CA | Sampling Point: P29

Investigator(s): John Vollmar | Section, Township, Range: S21, T12S, R21E

Landform (hillslope, terrace, etc.): Swale | Local relief (concave, convex, none): Concave | Slope (%): 1

Subregion (LRR): C - Mediterranean California | Lat: 36.879456 | Long: -119.678887 | Datum: NAD83

Soil Map Unit Name: Atwater sandy loam, moderately deep, 0 to 3% slopes | NWI classification: N/A

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ○ No ◉ (If no, explain in Remarks.)

Are Vegetation ☐ Soil ☐ or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ○ No ◉

Are Vegetation ☐ Soil ☐ or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ◉	No ○	
Hydric Soil Present?	Yes ◉	No ○	**Is the Sampled Area within a Wetland?** Yes ◉ No ○
Wetland Hydrology Present?	Yes ◉	No ○	

Remarks:

Small, shallow basin/depression with wetland characteristics along non-wetland swale.

VEGETATION - Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum Plot size: 25 feet			
1.			
2.			
3.			
4.			
	%		
Sapling/Shrub Stratum Plot size: 15 feet			
1.			
2.			
3.			
4.			
5.			
Total Cover:	%		
Herb Stratum Plot size: 5 feet			
1. *Eleocharis macrostachya*	30	Yes	OBL
2. *Eryngium castrense*	5	No	OBL
3. *Rumex crispus*	15	Yes	FAC
4. *Hordeum marinum ssp. gussoneanum*	5	No	FAC
5. *Bromus hordeaceus*	3	No	FACU
6. *Lythrum hyssopifolia*	1	No	OBL
7. *Phalaris paradoxa*	5	No	FAC
8.			
Total Cover:	64 %		
Woody Vine Stratum Plot size:			
1.			
2.			
Total Cover:	%		

% Bare Ground in Herb Stratum 36 % | % Cover of Biotic Crust %

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100.0 % (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	36	x 1 =	36
FACW species		x 2 =	0
FAC species	25	x 3 =	75
FACU species	3	x 4 =	12
UPL species		x 5 =	0
Column Totals:	64 (A)		123 (B)

Prevalence Index = B/A = 1.92

Hydrophytic Vegetation Indicators:

- ☒ Dominance Test is >50%
- ☒ Prevalence Index is ≤3.0[1]
- ☐ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? Yes ◉ No ○

Remarks:

SOIL

Sampling Point: P29

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture[3]	Remarks
0-3	7.5YR3/2	95	5YR3/4	5	D	M	Clay loam	
3-14+	7.5YR3/2	80	5YR4/6	20	D	M	Clay	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2] CS=Covered or Coated Sand Grains. Location: PL=Pore Lining, M=Matrix.
[3]Soil Textures: Clay, Silty Clay, Sandy Clay, Loam, Sandy Clay Loam, Sandy Loam, Clay Loam, Silty Clay Loam, Silt Loam, Silt, Loamy Sand, Sand.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (**LRR C**)
- ☐ 1 cm Muck (A9) (**LRR D**)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☒ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☒ Redox Depressions (F8)
- ☐ Vernal Pools (F9)

Indicators for Problematic Hydric Soils

- ☐ 1 cm Muck (A9) (**LRR C**)
- ☐ 2 cm Muck (A10) (**LRR B**)
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☐ Other (Explain in Remarks)

[4]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ◉ No ○

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1) (**Nonriverine**)
- ☒ Sediment Deposits (B2) (**Nonriverine**)
- ☐ Drift Deposits (B3) (**Nonriverine**)
- ☒ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Salt Crust (B11)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water Marks (B1) (**Riverine**)
- ☐ Sediment Deposits (B2) (**Riverine**)
- ☐ Drift Deposits (B3) (**Riverine**)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ○ No ◉ Depth (inches): _____

Water Table Present? Yes ○ No ◉ Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes ○ No ◉ Depth (inches): _____

Wetland Hydrology Present? Yes ◉ No ○

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: Vista Ranch City/County: Fresno County, CA Sampling Date: 6/21/23

Applicant/Owner: Wilson Premier Homes State: CA Sampling Point: P30

Investigator(s): John Vollmar Section, Township, Range: S21, T12S, R21E

Landform (hillslope, terrace, etc.): Terrace Local relief (concave, convex, none): Concave Slope (%): 1

Subregion (LRR): C - Mediterranean California Lat: 36.870751 Long: -119.672963 Datum: NAD83

Soil Map Unit Name: Foster loam NWI classification: N/A

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ○ No ◉ (If no, explain in Remarks.)

Are Vegetation ☐ Soil ☐ or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ○ No ◉

Are Vegetation ☐ Soil ☐ or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ○	No ◉	
Hydric Soil Present?	Yes ○	No ◉	**Is the Sampled Area within a Wetland?** Yes ○ No ◉
Wetland Hydrology Present?	Yes ○	No ◉	

Remarks:

Upland habitat on berm adjacent to reservoir outflow channel.

VEGETATION - Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum Plot size: 25 feet			
1.			
2.			
3.			
4.			
	%		
Sapling/Shrub Stratum Plot size: 15 feet			
1.			
2.			
3.			
4.			
5.			
Total Cover:	%		
Herb Stratum Plot size: 5 feet			
1. *Bromus hordeaceus*	15	Yes	FACU
2. *Bromus diandrus*	20	Yes	Not Listed
3. *Lactuca serriola*	7	No	FACU
4. *Helianthus annuus*	5	No	FACU
5.			
6.			
7.			
8.			
Total Cover:	47 %		
Woody Vine Stratum Plot size:			
1.			
2.			
Total Cover:	%		

% Bare Ground in Herb Stratum 53 % % Cover of Biotic Crust %

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0.0 % (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species		x 1 =	0
FACW species		x 2 =	0
FAC species		x 3 =	0
FACU species	27	x 4 =	108
UPL species		x 5 =	0
Column Totals:	27 (A)		108 (B)

Prevalence Index = B/A = 4.00

Hydrophytic Vegetation Indicators:

- ◉ Dominance Test is >50%
- ◉ Prevalence Index is ≤3.0[1]
- ☐ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? Yes ○ No ◉

Remarks:

SOIL

Sampling Point: P30

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture[3]	Remarks
0-14+	7.5YR3/3	100					Clay loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2] CS=Covered or Coated Sand Grains. Location: PL=Pore Lining, M=Matrix.
[3]Soil Textures: Clay, Silty Clay, Sandy Clay, Loam, Sandy Clay Loam, Sandy Loam, Clay Loam, Silty Clay Loam, Silt Loam, Silt, Loamy Sand, Sand.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (**LRR C**)
- ☐ 1 cm Muck (A9) (**LRR D**)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Vernal Pools (F9)

Indicators for Problematic Hydric Soils

- ☐ 1 cm Muck (A9) (**LRR C**)
- ☐ 2 cm Muck (A10) (**LRR B**)
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☐ Other (Explain in Remarks)

[4]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ○ No ◉

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1) (**Nonriverine**)
- ☐ Sediment Deposits (B2) (**Nonriverine**)
- ☐ Drift Deposits (B3) (**Nonriverine**)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Salt Crust (B11)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water Marks (B1) (**Riverine**)
- ☐ Sediment Deposits (B2) (**Riverine**)
- ☐ Drift Deposits (B3) (**Riverine**)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ○ No ◉ Depth (inches): _____

Water Table Present? Yes ○ No ◉ Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes ○ No ◉ Depth (inches): _____

Wetland Hydrology Present? Yes ○ No ◉

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: Vista Ranch | City/County: Fresno County, CA | Sampling Date: 6/21/23

Applicant/Owner: Wilson Premier Homes | State: CA | Sampling Point: P31

Investigator(s): John Vollmar | Section, Township, Range: S21, T12S, R21E

Landform (hillslope, terrace, etc.): Spillway canal | Local relief (concave, convex, none): Concave | Slope (%): 1

Subregion (LRR): C - Mediterranean California | Lat: 36.870719 | Long: -119.672928 | Datum: NAD83

Soil Map Unit Name: Riverwash | NWI classification: N/A

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ○ No ◉ (If no, explain in Remarks.)

Are Vegetation ☐ Soil ☐ or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ○ No ◉

Are Vegetation ☐ Soil ☐ or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ◉	No ○	
Hydric Soil Present?	Yes ◉	No ○	**Is the Sampled Area within a Wetland?** Yes ◉ No ○
Wetland Hydrology Present?	Yes ◉	No ○	

Remarks:

Perennial wetland habitat along vegetated section of reservoir spillway outflow channel. Flowing at time of site visit with 2' maximum water depth.

VEGETATION - Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum Plot size: 25 feet			
1.			
2.			
3.			
4.			
	%		
Sapling/Shrub Stratum Plot size: 15 feet			
1.			
2.			
3.			
4.			
5.			
Total Cover:	%		
Herb Stratum Plot size: 5 feet			
1. *Echinodorus bertoroi*	10	Yes	OBL
2. *Xanthium strumarium*	15	Yes	FAC
3. *Cyperus eragrostis*	10	Yes	FACW
4. *Eleocharis macrostachya*	5	No	OBL
5.			
6.			
7.			
8.			
Total Cover:	40 %		
Woody Vine Stratum Plot size:			
1.			
2.			
Total Cover:	%		

% Bare Ground in Herb Stratum 60 % | % Cover of Biotic Crust %

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 3 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100.0 % (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	15	x 1 =	15
FACW species	10	x 2 =	20
FAC species	15	x 3 =	45
FACU species		x 4 =	0
UPL species		x 5 =	0
Column Totals:	40 (A)		80 (B)

Prevalence Index = B/A = 2.00

Hydrophytic Vegetation Indicators:

- ☒ Dominance Test is >50%
- ☒ Prevalence Index is ≤3.0[1]
- ☐ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? Yes ◉ No ○

Remarks:

SOIL

Sampling Point: P31

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture[3]	Remarks
0-14+	7.5YR3/1	100					Silty clay	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2] CS=Covered or Coated Sand Grains. Location: PL=Pore Lining, M=Matrix.
[3]Soil Textures: Clay, Silty Clay, Sandy Clay, Loam, Sandy Clay Loam, Sandy Loam, Clay Loam, Silty Clay Loam, Silt Loam, Silt, Loamy Sand, Sand.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (**LRR C**)
- ☐ 1 cm Muck (A9) (**LRR D**)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☒ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Vernal Pools (F9)

Indicators for Problematic Hydric Soils

- ☐ 1 cm Muck (A9) (**LRR C**)
- ☐ 2 cm Muck (A10) (**LRR B**)
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☐ Other (Explain in Remarks)

[4]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ◉ No ○

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1) (**Nonriverine**)
- ☐ Sediment Deposits (B2) (**Nonriverine**)
- ☐ Drift Deposits (B3) (**Nonriverine**)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Salt Crust (B11)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water Marks (B1) (**Riverine**)
- ☐ Sediment Deposits (B2) (**Riverine**)
- ☐ Drift Deposits (B3) (**Riverine**)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ◉ No ○ Depth (inches): 2

Water Table Present? Yes ◉ No ○ Depth (inches): 0

Saturation Present? (includes capillary fringe) Yes ◉ No ○ Depth (inches): 0

Wetland Hydrology Present? Yes ◉ No ○

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: Vista Ranch | City/County: Fresno County, CA | Sampling Date: 7/24/23

Applicant/Owner: Wilson Premier Homes | State: CA | Sampling Point: P32

Investigator(s): John Vollmar | Section, Township, Range: S21, T12S, R21E

Landform (hillslope, terrace, etc.): Swale | Local relief (concave, convex, none): Concave | Slope (%): 1

Subregion (LRR): C - Mediterranean California | Lat: 36.879534 | Long: -119.678832 | Datum: NAD83

Soil Map Unit Name: Ramona loam, hard substratum | NWI classification: N/A

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ○ No ◉ (If no, explain in Remarks.)

Are Vegetation ☐ Soil ☐ or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ○ No ◉

Are Vegetation ☐ Soil ☐ or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ○	No ◉	
Hydric Soil Present?	Yes ○	No ◉	**Is the Sampled Area within a Wetland?** Yes ○ No ◉
Wetland Hydrology Present?	Yes ◉	No ○	

Remarks:

Upland habitat along swale with undulating bottom, adjacent to depressional wetland basin at P32. Wetland conditions likely enhanced by winter flooding from atypical heavy rains.

VEGETATION - Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum Plot size: 25 feet			
1.			
2.			
3.			
4.			
	%		
Sapling/Shrub Stratum Plot size: 15 feet			
1.			
2.			
3.			
4.			
5.			
Total Cover:	%		
Herb Stratum Plot size: 5 feet			
1. *Malvella leprosa*	30	Yes	FACU
2. *Chenopodium album*	10	Yes	FACU
3. *Eryngium castrense*	2	No	OBL
4. *Plagiobothrys stipitatus var. micranthus*	2	No	FACW
5. *Eleocharis macrostachya*	2	No	OBL
6.			
7.			
8.			
Total Cover:	46 %		
Woody Vine Stratum Plot size:			
1.			
2.			
Total Cover:	%		

% Bare Ground in Herb Stratum 54 % | % Cover of Biotic Crust %

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0.0 % (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	4	x 1 =	4
FACW species	2	x 2 =	4
FAC species		x 3 =	0
FACU species	40	x 4 =	160
UPL species		x 5 =	0
Column Totals:	46 (A)		168 (B)

Prevalence Index = B/A = 3.65

Hydrophytic Vegetation Indicators:

- ◉ Dominance Test is >50%
- ◉ Prevalence Index is ≤3.0[1]
- ☐ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? Yes ○ No ◉

Remarks:

SOIL

Sampling Point: P32

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture[3]	Remarks
0-6	7.5YR3/2	100					Sandy loam	
6-14+	7.5YR3/2	98	5YR4/4	3	D	M	Sandy clay loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2] CS=Covered or Coated Sand Grains. Location: PL=Pore Lining, M=Matrix.
[3]Soil Textures: Clay, Silty Clay, Sandy Clay, Loam, Sandy Clay Loam, Sandy Loam, Clay Loam, Silty Clay Loam, Silt Loam, Silt, Loamy Sand, Sand.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (**LRR C**)
- ☐ 1 cm Muck (A9) (**LRR D**)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Vernal Pools (F9)

Indicators for Problematic Hydric Soils

- ☐ 1 cm Muck (A9) (**LRR C**)
- ☐ 2 cm Muck (A10) (**LRR B**)
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☐ Other (Explain in Remarks)

[4]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ○ No ◉

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1) (**Nonriverine**)
- ☒ Sediment Deposits (B2) (**Nonriverine**)
- ☐ Drift Deposits (B3) (**Nonriverine**)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Salt Crust (B11)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water Marks (B1) (**Riverine**)
- ☐ Sediment Deposits (B2) (**Riverine**)
- ☐ Drift Deposits (B3) (**Riverine**)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ○ No ◉ Depth (inches): _____

Water Table Present? Yes ○ No ◉ Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes ○ No ◉ Depth (inches): _____

Wetland Hydrology Present? Yes ◉ No ○

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Sediment deposits likely from winter flow due to atypical heavy rains. No other surface indicators of wetland hydrology.

WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: Vista Ranch | City/County: Fresno County, CA | Sampling Date: 7/24/23

Applicant/Owner: Wilson Premier Homes | State: CA | Sampling Point: P33

Investigator(s): John Vollmar | Section, Township, Range: S21, T12S, R21E

Landform (hillslope, terrace, etc.): Swale | Local relief (concave, convex, none): Concave | Slope (%): 1

Subregion (LRR): C - Mediterranean California | Lat: 36.879534 | Long: -119.678832 | Datum: NAD83

Soil Map Unit Name: Ramona loam, hard substratum | NWI classification: N/A

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ○ No ◉ (If no, explain in Remarks.)

Are Vegetation ☐ Soil ☐ or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ○ No ◉

Are Vegetation ☐ Soil ☐ or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ◉	No ○	
Hydric Soil Present?	Yes ◉	No ○	**Is the Sampled Area within a Wetland?** Yes ◉ No ○
Wetland Hydrology Present?	Yes ◉	No ○	

Remarks:

Basin area along swale with undulating bottom. Low area likely is ponded or saturated from prolonged periods during average or even drought years. Wetland conditions likely enhanced by winter flooding from atypical heavy rains.

VEGETATION - Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum Plot size: 25 feet			
1.			
2.			
3.			
4.			
	%		
Sapling/Shrub Stratum Plot size: 15 feet			
1.			
2.			
3.			
4.			
5.			
Total Cover:	%		
Herb Stratum Plot size: 5 feet			
1. *Malvella leprosa*	10	Yes	FACU
2. *Chenopodium album*	3	No	FACU
3. *Marsilea vestita*	2	No	OBL
4. *Plagiobothrys stipitatus var. micranthus*	5	No	FACW
5. *Eleocharis macrostachya*	15	Yes	OBL
6. *Xanthium strumarium*	10	Yes	FAC
7. *Hordeum marinum ssp. gussoneanum*	5	No	FAC
8.			
Total Cover:	50 %		
Woody Vine Stratum Plot size:			
1.			
2.			
Total Cover:	%		

% Bare Ground in Herb Stratum 50 % | % Cover of Biotic Crust %

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 66.7 % (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	17	x 1 =	17
FACW species	5	x 2 =	10
FAC species	15	x 3 =	45
FACU species	13	x 4 =	52
UPL species		x 5 =	0
Column Totals:	50 (A)		124 (B)

Prevalence Index = B/A = 2.48

Hydrophytic Vegetation Indicators:

- ☒ Dominance Test is >50%
- ☒ Prevalence Index is ≤3.0[1]
- ☐ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? Yes ◉ No ○

Remarks:

SOIL

Sampling Point: P33

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture[3]	Remarks
0-9	7.5YR3/2	85	5YR4/6	15	D	M	silty clay	
9-14+	7.5YR3/1	90	5YR4/6	10	D	M	silty clay	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2] CS=Covered or Coated Sand Grains. Location: PL=Pore Lining, M=Matrix.
[3]Soil Textures: Clay, Silty Clay, Sandy Clay, Loam, Sandy Clay Loam, Sandy Loam, Clay Loam, Silty Clay Loam, Silt Loam, Silt, Loamy Sand, Sand.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (**LRR C**)
- ☐ 1 cm Muck (A9) (**LRR D**)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☒ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☒ Redox Depressions (F8)
- ☐ Vernal Pools (F9)

Indicators for Problematic Hydric Soils

- ☐ 1 cm Muck (A9) (**LRR C**)
- ☐ 2 cm Muck (A10) (**LRR B**)
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☐ Other (Explain in Remarks)

[4]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ◉ No ○

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1) (**Nonriverine**)
- ☒ Sediment Deposits (B2) (**Nonriverine**)
- ☐ Drift Deposits (B3) (**Nonriverine**)
- ☒ Surface Soil Cracks (B6)
- ☒ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Salt Crust (B11)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water Marks (B1) (**Riverine**)
- ☐ Sediment Deposits (B2) (**Riverine**)
- ☐ Drift Deposits (B3) (**Riverine**)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ○ No ◉ Depth (inches): _____

Water Table Present? Yes ○ No ◉ Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes ○ No ◉ Depth (inches): _____

Wetland Hydrology Present? Yes ◉ No ○

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: Vista Ranch | City/County: Fresno County, CA | Sampling Date: 7/24/23

Applicant/Owner: Wilson Premier Homes | State: CA | Sampling Point: P34

Investigator(s): John Vollmar | Section, Township, Range: S21, T12S, R21E

Landform (hillslope, terrace, etc.): Swale | Local relief (concave, convex, none): Concave | Slope (%): 1

Subregion (LRR): C - Mediterranean California | Lat: 36.879534 | Long: -119.678832 | Datum: NAD83

Soil Map Unit Name: Ramona loam, hard substratum | NWI classification: N/A

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ○ No ◉ (If no, explain in Remarks.)

Are Vegetation ☐ Soil ☐ or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ○ No ◉

Are Vegetation ☐ Soil ☐ or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ○	No ◉	
Hydric Soil Present?	Yes ○	No ◉	**Is the Sampled Area within a Wetland?** Yes ○ No ◉
Wetland Hydrology Present?	Yes ◉	No ○	

Remarks:

Upland habitat along swale with undulating bottom, adjacent to depressional wetland basin at P32. Wetland conditions likely enhanced by winter flooding from atypical heavy rains.

VEGETATION - Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum Plot size: 25 feet			
1.			
2.			
3.			
4.			
	%		
Sapling/Shrub Stratum Plot size: 15 feet			
1.			
2.			
3.			
4.			
5.			
Total Cover:	%		
Herb Stratum Plot size: 5 feet			
1. *Malvella leprosa*	20	Yes	FACU
2. *Chenopodium album*	7	Yes	FACU
3. *Eryngium castrense*	4	No	OBL
4. *Plagiobothrys stipitatus var. micranthus*	2	No	FACW
5. *Eleocharis macrostachya*	3	No	OBL
6.			
7.			
8.			
Total Cover:	36 %		
Woody Vine Stratum Plot size:			
1.			
2.			
Total Cover:	%		

% Bare Ground in Herb Stratum 64 % | % Cover of Biotic Crust %

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0.0 % (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	7	x 1 =	7
FACW species	2	x 2 =	4
FAC species		x 3 =	0
FACU species	27	x 4 =	108
UPL species		x 5 =	0
Column Totals:	36 (A)		119 (B)

Prevalence Index = B/A = 3.31

Hydrophytic Vegetation Indicators:

- ◉ Dominance Test is >50%
- ◉ Prevalence Index is ≤3.0[1]
- ☐ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? Yes ○ No ◉

Remarks:

SOIL

Sampling Point: P34

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture[3]	Remarks
0-8	7.5YR3/2	100					Sandy loam	
8-14+	7.5YR3/2	98	5YR4/4	3	D	M	Sandy clay loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2] CS=Covered or Coated Sand Grains. Location: PL=Pore Lining, M=Matrix.
[3]Soil Textures: Clay, Silty Clay, Sandy Clay, Loam, Sandy Clay Loam, Sandy Loam, Clay Loam, Silty Clay Loam, Silt Loam, Silt, Loamy Sand, Sand.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (**LRR C**)
- ☐ 1 cm Muck (A9) (**LRR D**)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Vernal Pools (F9)

Indicators for Problematic Hydric Soils

- ☐ 1 cm Muck (A9) (**LRR C**)
- ☐ 2 cm Muck (A10) (**LRR B**)
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☐ Other (Explain in Remarks)

[4]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ○ No ◉

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1) (**Nonriverine**)
- ☒ Sediment Deposits (B2) (**Nonriverine**)
- ☐ Drift Deposits (B3) (**Nonriverine**)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Salt Crust (B11)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water Marks (B1) (**Riverine**)
- ☐ Sediment Deposits (B2) (**Riverine**)
- ☐ Drift Deposits (B3) (**Riverine**)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ○ No ◉ Depth (inches): _____

Water Table Present? Yes ○ No ◉ Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes ○ No ◉ Depth (inches): _____

Wetland Hydrology Present? Yes ◉ No ○

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Sediment deposits likely from winter flow due to atypical heavy rains. No other surface indicators of wetland hydrology.

WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: Vista Ranch | City/County: Fresno County, CA | Sampling Date: 7/24/23

Applicant/Owner: Wilson Premier Homes | State: CA | Sampling Point: P35

Investigator(s): John Vollmar | Section, Township, Range: S21, T12S, R21E

Landform (hillslope, terrace, etc.): Swale | Local relief (concave, convex, none): Concave | Slope (%): 1

Subregion (LRR): C - Mediterranean California | Lat: 36.879534 | Long: -119.678832 | Datum: NAD83

Soil Map Unit Name: Ramona loam, hard substratum | NWI classification: N/A

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ○ No ◉ (If no, explain in Remarks.)

Are Vegetation ☐ Soil ☐ or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ○ No ◉

Are Vegetation ☐ Soil ☐ or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ◉	No ○	
Hydric Soil Present?	Yes ◉	No ○	**Is the Sampled Area within a Wetland?** Yes ◉ No ○
Wetland Hydrology Present?	Yes ◉	No ○	

Remarks:

Basin area along swale with undulating bottom. Low area likely is ponded or saturated from prolonged periods during average or even drought years. Wetland conditions likely enhanced by winter flooding from atypical heavy rains.

VEGETATION - Use scientific names of plants.

Tree Stratum Plot size: 25 feet	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	%		
Sapling/Shrub Stratum Plot size: 15 feet			
1.			
2.			
3.			
4.			
5.			
Total Cover:	%		
Herb Stratum Plot size: 5 feet			
1. *Malvella leprosa*	7	No	FACU
2. *Hordeum marinum ssp. gussoneanum*	10	Yes	FAC
3. *Marsilea vestita*	5	No	OBL
4. *Plagiobothrys stipitatus var. micranthus*	5	No	FACW
5. *Eleocharis macrostachya*	10	Yes	OBL
6. *Xanthium strumarium*	12	Yes	FAC
7.			
8.			
Total Cover:	49 %		
Woody Vine Stratum Plot size:			
1.			
2.			
Total Cover:	%		

% Bare Ground in Herb Stratum 51 % | % Cover of Biotic Crust %

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 3 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100.0 % (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	15	x 1 =	15
FACW species	5	x 2 =	10
FAC species	22	x 3 =	66
FACU species	7	x 4 =	28
UPL species		x 5 =	0
Column Totals:	49 (A)		119 (B)

Prevalence Index = B/A = 2.43

Hydrophytic Vegetation Indicators:

- ☒ Dominance Test is >50%
- ☒ Prevalence Index is ≤3.0[1]
- ☐ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? Yes ◉ No ○

Remarks:

SOIL

Sampling Point: P35

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture[3]	Remarks
0-8	7.5YR3/2	80	5YR4/6	20	D	M	silty clay	
8-14+	7.5YR3/1	85	5YR4/6	15	D	M	silty clay	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2] CS=Covered or Coated Sand Grains. Location: PL=Pore Lining, M=Matrix.
[3]Soil Textures: Clay, Silty Clay, Sandy Clay, Loam, Sandy Clay Loam, Sandy Loam, Clay Loam, Silty Clay Loam, Silt Loam, Silt, Loamy Sand, Sand.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (**LRR C**)
- ☐ 1 cm Muck (A9) (**LRR D**)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☒ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☒ Redox Depressions (F8)
- ☐ Vernal Pools (F9)

Indicators for Problematic Hydric Soils

- ☐ 1 cm Muck (A9) (**LRR C**)
- ☐ 2 cm Muck (A10) (**LRR B**)
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☐ Other (Explain in Remarks)

[4]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ◉ No ○

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1) (**Nonriverine**)
- ☒ Sediment Deposits (B2) (**Nonriverine**)
- ☐ Drift Deposits (B3) (**Nonriverine**)
- ☒ Surface Soil Cracks (B6)
- ☒ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Salt Crust (B11)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water Marks (B1) (**Riverine**)
- ☐ Sediment Deposits (B2) (**Riverine**)
- ☐ Drift Deposits (B3) (**Riverine**)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ○ No ◉ Depth (inches): _____

Water Table Present? Yes ○ No ◉ Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes ○ No ◉ Depth (inches): _____

Wetland Hydrology Present? Yes ◉ No ○

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

APPENDIX D

Delineation Data Point Locations

Table D-1. Delineation Data Point Locations

Delineation Point	Habitat Type	Latitude	Longitude
P01	Upland	36.872372	-119.660584
P02	Upland	36.872369	-119.660695
P03	Upland	36.872384	-119.660759
P04	Wetland	36.872408	-119.660814
P05	Upland	36.871172	-119.658451
P06	Wetland	36.871217	-119.658458
P07	Upland	36.871745	-119.658927
P08	Wetland	36.871764	-119.658877
P09	Upland	36.873506	-119.662731
P10	Wetland	36.873469	-119.662726
P11	Wetland	36.873372	-119.663191
P12	Upland	36.873063	-119.665044
P13	Upland	36.873877	-119.666214
P14	Wetland	36.873836	-119.666166
P15	Upland	36.872346	-119.671208
P16	Wetland	36.872342	-119.671241
P17	Upland	36.870678	-119.672572
P18	Other Waters	36.870678	-119.672572
P19	Upland	36.875877	-119.669762
P20	Wetland	36.875894	-119.669712
P21	Upland	36.872269	-119.661903
P22	Upland	36.880550	-119.678306
P23	Upland	36.880229	-119.677822
P24	Wetland	36.880170	-119.677872
P25	Upland	36.879202	-119.679005
P26	Wetland	36.879201	-119.679036
P27	Upland	36.879048	-119.678855
P28	Upland	36.879534	-119.678832
P29	Wetland	36.879456	-119.678887
P30	Upland	36.870751	-119.672963
P31	Wetland	36.870719	-119.672928
P32	Upland	36.879534	-119.678832
P33	Wetland	36.879456	-119.678887
P34	Upland	36.870751	-119.672963
P35	Wetland	36.870719	-119.672928

APPENDIX E

Aquatic Resources Excel Sheet

APPENDIX E. AQUATIC RESOURCES SHEET, VISTA RANCH PROJECT, FRESNO COUNTY, CA.

Waters_Name	State	Cowardin_Code	HGM_Code	Meas_Type	Amount	Units	Waters_Type	Latitude	Longitude	Local_Waterway
ATP-1	CALIFORNIA	PEM2	DEPRESS	Area	1.129	ACRE	B5-EXCL-ART.LK	36.87177500	-119.67155000	
C-1-A	CALIFORNIA	R4	RIVERINE	Area	0.417256	ACRE	DELIN.PJD-404	36.87442300	-119.66976600	Dry Creek
C-1-B	CALIFORNIA	R4	RIVERINE	Area	0.00424	ACRE	DELIN.PJD-404	36.87146200	-119.67226100	Dry Creek
C-1-C	CALIFORNIA	R4	RIVERINE	Area	0.116749	ACRE	DELIN.PJD-404	36.86963500	-119.67398000	Dry Creek
C-1-D	CALIFORNIA	R4	RIVERINE	Area	0.002408	ACRE	DELIN.PJD-404	36.86942500	-119.67423800	Dry Creek
C-1-E	CALIFORNIA	R4	RIVERINE	Area	0.000903	ACRE	DELIN.PJD-404	36.86962900	-119.67403000	Dry Creek
DWB-01	CALIFORNIA	PEM2	DEPRESS	Area	0.027249	ACRE	DELIN.PJD-404	36.87940000	-119.67890800	
DWB-10	CALIFORNIA	PEM2	DEPRESS	Area	0.01154	ACRE	DELIN.PJD-404	36.87309200	-119.66236900	
DWB-11	CALIFORNIA	PEM2	DEPRESS	Area	0.01231	ACRE	DELIN.PJD-404	36.87294800	-119.66215400	
DWB-12	CALIFORNIA	PEM2	DEPRESS	Area	0.042028	ACRE	DELIN.PJD-404	36.87258700	-119.66150400	
DWB-13	CALIFORNIA	PEM2	DEPRESS	Area	0.023114	ACRE	DELIN.PJD-404	36.87242900	-119.66085300	
DWB-14	CALIFORNIA	PEM2	DEPRESS	Area	0.023057	ACRE	DELIN.PJD-404	36.87251200	-119.66020000	
DWB-15	CALIFORNIA	PEM2	DEPRESS	Area	0.000674	ACRE	DELIN.PJD-404	36.87248800	-119.66007500	
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DWB-17	CALIFORNIA	PEM2	DEPRESS	Area	0.001306	ACRE	DELIN.PJD-404	36.87180500	-119.65902700	
DWB-18	CALIFORNIA	PEM2	DEPRESS	Area	0.014453	ACRE	DELIN.PJD-404	36.87174800	-119.65879100	
DWB-19	CALIFORNIA	PEM2	DEPRESS	Area	0.070283	ACRE	DELIN.PJD-404	36.87128000	-119.65856700	
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DWB-04	CALIFORNIA	PEM2	DEPRESS	Area	0.017695	ACRE	DELIN.PJD-404	36.87301400	-119.66582400	
DWB-05	CALIFORNIA	PEM2	DEPRESS	Area	0.014818	ACRE	DELIN.PJD-404	36.87319700	-119.66552600	
DWB-06	CALIFORNIA	PEM2	DEPRESS	Area	0.049726	ACRE	DELIN.PJD-404	36.87354000	-119.66402200	
DWB-07	CALIFORNIA	PEM2	DEPRESS	Area	0.004885	ACRE	DELIN.PJD-404	36.87338300	-119.66319600	
DWB-08	CALIFORNIA	PEM2	DEPRESS	Area	0.045267	ACRE	DELIN.PJD-404	36.87335000	-119.66270900	
DWB-09	CALIFORNIA	PEM2	DEPRESS	Area	0.002983	ACRE	DELIN.PJD-404	36.87313600	-119.66249900	
NWC-1	CALIFORNIA	R4	RIVERINE	Area	0.210474	ACRE	DELIN.PJD-404	36.86943800	-119.67422000	Dry Creek
NWC-2	CALIFORNIA	R4	RIVERINE	Area	0.067642	ACRE	DELIN.PJD-404	36.86655400	-119.68399000	Dry Creek
S-1	CALIFORNIA	PEM2	DEPRESS	Area	0.110742	ACRE	DELIN.PJD-404	36.87918800	-119.67923900	
S-2	CALIFORNIA	PEM2	DEPRESS	Area	0.390489	ACRE	DELIN.PJD-404	36.87994800	-119.67820300	
S-3	CALIFORNIA	PEM2	DEPRESS	Area	0.043639	ACRE	DELIN.PJD-404	36.87966100	-119.67730400	

APPENDIX F

Historical Aerial Imagery of Flood Irrigation Field and Irrigation Tailwater Pond

(along left side of imagery, outside of red line)

EDR Aerial Photo Decade Package

12/20/22

Site Name:

Triangle Property
East Shepherd Avenue/North T
Clovis, CA 93619
EDR Inquiry # 7208868.8

Client Name:

Krazan & Associates, Inc.
215 West Dakota
Clovis, CA 93612
Contact: Dulcinea Deleon

Environmental Data Resources, Inc. (EDR) Aerial Photo Decade Package is a screening tool designed to assist environmental professionals in evaluating potential liability on a target property resulting from past activities. EDR's professional researchers provide digitally reproduced historical aerial photographs, and when available, provide one photo per decade.

Search Results:

Year	*Scale*	*Details*	*Source*
2020	1"=625'	Flight Year: 2020	USDA/NAIP
2016	1"=625'	Flight Year: 2016	USDA/NAIP
2012	1"=625'	Flight Year: 2012	USDA/NAIP
2009	1"=625'	Flight Year: 2009	USDA/NAIP
2005	1"=625'	Flight Year: 2005	USDA/NAIP
1998	1"=625'	Acquisition Date: January 01, 1998	USGS/DOQQ
1987	1"=625'	Flight Date: June 17, 1987	USDA
1984	1"=625'	Flight Date: June 09, 1984	USDA
1979	1"=625'	Flight Date: September 04, 1979	USDA
1973	1"=625'	Flight Date: May 08, 1973	USDA
1967	1"=625'	Flight Date: May 03, 1967	USDA
1962	1"=625'	Flight Date: August 09, 1962	USGS
1957	1"=625'	Flight Date: August 15, 1957	USDA
1950	1"=625'	Flight Date: January 31, 1950	USDA
1946	1"=625'	Flight Date: April 22, 1946	USGS
1937	1"=625'	Flight Date: October 05, 1937	USDA

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INQUIRY #: 7208868.8
YEAR: 2020
= 625'
N
EDR


INQUIRY #: 7208868.8
YEAR: 2016
= 625'
N
EDR



INQUIRY #: 7208868.8

YEAR: 2012

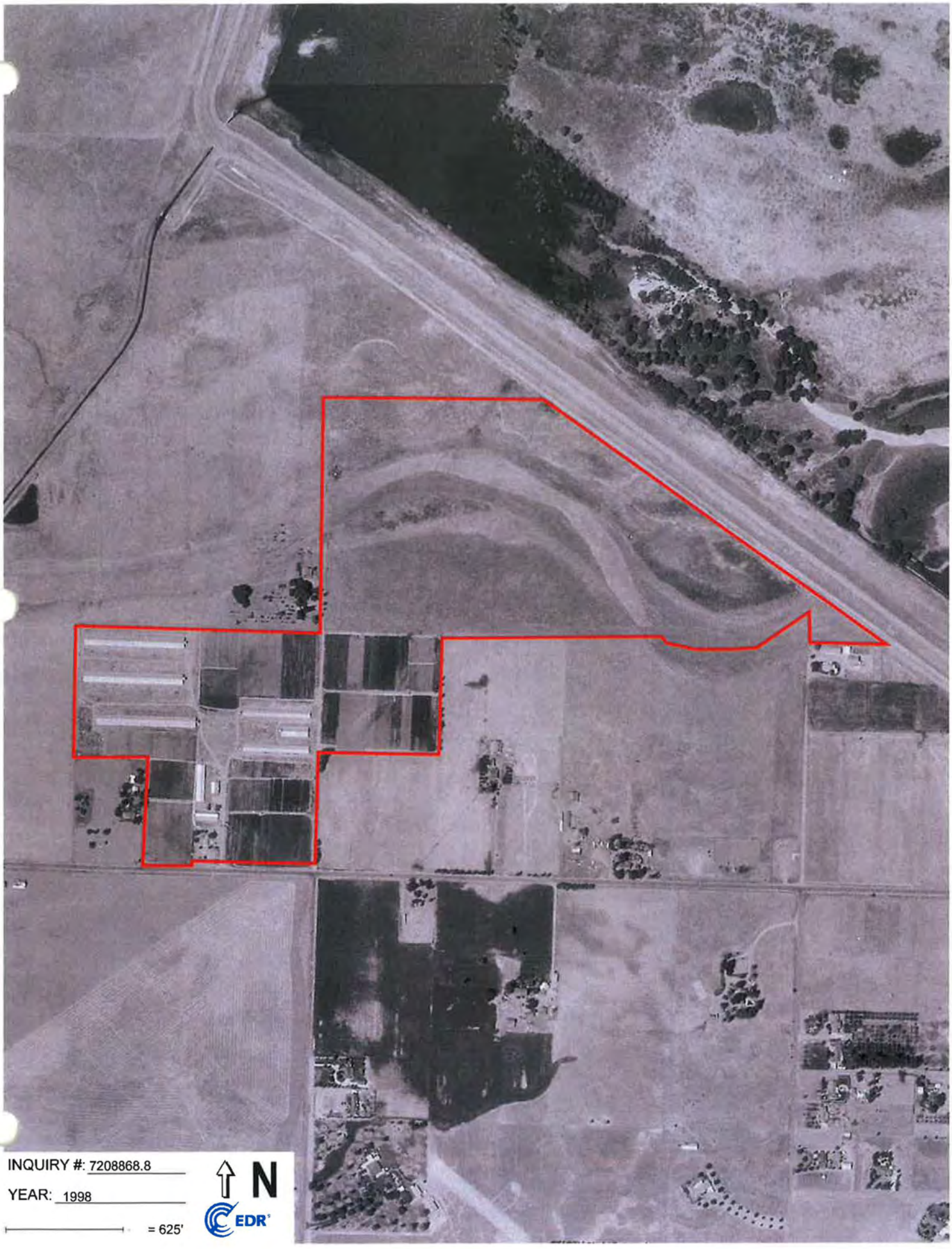
= 625'

N

EDR


INQUIRY #: 7208868.8
YEAR: 2009
= 625'
N
EDR


INQUIRY #: 7208868.8
YEAR: 2005
= 625'
N
EDR



INQUIRY #: 7208868.8

YEAR: 1998

= 625'

N

EDR



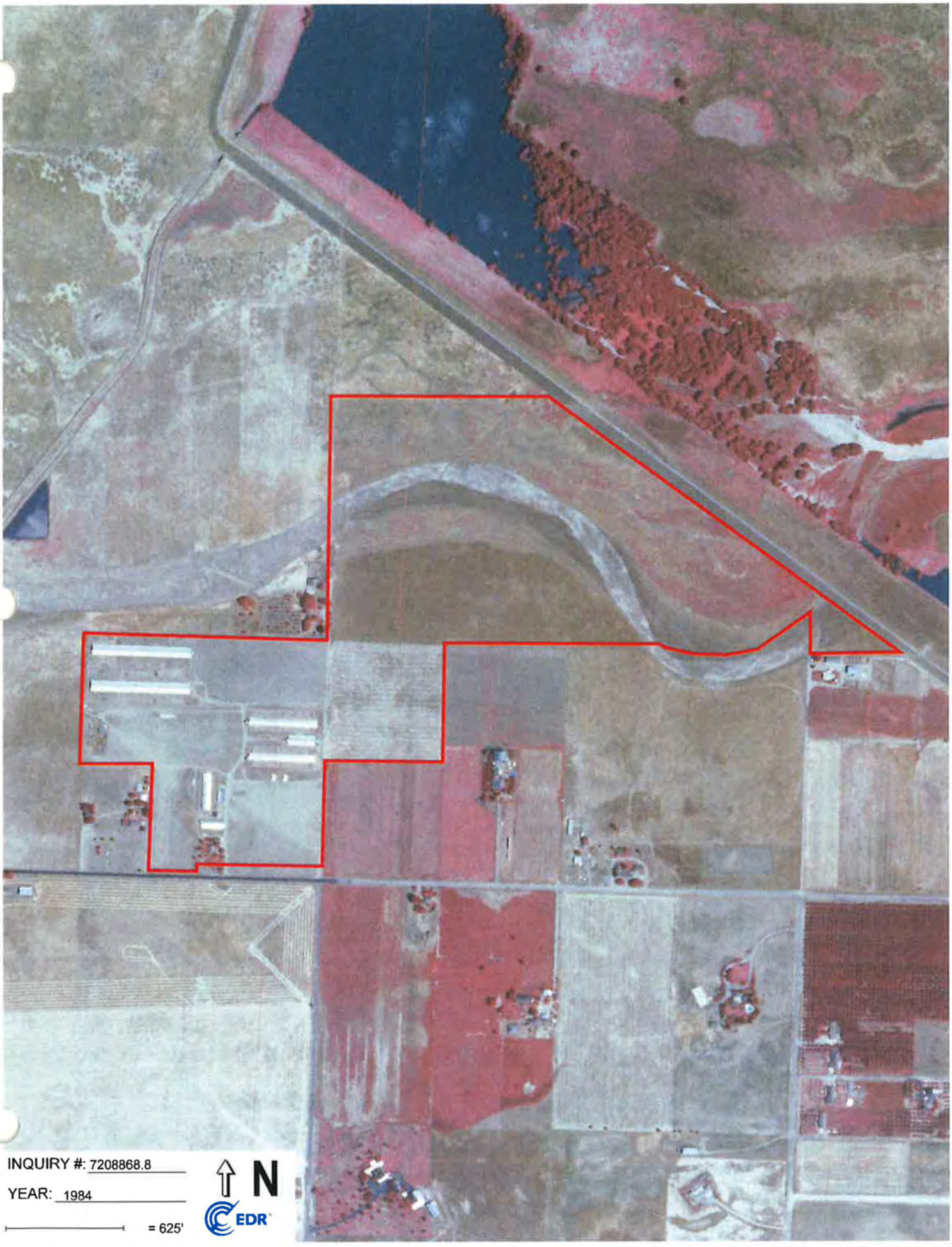
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YEAR: 1987

= 625'

N

EDR



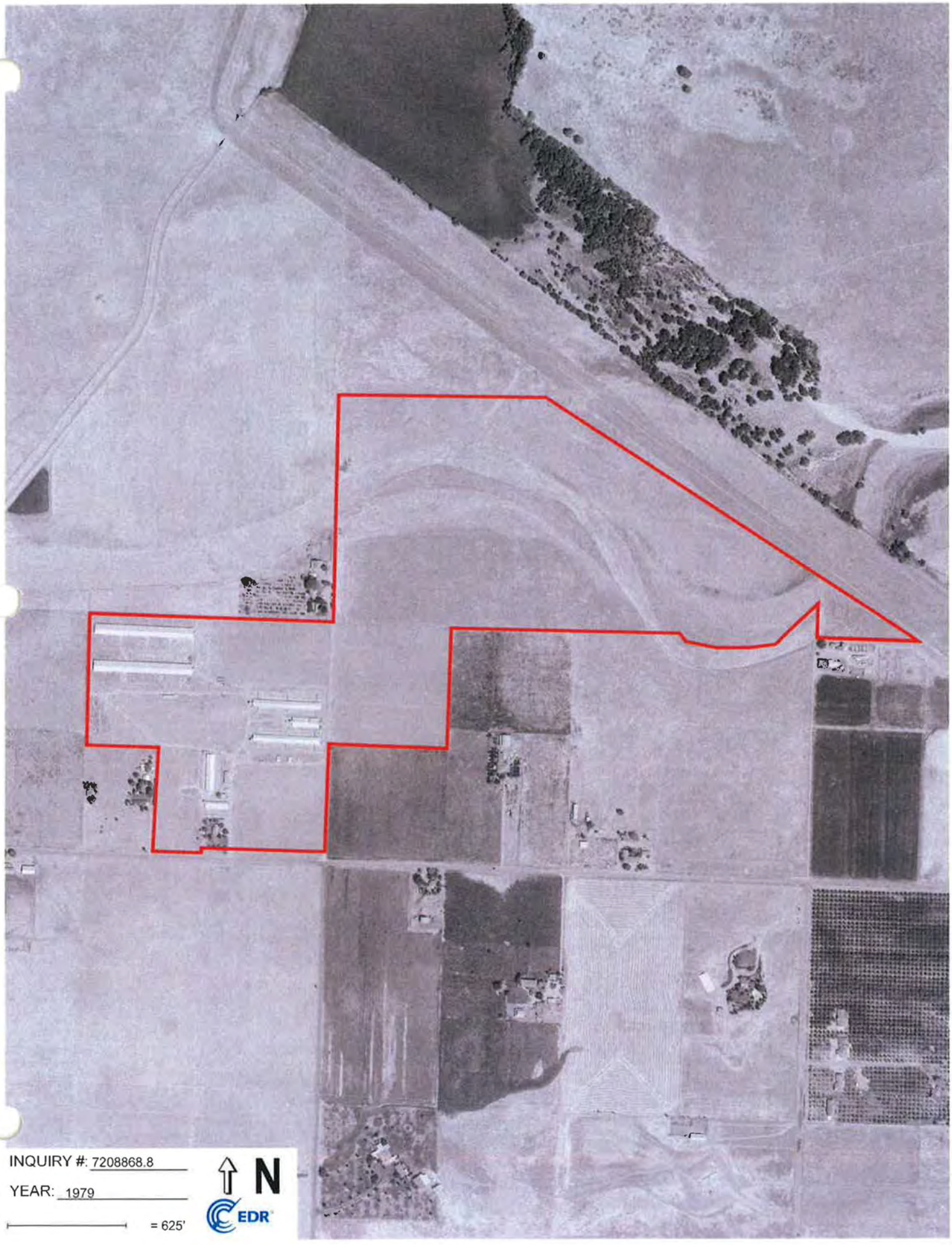
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YEAR: 1984

= 625'

N

EDR



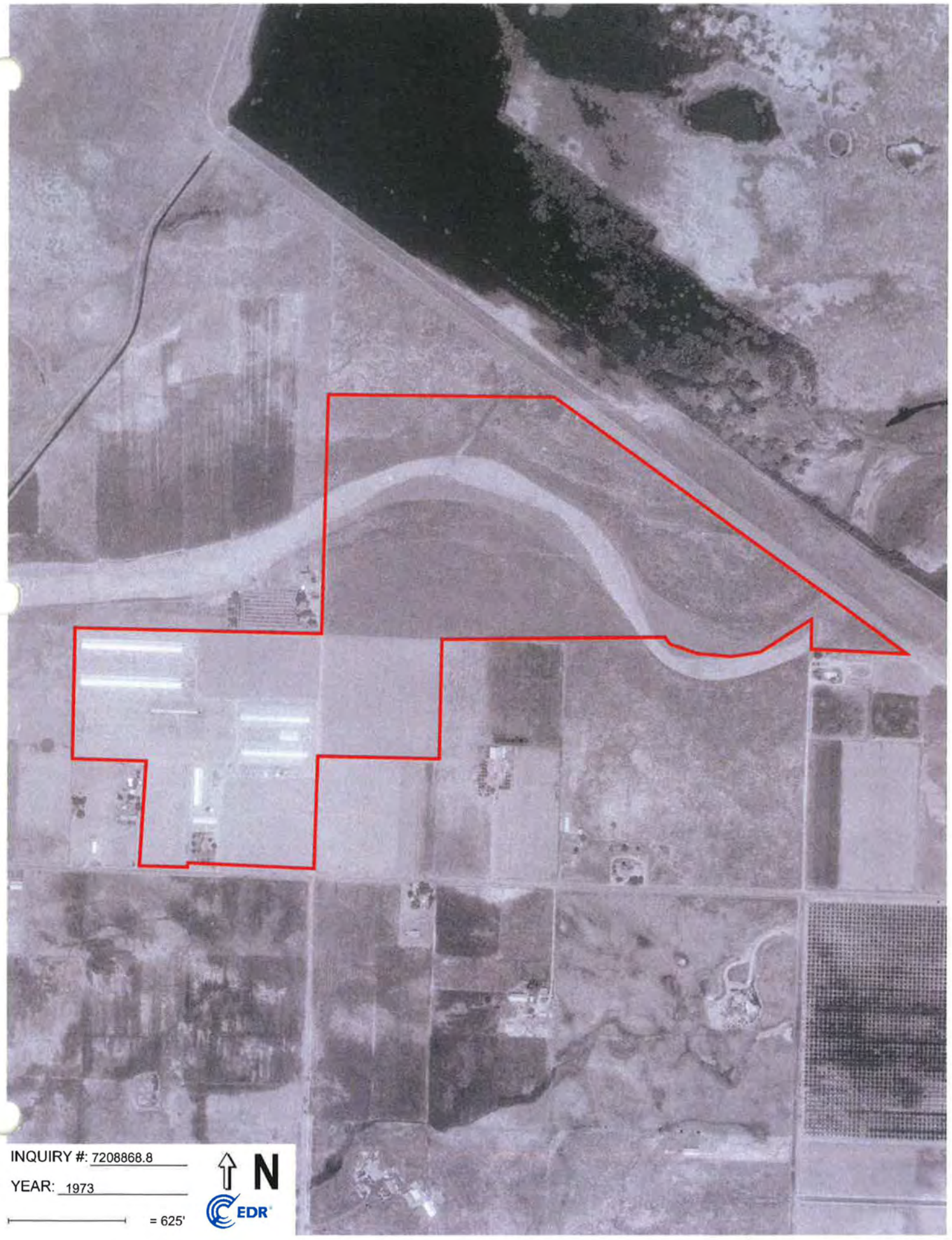
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YEAR: 1979

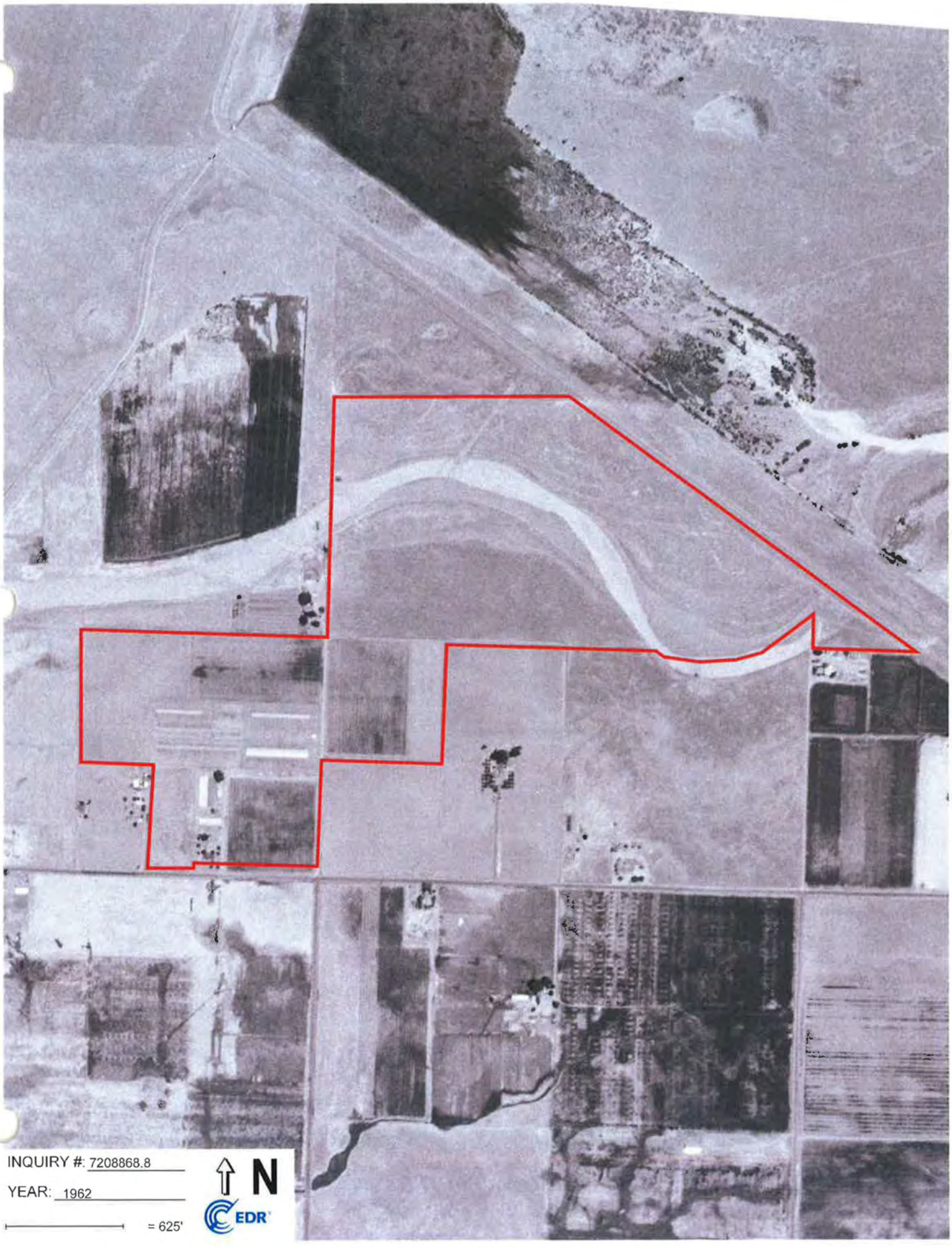
= 625'

N

EDR


INQUIRY #: 7208868.8
YEAR: 1973
= 625'
N
EDR


INQUIRY #: 7208868.8
YEAR: 1967
= 625'
N
EDR



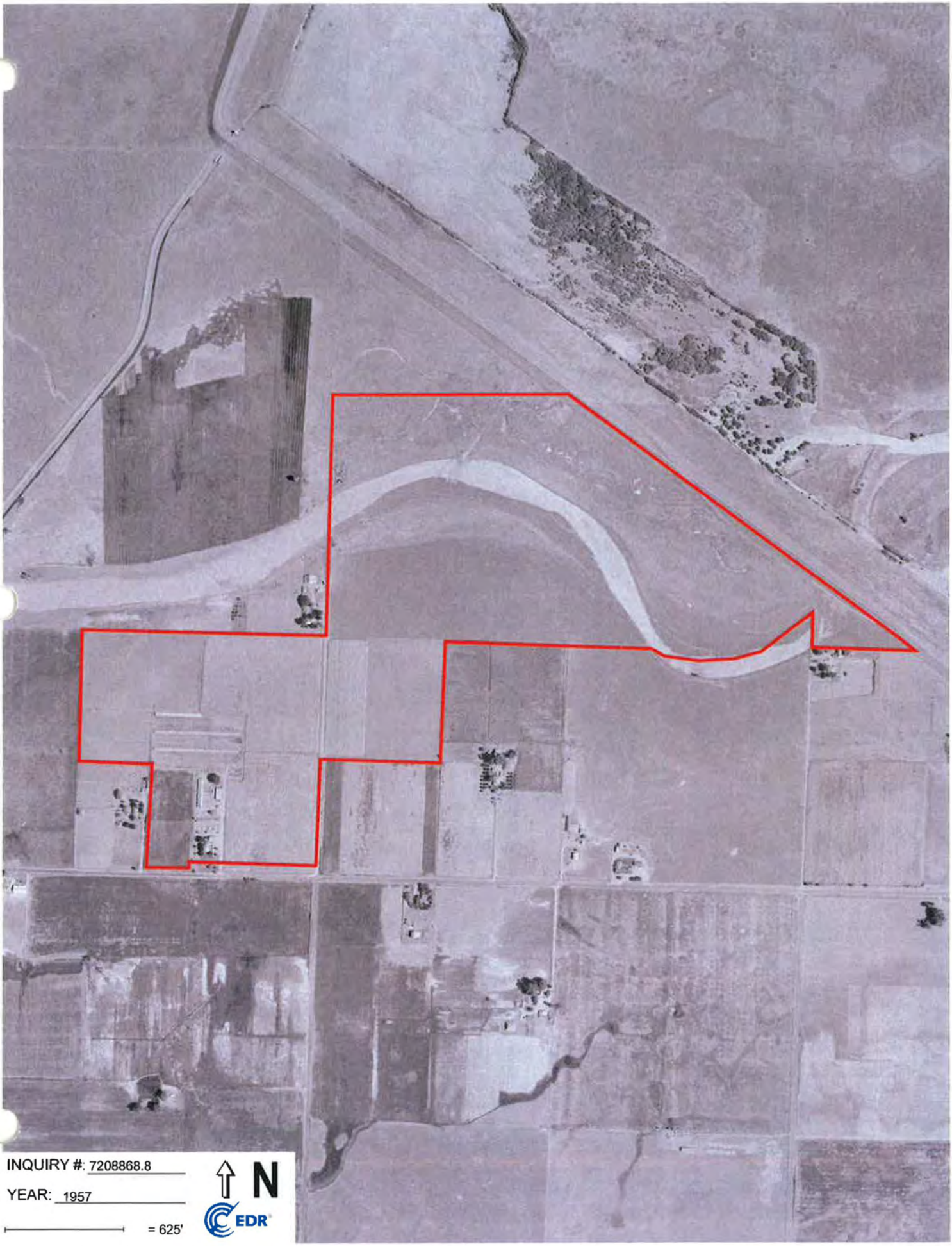
INQUIRY #: 7208868.8

YEAR: 1962

= 625'

N

EDR



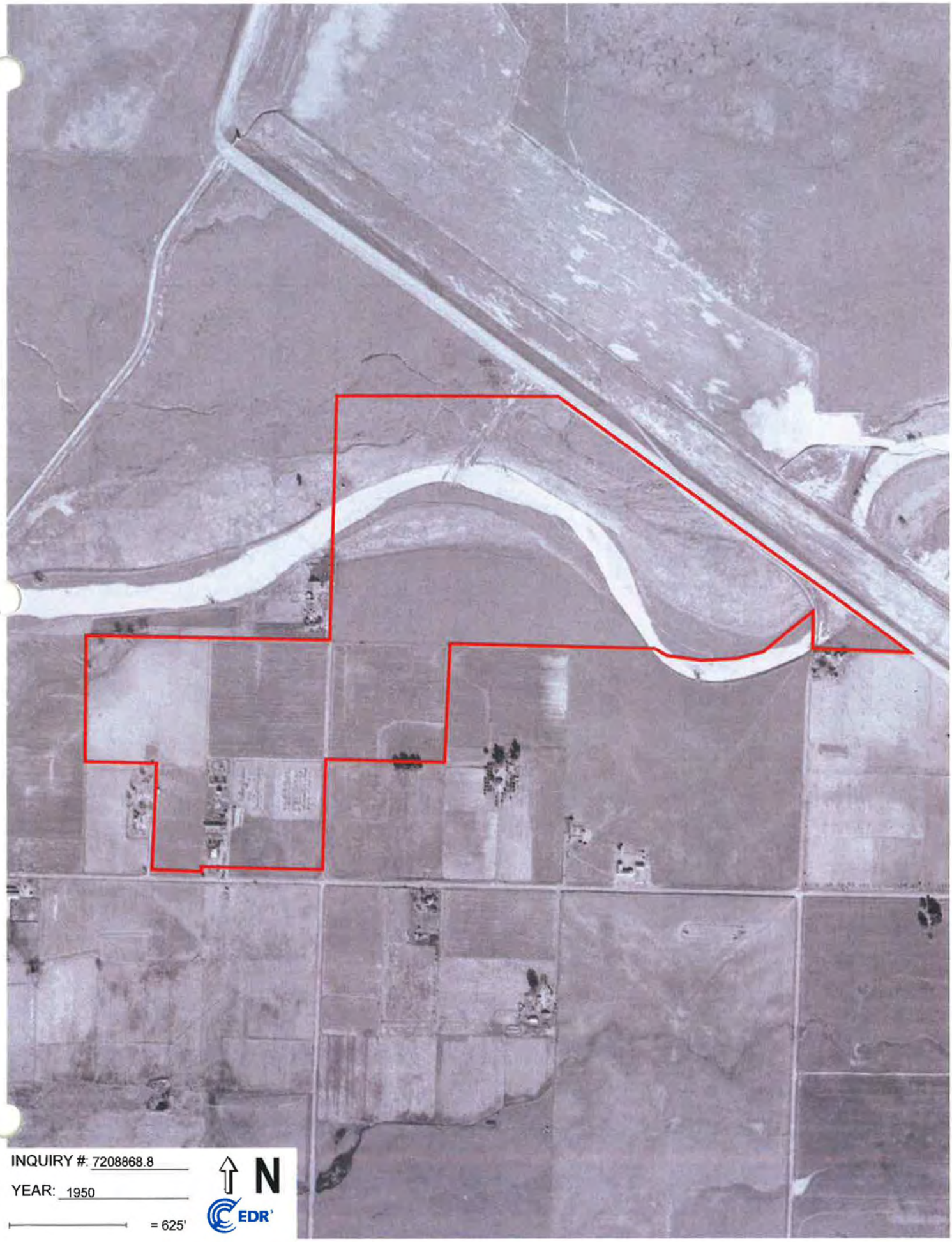
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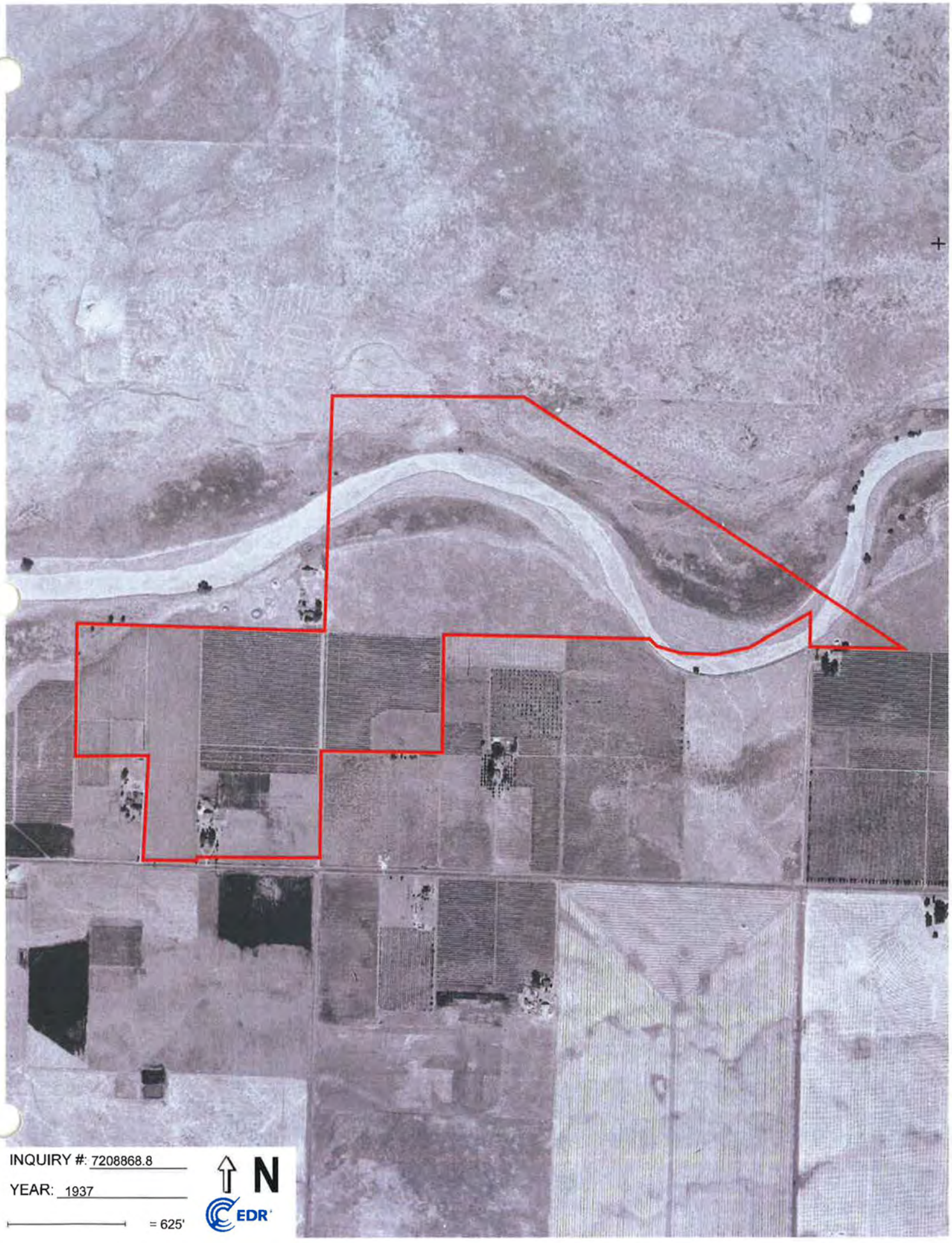
= 625'

N

EDR


INQUIRY #: 7208868.8
YEAR: 1950
= 625'
N
EDR


INQUIRY #: 7208868.8
YEAR: 1946
= 625'
N
EDR


INQUIRY #: 7208868.8
YEAR: 1937
= 625'
N
EDR

E.1 - F – 90-Day Report

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BAY AREA OFFICE
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Berkeley, CA 94707
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Fax: 510/559-9605
www.vollmarconsulting.com

VISTA RANCH
Fresno County, CA

2023 90-DAY REPORT

- **California Tiger Salamander**
- **Listed Large Branchiopods**

Permit #TE-035336-6.3
USFWS Tracking #RP-Vista Ranch-2023-0412

Prepared for:

U.S. Fish & Wildlife Service
2800 Cottage Way, Suite W-2605
Sacramento, CA 95825-1846
Contact: Patricia Cole
916-414-6482

Prepared by:

Vollmar Natural Lands Consulting
1720 Solano Ave
Berkeley, CA 94707
Contact: Eric Smith
510-559-9603

August 2023
J-361-03

INTRODUCTION

This report presents the methods and results of the 2023 non-protocol level California tiger salamander (*Ambystoma californiense*, CTS) and federally-listed large branchiopod surveys conducted on the Vista Ranch. Vista Ranch borders the north side of East Shepherd Avenue, and is located north of Highway 168 in central Fresno County, California (**Figures 1 and 2**). The site is a working cattle ranch that has been proposed for a housing development through Wilson Homes. These surveys are for the purpose of documenting the presence of special status species within the ranch.

Surveys for listed large branchiopods and CTS were conducted by Vollmar Natural Lands Consulting lead biologist John Vollmar with assistance from Chris Jasper on April 17, 2023. Lead biologists are permitted under a Section 10(a)(1)(A) recovery permit for conducting listed large branchiopod and CTS surveys (Permit Number **TE-035336-7**). CTS and large branchiopod survey authorization was obtained on April 12, 2023 from Lauren Kong of the USFWS Sacramento Field Office. The USFWS tracking number assigned to this project is **#RP-Vista Ranch-2023-0412.**

METHODS

Listed Large Branchiopods

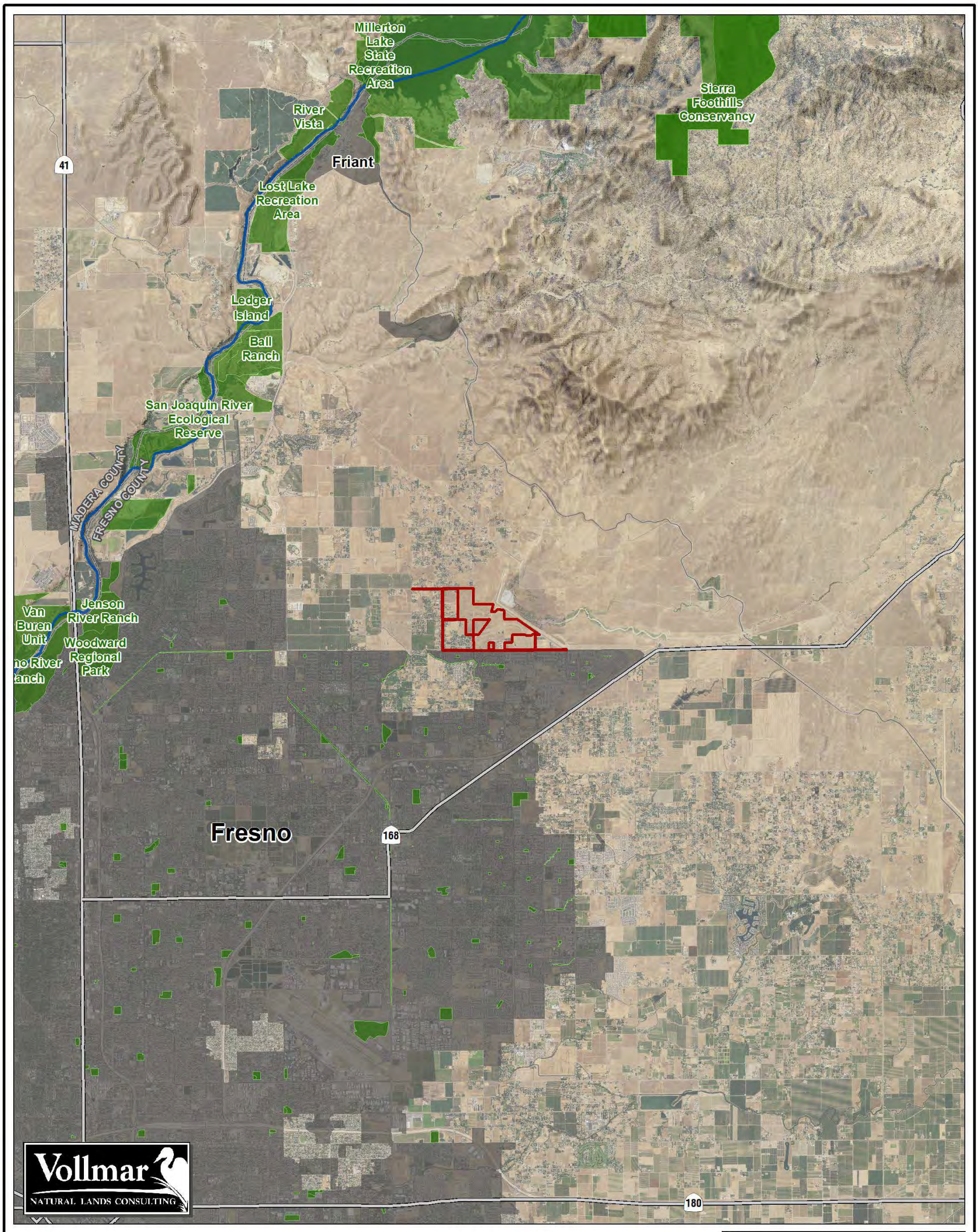
Biologists first measured the depth of the pool (in inches), the temperature in °C, and estimated turbidity visually using a scale from 1-4 with 1 being the clearest and 4 being the most turbid. To evaluate the invertebrate community and identify populations of vernal pool branchiopods, biologists conducted a semi-quantitative dip-net survey. Biologists took five, one-meter-long dip-net pulls throughout the water column. The dip-net that was used had a 25×17cm aperture with 650-micron mesh. The contents of the net were then examined and the aquatic invertebrate taxa present were recorded by abundance class as follows:

- Rare = < 2 individuals
- Not Common = 3-10 individuals
- Common = 11-50 individuals
- Very Common = 51-100 individuals
- Abundant = >100 individuals

All vernal pool branchiopods were identified to species, and all other aquatic invertebrates were identified to at least the Order level. If listed large branchiopods were not identified during these initial sweeps, the biologists then conducted additional sweeps until they were satisfied that they were not present. Biologists recorded any additional taxa captured as 'present' but not within the semi-quantitative sample.

California Tiger Salamander

Each pond survey was initiated by inspecting the water column for any species of interest, then measuring the maximum current depth (in inches) using a rod placed in the deepest portion of the pond (ponds greater than 48 inches deep were simply marked as >48"). In addition to pool depth, we recorded the temperature in °C, and estimated turbidity visually using a scale from 1-4 with 1



Legend

- Study Area (397.5 ac.)
- County Boundary
- Urban Area
- Protected Area or Conservation Easement
- San Joaquin River
- Highway

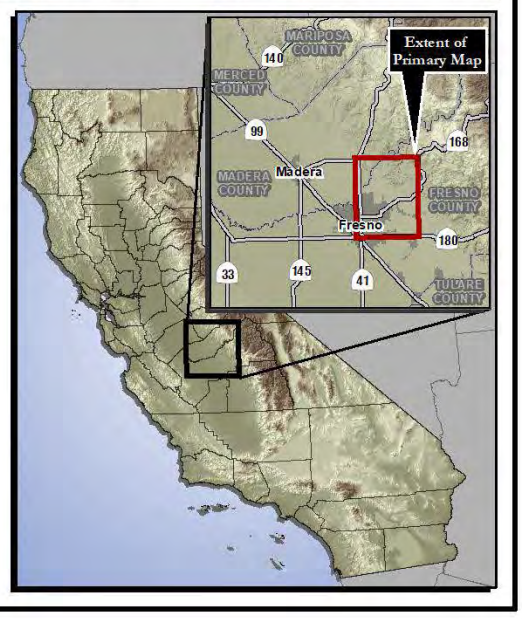
FIGURE 1
Regional Vicinity Map

Vista Ranch
Fresno County, California

N
W E
S

1:100,000
(1 inch = approx. 1.6 mile at tabloid layout)

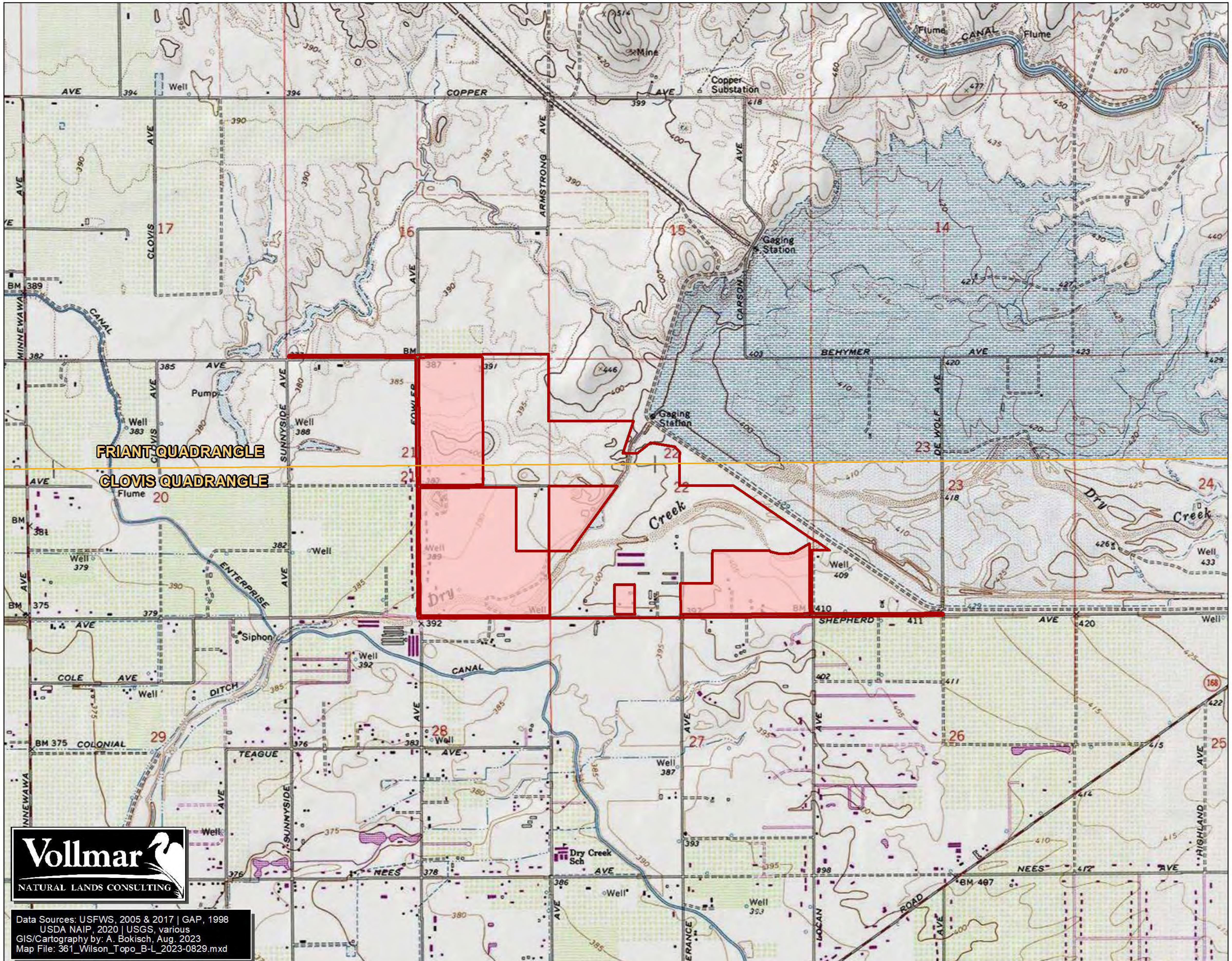
0 0.5 1 2 Km
0 0.5 1 2 Mi



Data Sources: VNLC, 2023 | CCED, 2023
CPAD, 2023 | USDA NAIP, 2020 (aerial imagery)
GAP, 1998 | DWR, 2019
GIS/Cartography by: A. Bokisch, Aug. 2023
Map File: 361_Vista_Vicinity_B-P_2023-0829.mxd

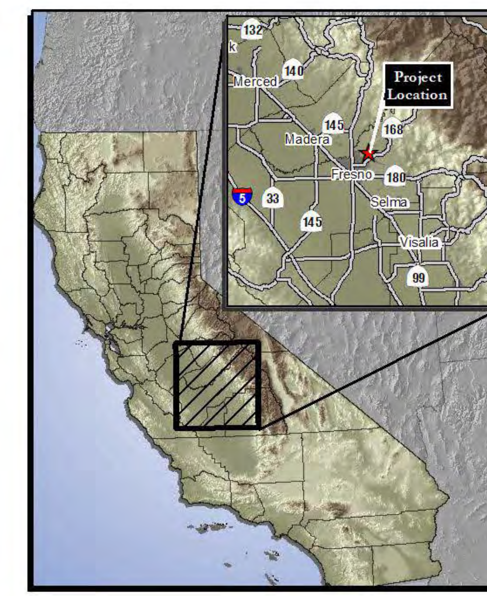
FIGURE 2
USGS Topographic Map

Vista Ranch
Fresno County, California



Legend

- Not Part of Study Area
- Wilson Homes Property (397.5 ac.)



N
W E
S

1:24,000
(1 in. = 2,000 ft. at Tabloid Layout)

0 200 400 800 Meters
0 1,000 2,000 4,000 Feet

being the clearest and 4 being the most turbid. We also estimated the algal and vegetative cover and recorded all invertebrate orders observed for each pool.

Following the visual survey, biologists conducted a five-sweep invertebrate dipnet survey, as described above in the listed large branchiopods section. We then sampled for amphibians using a seine net. Surveyors used a haul seine made of ¼" mesh, measuring 10 feet wide by 3 feet high, and weighted along the bottom edge. Using this seine, surveyors performed a series of 15-foot-long (approximately 5-meter-long) seine hauls to cover an approximate area of 15 square meters for each haul. After each seine haul, surveyors recorded an absolute number of amphibians captured by species and life-stage if feasible, or an estimated number if too many individuals were present for an accurate count. Sampling will cease if at least 100 CTS larvae are captured.

Quantitative seine sweeps are made totaling 10% of the pool's surveyable area, up to a maximum of ten sweeps. If, after ten quantitative sweeps, CTS had not been observed, biologists made additional extra-long sweeps until they were satisfied that CTS was not present. Surveyors measured snout-vent length (SVL, in mm) of captured CTS larvae, and recorded the range of values observed.

RESULTS

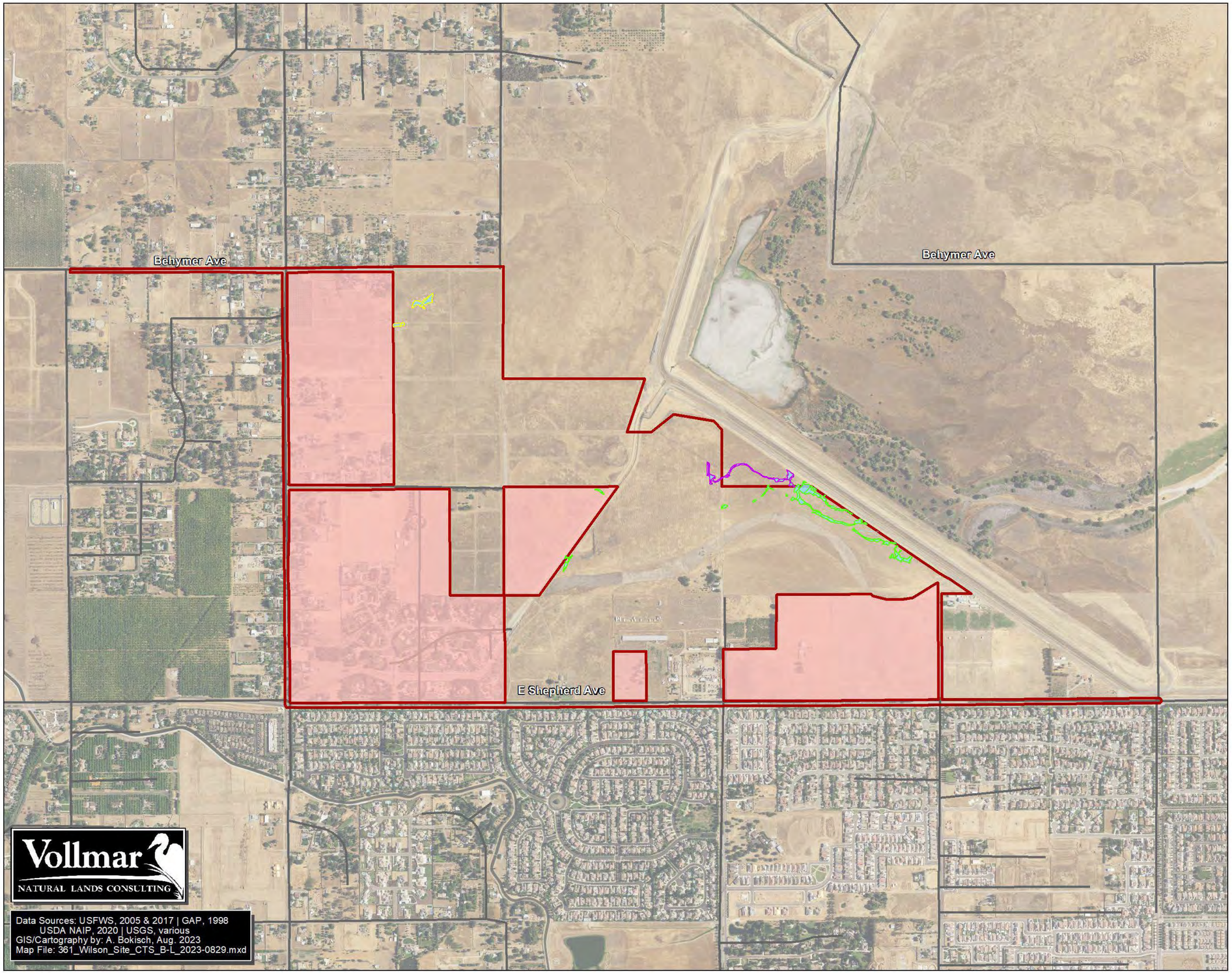
No large branchiopods were detected in any of the sampled pools of 2023. The surveys were conducted late in the season, and do not represent a protocol survey suitable to determine absence.

The federally threatened/California threatened California tiger salamander was found in four pools. The California Department of Fish and Wildlife Species of Special Concern western spadefoot (*Spea hammondii*) was found in 13 pools. The locations of special-status species occurrences can be found on **Figure 3** and in **Table 1**, below.

Representative photographs of the project site are included in **Appendix A**. Full invertebrate and amphibian sampling data are included in **Appendix B**. The authorization letter for these surveys is attached as **Appendix C**.

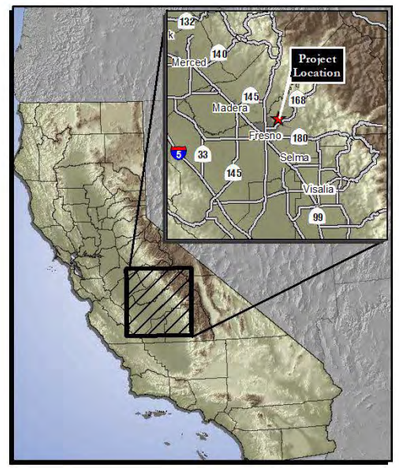
FIGURE 3
Special Status Species Map

Vista Ranch
Fresno County, California



Legend

- California Tiger Salamander (CTS)
- Western Spadefoot (WSF)
- CTS, WSF
- Sampled Pools
- Not Part of Study Area
- Wilson Homes Property (397.5 ac.)



Vollmar
NATURAL LANDS CONSULTING

Data Sources: USFWS, 2005 & 2017 | GAP, 1998
USDA NAIP, 2020 | USGS, various
GIS/Cartography by: A. Bokisch, Aug. 2023
Map File: 361_Wilson_Site_CTS_B-L_2023-0829.mxd

N
W E
S

1:14,400
(1 in. = 1,200 ft. at Tabloid Layout)

0 150 300 600 Meters
0 750 1,500 3,000 Feet

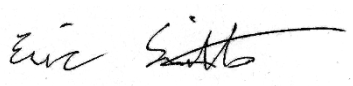
Table 1. 2023 Special-status Species Occurrences

Pool ID	Special-status Species Present[1]	Coordinates (NAD 1983 UTM Zone 10N)	
		Latitude	Longitude
1	WSF	36.871332087144	-119.658504834975
2	WSF	36.8717584147054	-119.658948699521
3	WSF	36.8719795228712	-119.659778152418
4	-	36.8721614569321	-119.659783402981
5	WSF	36.8725606914122	-119.660934127252
6	WSF	36.8733633534699	-119.662051634681
7	WSF	36.873375337016	-119.663193519853
8	WSF	36.8735610907483	-119.663986290333
9	WSF	36.8731996812257	-119.664553615835
10	-	36.8732103919355	-119.665510215422
11	WSF	36.8730179750568	-119.665803439552
12	CTS, WSF	36.8741161344345	-119.666280901682
13	CTS, WSF	36.8740447349176	-119.664127976183
14	WSF	36.8735529961644	-119.670950345734
15	WSF	36.8712087999711	-119.672324595971
16	CTS	36.8799563046507	-119.678226448325
17	CTS	36.8791827225851	-119.679250105701

[1] CTS = California tiger salamander (*Ambystoma californiense*), WSF = western spadefoot (*Spea hammondii*)

SIGNATURE

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



August 29, 2023

Permittee's Signature (Eric Smith) Date

APPENDIX A

REPRESENTATIVE PHOTOGRAPHS



Pool 1 | 4/17/2023



Ground squirrel burrows near sampled pools | 4/17/2023



Pool 13 contained CTS | 4/17/2023



California Tiger Salamanders in seine net | 4/17/2023

APPENDIX B

2023 INVERTEBRATE AND AMPHIBIAN SAMPLING DATA

			Water Quality			Branchiopods										Insects												Amphibians						
Feature Number	Surveyor	Date	Depth (Inches)	Temperature (Celcius)	Turbidity (Visual Scale)	Vernal Pool Fairy Shrimp	Midvalley Fairy Shrimp	California Fairy Shrimp	Seed Shrimp (Ostracoda)	Water Flea (Cladocera)	Planarian (Microturbellaria)	Leech (Hirudinea)	Scud (Amphipoda)	Copepod (Calanoida)	Copepod (Cyclopoida)	Water Mite (Hydracarina)	Mayfly (Ephemeroptera)	Damselfly (Zygoptera)	Dragonfly (Anisoptera)	Predaceous Diving Beetle (Dytiscidae)	Water Scavenger Beetle (Hydrophilidae)	Water Boatman (Corixidae)	Backswimmer (Notonectidae)	Mosquito (Culicidae)	Midge (Chironomidae)	Pond Snail (Lymnaeidae)	Ram's Horn Snail (Planorbidae)	Bladder Snail (Physidae)	Sierran Chorus Frog (PSESIE)	Bullfrog Tadpole (RANCAT)	Bullfrog Adult (RANCAT)	California Toad (ANABOR)	Western Spadefoot (SPEHAM)	California Tiger Salamander (AMBCAL)	Invertebrate Richness
1	JV, CJ	4/17/2023	10	19	3																												C		0
2	JV, CJ	4/17/2023	6	23	3																												NC		0
3	JV, CJ	4/17/2023	4	22	2																												R		0
4	JV, CJ	4/17/2023	6	23	Dark Colored-Tea																														0
5	JV, CJ	4/17/2023	>12	20	Dark Colored-Tea																								R				A		0
6	JV, CJ	4/17/2023	>12	22	2																								R				VC		0
7	JV, CJ	4/17/2023	5	23	2																												R		0
8	JV, CJ	4/17/2023	6	24	3																												C		0
9	JV, CJ	4/17/2023	1	24	2																								NC				C		0
10	JV, CJ	4/17/2023	0	N/A	N/A																														0
11	JV, CJ	4/17/2023	2	24	3																												NC		0
12	JV, CJ	4/17/2023	10	26	Dark Colored-Tea																												NC	R	0
13	JV, CJ	4/17/2023	>12	24	2																												NC	VC	0
14	JV, CJ	4/17/2023	10	26	Dark Colored-Tea																												VC		0
15	JV, CJ	4/17/2023	10	26	Dark Colored-Tea																												VC		0
16	JV, CJ	4/17/2023	N/A	N/A	N/A																													P	0
17	JV, CJ	4/17/2023	N/A	N/A	N/A																													P	0

Surveyor

JV	John Vollmar
CJ	Chris Jasper

Abundance Codes

A	Abundant (>100)	NC	Not Common (3-10)
VC	Very Common (51-100)	R	Rare (<= 2)
C	Common (11-50)	P	Present (not in semi-quantitative sweeps)

APPENDIX C

AUTHORIZATION LETTER

Survey Approval, RP-Vista Ranch-2023-0412 , Wet CTS and VpB

Kong, Lauren M <lauren_kong@fws.gov>
on behalf of
SFWO Permits, FW8 <FW8_SFWO_Permits@fws.gov>
Wed 4/12/2023 3:53 PM

To: Kristen Chinn <kristen@vollmarconsulting.com>

Cc: Cole, Patricia <Patricia_Cole@fws.gov>

Kristen Chinn,

By this email message, you are authorized to conduct aquatic surveys for California tiger salamanders and vernal pool branchiopods, as specified in your April 10, 2023 email request, per the conditions of your recovery permit (TE-035336-6.3). Surveys will be conducted at the Vista Ranch Property in Fresno County, CA. Please remember to carry a copy of your permit while doing the work and to follow the terms and conditions therein. This authorization does not include access to the property which must be arranged with the landowner or manager. Please let us know if the activities are not performed as authorized, or if they are done by a different permittee under a separate authorization.

Please send survey reports with the reference # RP-Vista Ranch-2023-0412 to FW8_SFWO_Permits@fws.gov and San Joaquin Valley Division Supervisor, Patricia Cole (patricia_cole@fws.gov). Reports for vernal pool branchiopod surveys are due in 90 days. Reports for all other species are due in 45 days. Reports should include, at minimum:

1. The reference number to help ensure that we correctly record the fulfillment of the reporting requirement under this authorization,
2. A copy of this authorization letter,
3. The names of all persons involved in each activity and their recovery permit numbers, if applicable,
4. A U.S. Geological Survey topographic map (1:24,000 scale) depicting the location of the project site, survey area, and location(s) of species in as p)recise a manner as possible.
5. All other information required in the 45/90 Day Survey Report section of your permit.

Thank you,

Lauren

--
10(a)(1)(A) Recovery Permitting
Sacramento Fish and Wildlife Office | USFWS
Pacific Southwest Recovery Permitting
Survey Protocols | Minimum Qualifications

The SFWO is using this consolidated mailbox for all communications regarding 10(a)(1)(A) recovery permits in our jurisdiction. Please send survey notifications, reports, and permit inquiries to this email address: FW8_SFWO_Permits@fws.gov.

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E.1 - G – Rare Plant Survey Report

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CAPITOL OFFICE
2401 Capitol Ave, STE 302
Sacramento, CA 95816
Phone: 916/758-6928
Fax: 510/559-9605
www.vollmarconsulting.com

Rare Plant Survey Report



Vista Ranch Project Site
Fresno County, California

Prepared for:

Wilson Premier Homes
7550 N. Palm Avenue, Ste. 102
Fresno, CA 93711
Contact: Goldie Lewis | 559/224-7550

Prepared by:

Vollmar Natural Lands Consulting
2401 Capitol Avenue,
Sacramento, CA 95816
Contact: Rachel Miller 916/758-6928

October 2023

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Appendix B. Special-Status Plant Taxa Documented in the Study Area Vicinity

Appendix C. List of All Vascular Plant Taxa Identified Within the Study Area

1.0 INTRODUCTION

This report describes the methods and results for required rare plant surveys conducted in support of separate permitting applications for the proposed Vista Ranch Project (Project), a mixed-use development which will create approximately 2,718 residential units in Fresno County, California. The Study Area consists of the approximately 368-acre Project Site in Fresno County, California. Off-site work areas for the Project were not included in field surveys. The Study Area is located at the west edge of an area designated as the (future) Northeast Urban Center by the City of Clovis General Plan (City of Clovis 2014). This area is within the City's planning jurisdiction but outside current City limits (**Figures 1** and **2**).

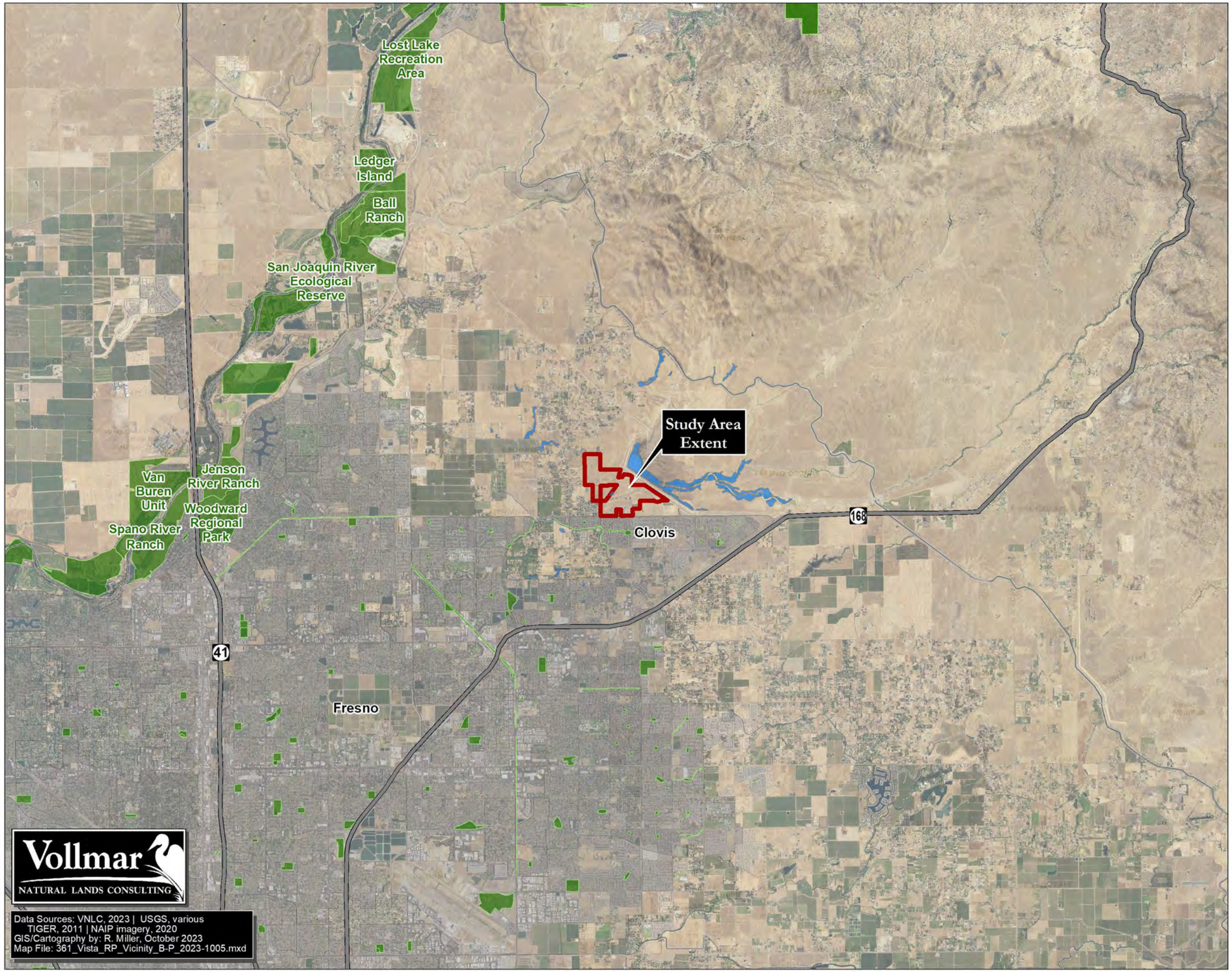
This report documents existing or potentially occurring rare plant species and sensitive plant communities for review by regulatory agencies. It is intended to support separate permitting for the Project. This rare plant survey and floristic inventory was completed by Vollmar Natural Lands Consulting on behalf of Wilson Premier Homes. Vollmar Natural Lands Consulting (VNLC) previously prepared a separate wetland delineation within the Study Area (VNLC 2023).

The purpose of the rare plant surveys and floristic inventory is to document any sensitive botanical resources that could potentially be impacted by Project activities, including special-status plant species and/or sensitive natural communities. The surveys were protocol in nature and were scheduled to coincide with peak spring and summer botanical seasons for the region, during the blooming periods of special-status plants with potential to occur in the Study Area.

No special-status plant species were detected during the surveys. Other than separately delineated wetlands and waters (VNLC 2023), no sensitive natural communities were identified and mapped within the Study Area.

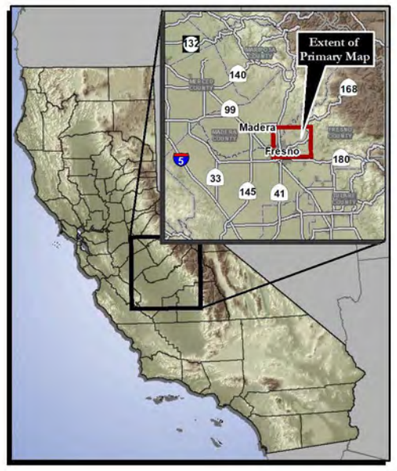
FIGURE 1
Regional Vicinity Map

Vista Ranch Development
Fresno County, California



Legend

- Highway
- Study Area (368 ac.)
- Wetlands/Waters (CARI, SFEI 2023)
- Protected Area or Conservation Easement
- County Boundary
- Urban



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1 inch = approx. 1.6 miles at tabloid layout

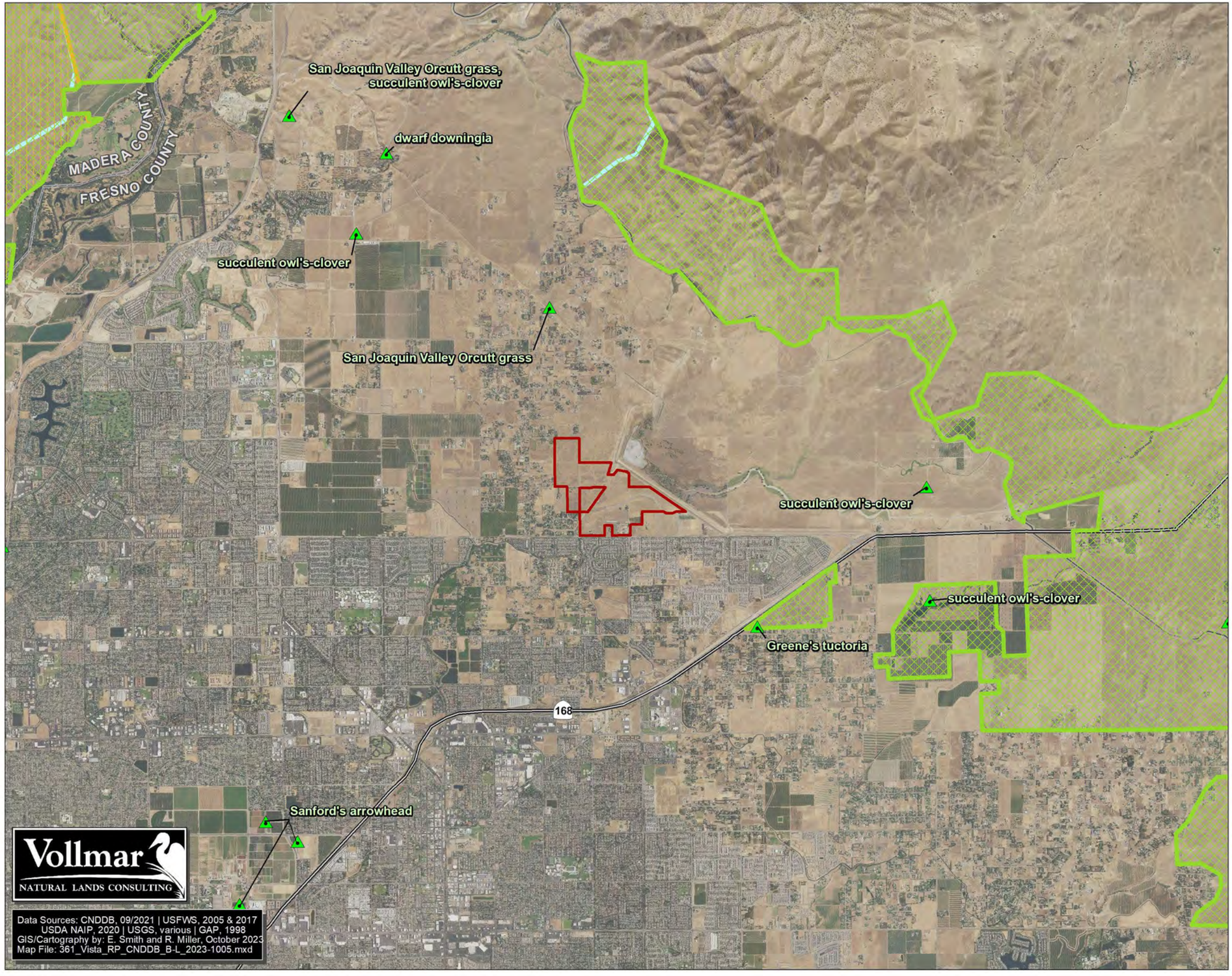
0 1 2 4 Km
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Vollmar
NATURAL LANDS CONSULTING

Data Sources: VNLC, 2023 | USGS, various
TIGER, 2011 | NAIP imagery, 2020
GIS/Cartography by: R. Miller, October 2023
Map File: 361_Vista_RP_Vicinity_B-P_2023-1005.mxd

FIGURE 2
Regional Special-Status Plant Species Map

Vista Ranch Development
Fresno County, California

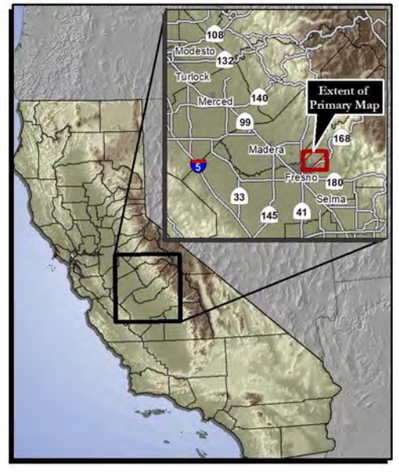


Legend

- Documented Special-Status Plant Species (CNDDB)
- Highway
- Study Area (368
- County Boundary

USFWS Critical Habitat

- Hairy Orcutt Grass
- San Joaquin Valley Orcutt Grass
- Fleshy Owl's-Clover



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(1 in. = 1 mi. at Tabloid Layout)

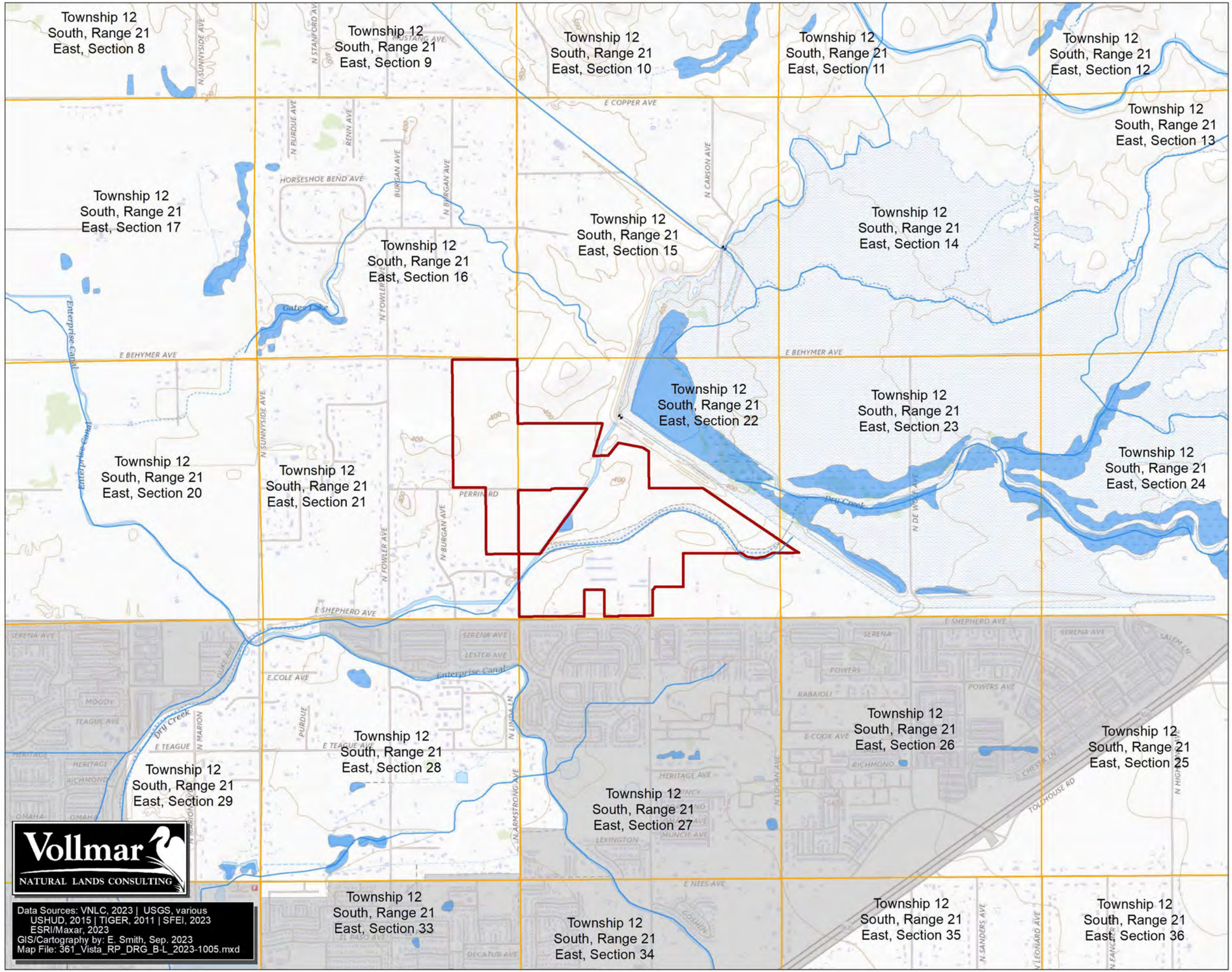
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0 0.5 1 2 Mi

Vollmar
NATURAL LANDS CONSULTING

Data Sources: CNDDB, 09/2021 | USFWS, 2005 & 2017
USDA NAIP, 2020 | USGS, various | GAP, 1998
GIS/Cartography by: E. Smith and R. Miller, October 2023
Map File: 361_Vista_RP_CNDDB_B-L_2023-1005.mxd

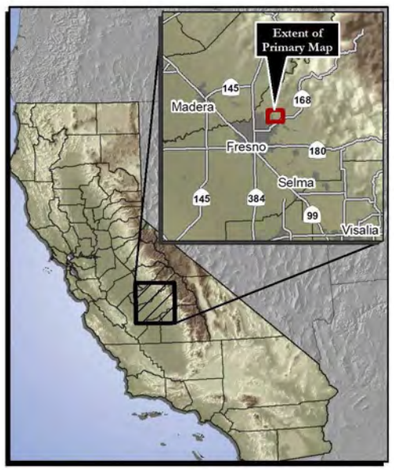
FIGURE 3
USGS Topographic Map

Vista Ranch Development
Fresno County, California



Legend

- Stream
- Study Area (368 ac.)
- Wetlands/Waters (CARI, SFEI 2023)
- Public Land Survey Boundary
- City of Clovis



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(1 in. = 2,000 feet at Tabloid Layout)

0 250 500 1,000 M

0 1,000 2,000 4,000 Ft

Vollmar
NATURAL LANDS CONSULTING

Data Sources: VNLC, 2023 | USGS, various
USHUD, 2015 | TIGER, 2011 | SFEI, 2023
ESRI/Maxar, 2023
GIS/Cartography by: E. Smith, Sep. 2023
Map File: 361_Vista_RP_DRG_B-L_2023-1005.mxd

2.0 TARGETED BOTANICAL RESOURCES

For the purposes of this report, special-status plants include federal and/or California state listed species and species of concern as well as species included within an inventory maintained by the California Native Plant Society (CNPS), including taxa of all ranks.

Sensitive natural communities include those designated as such by the California Department of Fish and Wildlife (CDFW), either in the List of California Sensitive Natural Communities (2023) or as alliances classified in the Manual of California Vegetation (MCV) (Sawyer et al. 2009, CNPS 2023a). MCV alliances with a global rank of G1-G3 or a state rank of S1-S3 are designated "rare or threatened" and are considered sensitive. In addition, wetland and riparian habitats are considered sensitive and are regulated by environmental regulatory agencies.

3.0 METHODS

3.1 Preliminary Review and Field Preparation

Prior to field surveys, the botanists reviewed site aerial photography, topographic data, existing wetland delineation mapping, previous biological reports, and soil survey maps for the Study Area and vicinity in order to develop a list of special-status plant species with potential to occur in the Study Area. A map of documented occurrences of special-status plant species within approximately 5 miles of the Study Area was compiled from the most recent data available from the California Natural Diversity Database (CNDDB); see **Figure 2** (CDFW 2023a).

The botanists also compiled a list of known occurrences of special-status plant species from a twelve-quadrangle search using the CNPS Rare Plant Inventory (CNPS 2023b). The twelve-quad search included the Clovis and Friant 7.5-minute Quadrangles (where the Study Area is located) and the surrounding 10 Quadrangles: Fresno North, Fresno South, Malaga, Sanger, Academy, Lanes Bridge, Little Table Mtn., Millerton Lake West, Round Mountain, and Millerton Lake East.

The botanists compiled information on each target plant species, including preferred habitat, microhabitat, elevation range, and blooming period. This information guided the development of the field survey schedule and strategies to detect special-status plants with potential to occur in the Study Area. **Appendix B** provides the target list of special-status plant taxa with potential to occur in the Study Area. **Figure 2**, above, displays the CNDDB occurrences of special-status plant species in the Project vicinity.

3.2 Field Surveys

The botanical field surveys were conducted on May 10 and June 29, 2023, by VNLC Botanists Rachel Miller, Eric Smith, Maria Vollmar, and Anton Bokisch. The survey dates were scheduled to coincide with the blooming periods of all special-status plants for which potentially suitable habitats occur in the Study Area (**Appendix B**). During each field survey, the botanists walked the

Study Area, searching for special-status plant species and recording all plant species observed within the Study Area. Off-site work areas were not examined during field surveys.

The rare plant surveys conformed to the CNPS 'Intuitive Controlled' method as well as the CDFW guidelines for conducting protocol-level botanical surveys (2018). The surveys also satisfy the U.S. Fish and Wildlife Service guidelines for conducting and reporting botanical inventories for federally listed, proposed, and candidate plants (USFWS 2000). The entirety of the Study Area was investigated, and areas with higher potential to support special-status or otherwise unique plants were surveyed with greater intensity. All plant taxa present were recorded to the lowest taxa necessary to determine the regulatory status (i.e., species, subspecies, or variety).

Dominant species and general habitat conditions of each habitat type were also noted. Botanists recorded characteristic and dominant plant species from each stratum (tree, shrub/sapling/vine, and herb) in order of prevalence, and classified habitat types according to the CNPS classification system (2001). Potential sensitive natural communities (with an MCV rank of G1-G3 or S1-S3), were classified to the MCV alliance level. Botanists also recorded notes on canopy cover, soil conditions, and level of disturbance, as relevant.

During the field surveys, representative photographs were taken of onsite plant communities, general habitat conditions, and plant species of interest. Representative photos are included in **Appendix A**.

3.3 Natural Communities Mapping

Natural communities within the Study Area were mapped in ArcGIS software using field data, aerial photography, and topographic data. Sensitive natural communities include Alliances classified by the Manual of California Vegetation (MCV) as a global rank of G1-G3 or state rank of S1-S3 (CNPS 2023a). Natural communities which are not sensitive were classified to CNPS habitat type classification (2023). Wetland habitat types and boundaries within the Study Area are delineated in a separate Wetland Delineation Report (VNLC 2023), and these wetlands are included in this report as a sensitive natural community. Wetlands and other waters are considered sensitive and are regulated by environmental regulatory agencies.

4.0 ENVIRONMENTAL SETTING

4.1 Location of Study Area

The 368-acre Study Area is located north of the City of Clovis. It is bordered on the south and west by suburban residential development and on the northwest by more open rural residential development. To the northeast, it is bordered by open range and the Big Dry Creek Dam and Reservoir.

The site is located within Sections 21, 22, and 23 of Township 12 South, Range 21 East of the Mount Diablo Base & Meridian within the Friant and Clovis 7.5-minute U.S. Geological Survey

(USGS) topographic quadrangles (**Figure 3**). The coordinates at the approximate center of the site are 36.873266, -119.670577. The nearest road intersection is East Shepherd Avenue and North Temperance Avenue along the central southern edge of the site. The site is accessed from Highway 99 south by exiting at Highway 180 East (Exit 133B). After approximately 3.4 miles, take Exit 60A for Highway 168 East. After 1.3 miles, exit at Temperance Ave (Exit 9) and continue north for 2.2 miles. Access to the site is by a dirt road extending north from Temperance Avenue in the south and along East Behymer Road in the northwest.

4.2 Current Conditions

The Study Area consist of mostly level to gentle terrain with the most pronounced topography in the northwest. The Study Area elevation ranges from about 380 to 413 feet (116 to 126 meters) with slopes generally running south and southwest in the south and east of the site and west in the northwest of the site (USGS 2021) (**Figure 3**).

Habitats within the Study Area include annual grassland, disturbed/remnant/ruderal grassland, developed areas/roads, low-density residential areas, farm headquarters, intensive agriculture, the abandoned dry creek channel, and several types of aquatic resources. The majority of the Study Area consists of annual grasslands, dominated by non-native annual grass species and invasive weeds. Characteristic species in this habitat include ripgut brome (*Bromus diandrus*), soft chess (*Bromus hordeaceus*), wild oat and slender oat (*Avena sp.*), rattail sixweeks grass (*Festuca myuros*), and turkey mullein (*Croton setigerus*). The central portion of the Study Area includes lightly grazed pastures (the disturbed/remnant/ruderal grassland), which is also dominated by non-native annual species and invasive weeds common in grazing pastures: ripgut brome, soft chess, turkey mullein, yellow star thistle (*Centaurea solstitialis*), skeleton weed (*Chondria juncea*), and short pod mustard (*Hirschfeldia incana*). The current grazing level is light with a high buildup of thatch and residual dry matter.

There are also some low-density residential areas in the southeast of the site, as well as a dilapidated farm headquarters. A palm plantation (the intensive agriculture), an outdoor storage yard, and a few dirt access roads (the developed areas/roads) are also located in the south portion of the Study Area.

The following aquatic resources were separately delineated by VNLC within the Study Area. Scattered depressional wetlands occur within the non-native annual grasslands, concentrated near the northeast border of the Study Area. These depressional wetland basins occur in a series of apparently remnant floodplain swales on the north side of the abandoned channel of Dry Creek. The depressional wetland basins are dominated by common lippia (*Phyla nodiflora*), swamp pricklegrass (*Crypsis schoenoides*), and saltgrass (*Distichlis spicata*). Common subdominant species included Mediterranean barley (*Hordeum marinum* ssp. *gussoneanum*), common vernal pool allocarya (*Plagiobothrys stipitatus* var. *micranthus*), Great Valley button celery (*Eryngium castrense*), hyssop loosestrife (*Lythrum hyssopifolia*), and Italian rye grass (*Festuca perennis*).

There are also three created stockponds in the northwest of the site, dominated by common spikerush (*Eleocharis macrostachya*), burhead (*Echinodorus berteroi*), curly dock (*Rumex crispus*), Great Valley button celery, and hyssop loosestrife. A 1.129-acre triangular agricultural tailwater pond has been excavated in the central portion of the Study Area, adjacent to the spillway canal. This pond was designed to recapture and recirculate irrigation tailwater. There is no active flood irrigation being practiced at this time. An approximately 3-foot margin of this agricultural tailwater pond was vegetated during the field surveys, dominated by wetland species including burhead, rough cocklebur (*Xanthium strumarium*), tall flatsedge (*Cyperus eragrostis*), and common spikerush.

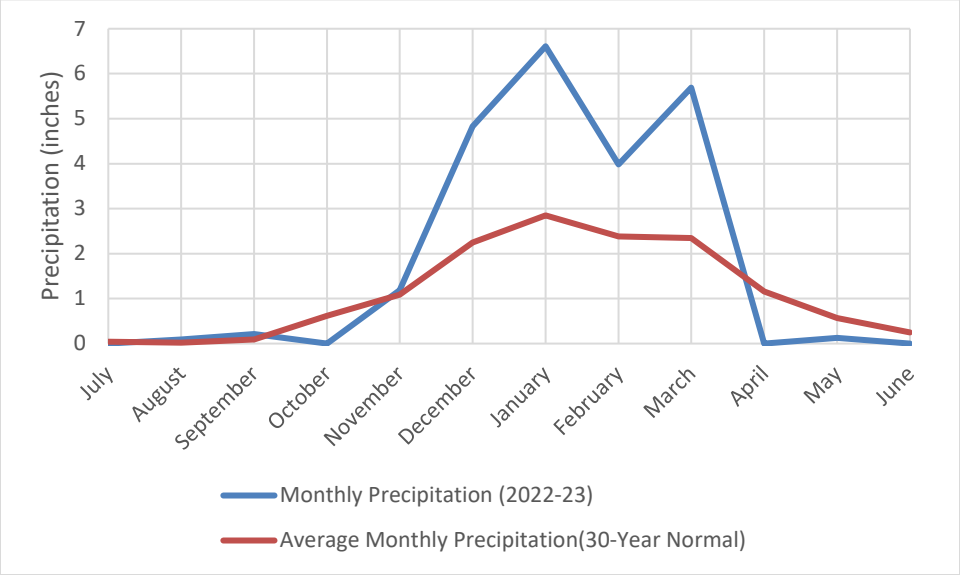
The Big Dry Creek Dam and Reservoir, constructed in 1948, and operated by the Fresno Metropolitan Flood Control District (FMFCD), are flood control structures located on Dry Creek, immediately northeast of the study area. The dam consists of a zoned earth fill embankment, which impounds flows from Dry Creek and its tributaries. Due to safety concerns regarding seepage, the reservoir is limited to approximately 1/3 of its total capacity and is limited to a 90-day duration of storage (BOR, CDWR & CBDA, 2003). Construction of the dam and reservoir involved a re-alignment of Dry Creek and abandonment of a section of the original channel. Dry Creek is now routed into the reservoir basin and then though the spillway and down a canal below the spillway, rejoining the original Dry Creek channel approximately 2,200 feet below the spillway. Within the study area, it consists of a constructed earthen channel with raised berms along both sides. This channel supports a mix of wetland vegetation and open water channel areas. Where vegetated, the spillway canal is dominated by wetland plants including burhead, rough cocklebur, tall flatsedge, and common spikerush.

The abandoned Big Dry Creek channel traverses the central portion of the Study Area. It supports upland habitat with remnant sandy substrate. Dominant species include Madrid brome (*Bromus madritensis*), brome fescue (*Festuca bromoides*), and wall barley (*Hordeum murinum*) throughout, with northern pectocarya (*Pectocarya penicillata*) in the eastern and western portions, and summer lupine (*Lupinus formosus* var. *robustus*) conspicuous in the western portion.

4.3 Climate

Climate within the Study Area is Mediterranean, which is characterized by cool, wet winters and warm, dry summers as well as high inter- and intra-annual variability in precipitation. The field surveys were conducted at a time where the prior 3-month periods were wetter than normal, followed by a period drier than normal. **Figure 4**, below, displays the total monthly precipitation for July 2022 through June 2023 as well as the average (30-year normal) monthly precipitation for 1991-2020 in Fresno County.

Figure 4. Monthly Precipitation Recorded in 2022-23 in Fresno County, CA



Data Provided by PRISM Climate Group (2023).

Precipitation during the 2023-23 wet season was earlier and much heavier than normal. During separate biological surveys within the Study Area in April 2023, VNLC biologists noted that the depressional wetland basins on site were heavily inundated, followed by a rapid dry-down. These observations suggest that soils within the Study Area infiltrate quickly, even in years with heavier-than-normal rainfall.

4.4 Soils and Geology

Prior to the site surveys, the U.S. Department of Agriculture (USDA) Soil Conservation Service (USDA-NRCS 2022) database was consulted to identify soil types found within the Study Area. The soil types found within the Study Area are summarized in **Table 1** and displayed in **Figure 5**, below. **Figure 6**, also below, displays the geologic units in the Study Area.

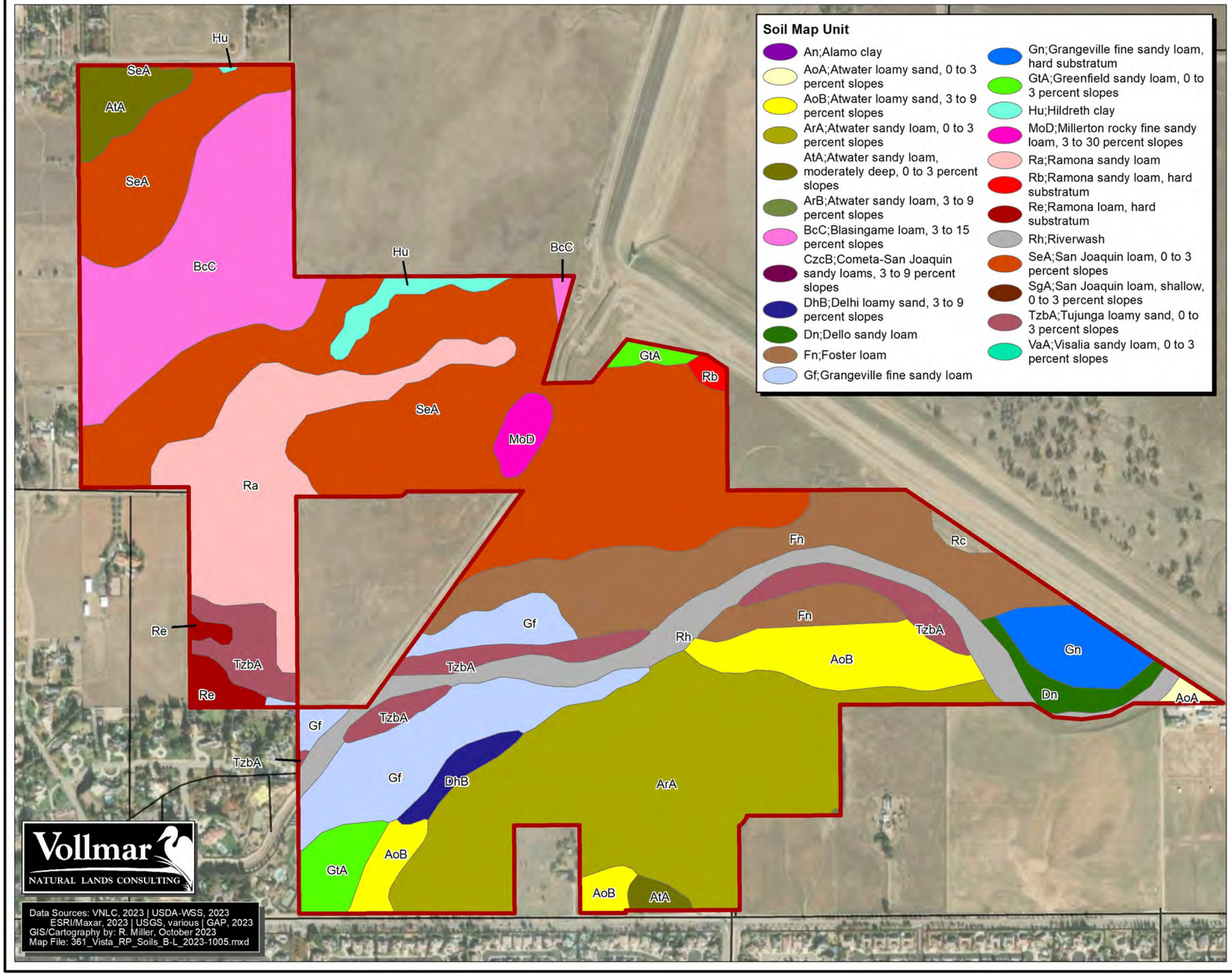
An alluvial mélange of soil types occur within the Study Area. The geologic unit "Qf" (recent alluvial fan deposits in the great valley) covers the majority of the Study Area. Most of the Study Area soil units are composed of sandy soil, loam, or sandy loam textures. As noted in **Section 4.3**, a high rate of infiltration was noted by VNLC biologists within the Study Area soils. Vernal pool indicator species require longer periods of inundation and were relatively rare within the Study Area. The geologic formations and soil map units within the Study Area are not associated with special-status plant species known from similar habitats in the region.

Table 1. Soil Map Units Within Study Area

Soil Map Unit	Soil Map Unit Name	Acres in Study Area	Percent of Study Area
SeA	San Joaquin loam, 0 to 3% slopes	105.3	26.47%
ArA	Atwater sandy loam, 0 to 3 % slopes	66.9	16.84%
BcC	Blasingame loam, 3 to 15% slopes	35.9	9.02%
Fn	Foster loam	34.5	8.69%
Ra	Ramona sandy loam	28.1	7.06%
Gf	Grangeville fine sandy loam, 0 to 1% slopes, MLRA 17	24.8	6.25%
AoB	Atwater loamy sand, 3 to 9% slopes	19.6	4.93%
TzbA	Tujunga loamy sand, 0 to 3% slopes	16.3	4.10%
Rh	Riverwash	16.0	4.02%
AtA	Atwater sandy loam, moderately deep, 0 to 3% slopes	9.8	2.47%
Gn	Grangeville fine sandy loam, hard substratum	7.2	1.81%
GtA	Greenfield sandy loam, 0 to 3% slopes	6.7	1.67%
Re	Ramona loam, hard substratum	3.9	0.98%
Dn	Dello sandy loam	3.6	0.90%
ArB	Atwater sandy loam, 3 to 9% slopes	3.5	0.89%
Hu	Hildreth clay	3.3	0.83%
MoD	Millerton rocky fine sandy loam, 3 to 30% slopes	2.8	0.71%
DhB	Delhi loamy sand, 3 to 9% slopes	2.6	0.66%
An	Alamo clay	1.4	0.36%
SgA	San Joaquin loam, shallow, 0 to 3% slopes	1.4	0.34%
AoA	Atwater loamy sand, 0 to 3% slopes, MLRA 17	1.1	0.29%
Rc	Ramona loam	1.0	0.26%
Rb	Ramona sandy loam, hard substratum	0.7	0.19%
CzcB	Cometa-San Joaquin sandy loams, 3 to 9% slopes	0.7	0.17%
VaA	Visalia sandy loam, 0 to 3% slopes	0.3	0.09%

FIGURE 5
Soil Units

Vista Ranch Development
Fresno County, California

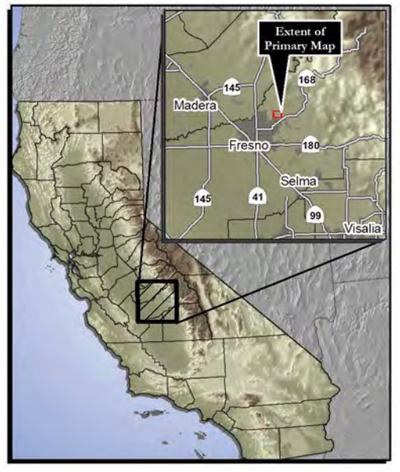


Soil Map Unit

- An;Alamo clay
- AoA;Atwater loamy sand, 0 to 3 percent slopes
- AoB;Atwater loamy sand, 3 to 9 percent slopes
- ArA;Atwater sandy loam, 0 to 3 percent slopes
- AtA;Atwater sandy loam, moderately deep, 0 to 3 percent slopes
- ArB;Atwater sandy loam, 3 to 9 percent slopes
- BcC;Blasingame loam, 3 to 15 percent slopes
- CzcB;Cometa-San Joaquin sandy loams, 3 to 9 percent slopes
- DhB;Delhi loamy sand, 3 to 9 percent slopes
- Dn;Dello sandy loam
- Fn;Foster loam
- Gf;Grangeville fine sandy loam
- Gn;Grangeville fine sandy loam, hard substratum
- GtA;Greenfield sandy loam, 0 to 3 percent slopes
- Hu;Hildreth clay
- MoD;Millerton rocky fine sandy loam, 3 to 30 percent slopes
- Ra;Ramona sandy loam
- Rb;Ramona sandy loam, hard substratum
- Re;Ramona loam, hard substratum
- Rh;Riverwash
- SeA;San Joaquin loam, 0 to 3 percent slopes
- SgA;San Joaquin loam, shallow, 0 to 3 percent slopes
- TzbA;Tujunga loamy sand, 0 to 3 percent slopes
- VaA;Visalia sandy loam, 0 to 3 percent slopes

Legend

- Selected Local Road
- Study Area (368 ac.)



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1:7,200
(1 in. = 600 feet. at Tabloid Layout)

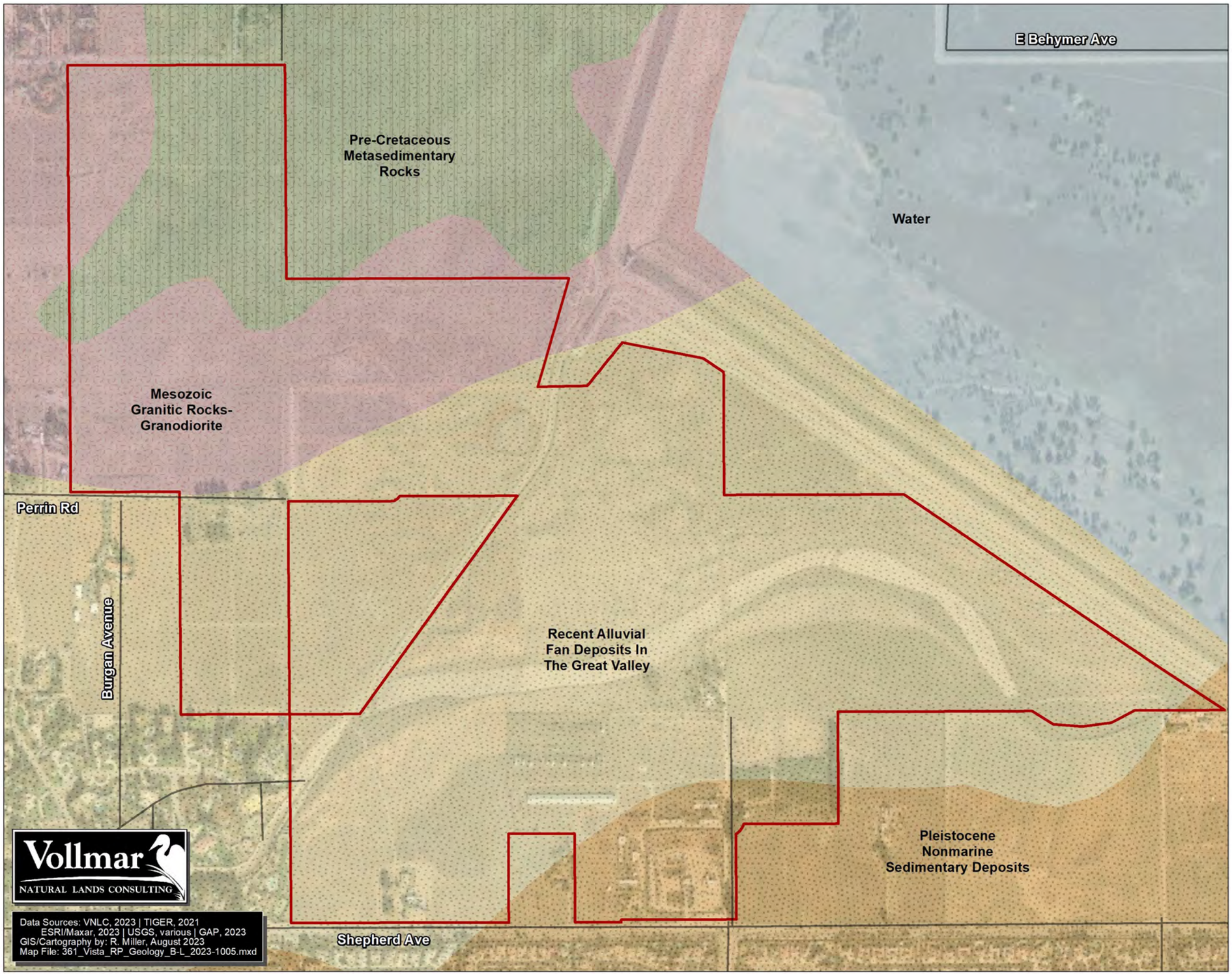
0 75 150 300 M
0 375 750 1,500 Ft

Vollmar
NATURAL LANDS CONSULTING

Data Sources: VNLC, 2023 | USDA-WSS, 2023
ESRI/Maxar, 2023 | USGS, various | GAP, 2023
GIS/Cartography by: R. Miller, October 2023
Map File: 361_Vista_RP_Soils_B-L_2023-1005.mxd

FIGURE 6
Geologic Units

Vista Ranch Development
Fresno County, California

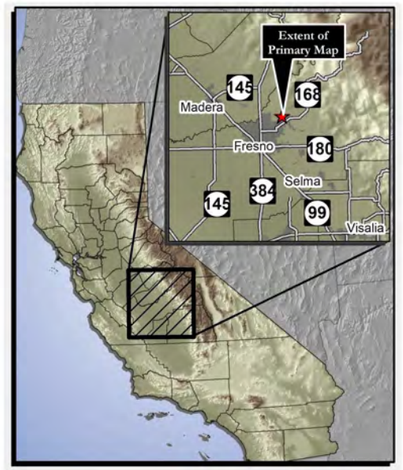


Legend

- Selected Local Road

Geological Map Unit

- Qf (Recent Alluvial Fan Deposits In The Great Valley)
- Qc (Pleistocene Nonmarine Sedimentary Deposits)
- gr^g (Mesozoic Granitic Rocks-Granodiorite)
- ms (Pre-Cretaceous Metasedimentary Rocks)
- Water



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1:7,200
(1 in. = 600 feet. at Tabloid Layout)

0	75	150	300	M
0	375	750	1,500	Ft

Vollmar
NATURAL LANDS CONSULTING

Data Sources: VNLC, 2023 | TIGER, 2021
ESRI/Maxar, 2023 | USGS, various | GAP, 2023
GIS/Cartography by: R. Miller, August 2023
Map File: 361_Vista_RP_Geology_B-L_2023-1005.mxd

5.0 RESULTS

5.1 Summary of Results

No special-status plant species were observed during the 2023 rare plant surveys. Wetland habitat types and boundaries within the Study Area are delineated in a separate Wetland Delineation Report (VNLC 2023). No additional sensitive natural communities – other than wetlands and other waters – were observed in the Study Area.

Table 2, below, displays a summary of the plant taxa observed within the Study Area. **Figure 7**, below, displays the natural communities identified within the Study Area. **Appendix A** provides representative photographs of the Study Area. **Appendix B** provides a table of special-status plant species documented in the vicinity of the Study Area, along with information on the preferred habitat, microhabitat, elevation range, blooming period of each species, and an assessment of their potential to occur in the Study Area. **Appendix C** provides a list of all plant taxa identified within the Study Area.

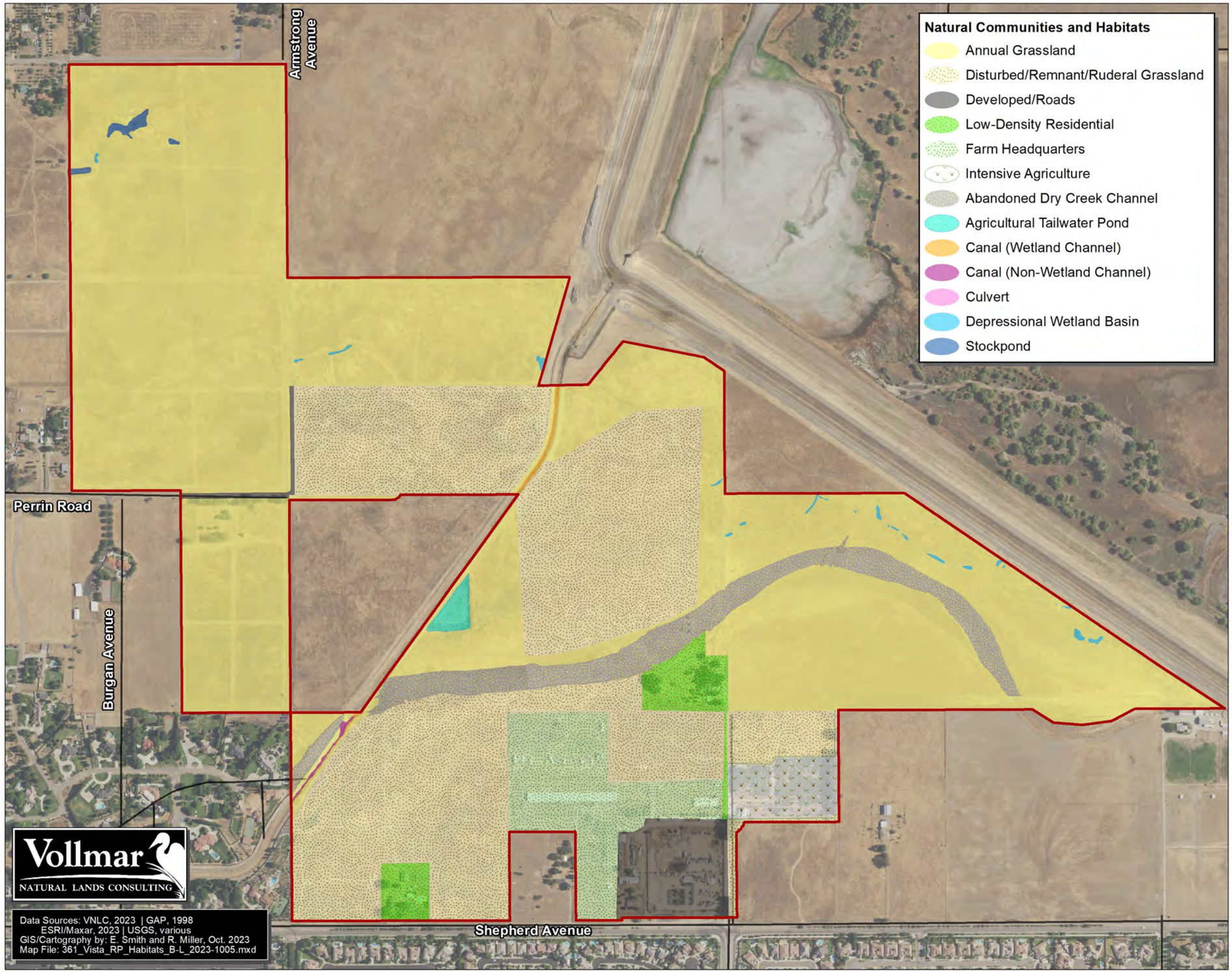
Table 2. Summary of Species Observed Within the Study Area

Species Status	Number of Species Observed in Study Area	Percent of Species Observed in Study Area
Total Species Observed	159	100%
Native Species	89	56%
Non-native Species	69	43%
Waif Species	1	1%
Cal-IPC Invasive Species	30	19%
Cal-IPC Limited	13	8%
Cal-IPC Moderate	13	8%
Cal-IPC High	4	3%
Special-status Plant Species	0	0%
Rare Plants (CRPR 1-4)	0	0%
State Listed Species	0	0%
Federally Listed Species	0	0%

Of 159 plant taxa identified, 56% (89 species) were classified as native species, 43% (69 species) were naturalized non-native species, and 1% (1 species) was classified as a waif. Waifs are cultivated or domesticated plant species which are unlikely to persist past one generation in the wild. Seventeen of the non-native species (11% of all observed species) are rated by the California Invasive Plant Council as “moderate” or “high”.

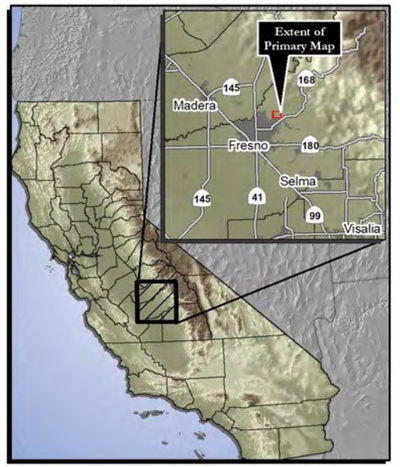
FIGURE 7
Natural Communites

Vista Ranch Development
Fresno County, California



Legend

- Selected Local Road
- Study Area (368 ac.)



Vollmar
NATURAL LANDS CONSULTING

Data Sources: VNLC, 2023 | GAP, 1998
ESRI/Maxar, 2023 | USGS, various
GIS/Cartography by: E. Smith and R. Miller, Oct. 2023
Map File: 361_Vista_RP_Habitats_B-L_2023-1005.mxd

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5.2 Natural Communities

Natural communities documented within the Study Area are listed in **Table 3**, below. Each natural community is mapped in **Figure 7** and described below. Where applicable, natural community types below are described by their corresponding CNPS habitat types, as listed in the CNPS Rare Plant Inventory (RPI) (see **Appendix B**) (CNPS 2023b).

Table 3. Summary of Natural Communities Within Study Area

Natural Community	Acres In Study Area	Percent of Study Area
Annual Grassland	206.0	56%
Disturbed/Remnant/Ruderal Grassland	103.3	28%
Developed/Roads	10.1	3%
Low-Density Residential	7.1	2%
Farm Headquarters	17.7	5%
Intensive Agriculture	5.7	2%
Abandoned Dry Creek Channel	15.2	4%
Agricultural Tailwater Pond	1.1	0.3%
Canal (Wetland Channel)	0.6	0.2%
Canal (Non-Wetland Channel)	0.2	0.1%
Depressional Wetland Basin	0.6	0.2%
Stockpond	0.5	0.1%

Sensitive natural communities are described at the alliance level and include alliances designated as such by CDFW in the List of California Sensitive Natural Communities (2023) or as MCV alliances with a state rank of S1-S3 or global rank of G1-G3. Wetland and riparian habitats are also considered sensitive natural communities for the purposes of this report and may be subject to regulatory jurisdiction.

No sensitive natural communities were mapped within the Study Area, other than the separately delineated aquatic resources: agricultural tailwater pond, canal (wetland channel), canal (non-wetland channel), culvert, depressional wetland basins, and stockponds (**Sections 5.2.7-5.2.12**).

5.2.1. Annual Grassland

Annual grassland covers 206.0 acres (56%) of the Study Area. Annual grassland occurs in the northwest, west, and eastern portions of the Study Area (**Figure 7**). This natural community conforms to the CNPS habitat description for valley and foothill grassland, which is defined by the dominance of "introduced, annual Mediterranean grasses and native herbs" (CNPS 2001). This natural community is not classified as sensitive.

Annual grassland within the Study Area is dominated by non-native annual grass species and invasive weeds. Characteristic species in this habitat include ripgut brome, soft chess, wild oat and slender wild oat (*Avena fatua* and *A. barbata.*), rattail sixweeks grass, and turkey mullein (*Croton setigerus*). In the northwest portion of the Study Area, prickly lettuce (*Lactuca serriola*) and yellow star thistle are also dominant species of this habitat. In the eastern portions of the Study Area, common dominant species also include rattail sixweeks grass, Mediterranean barley, common spikeweed (*Centromadia pungens* ssp. *pungens*), short pod mustard and common sunflower (*Helianthus annuus*). During field surveys, botanists noted that the soil unit boundaries correlated with nuanced changes in the annual grassland composition, including small stands of alkali sacaton (*Sporobolus airoides*) within Foster loam, and a population of tidy-tips (*Laya platyglossa*) contained within the Tujunga loamy sand soil unit (see **Section 4.4**).

The remnant non-wetland swales which contain the depressional wetland basins are also included in the annual grassland habitat. These swales have a similar species composition to the depressional wetland basins (**Section 5.2.11**) but were delineated as upland habitat due to their lack of hydric soils. Dominant species in non-wetland swales include common lippia, alkali-mallow (*Malvella leprosa*), swamp picklegrass, Mediterranean barley, and Italian rye grass. Common non-dominant species included pigweed amaranth (*Amaranthus albus*), saltgrass, puncture vine (*Tribulus terrestris*), and common spikeweed.

Despite the distinct plant community composition, these non-wetland swales can be grouped into the annual grassland habitat for the following reasons. The non-wetland swale plant community most closely conforms to the bermudagrass - prickle grass - crowngrass turfs alliance (*Cynodon dactylon – Crypsis* spp. – *Paspalum* spp. Herbaceous Semi-Natural Alliance) in the MCV. This alliance is defined as having a high relative cover (60-80% relative cover) of invasive plant species including bermudagrass, swamp picklegrass (or other *Crypsis* species), and/or other ruderal, non-native plants (MCV 2023). This alliance is noted as being grouped within annual grassland in the California Wildlife Habitat Relationships (CWHR) system, and it is similarly grouped within annual grassland habitat in this report.

5.2.2. Disturbed/Remnant/Ruderal Grassland

Disturbed/remnant/ruderal grassland occurs in 103.3 acres (28%) of the Study Area. The disturbed/remnant/ruderal grassland is located in the central and southern portions of the Study Area (**Figure 7**). The disturbed/remnant/ruderal grassland habitat within the Study Area is composed of lightly grazed pastures in the central portion of the Study Area with a high buildup of thatch and residual dry matter. Historical aerial imagery shows this area was previously cultivated as row crops (Google Earth1998 imagery). The rows of agricultural berms have largely remained in the site's microtopography. After abandonment, the habitat was reinvaded by annual grassland species. This natural community conforms to the CNPS habitat description for valley

and foothill grassland, which is defined by the dominance of "introduced, annual Mediterranean grasses and native herbs" (CNPS 2001). This habitat is not classified as sensitive.

The disturbed/remnant/ruderal grassland is dominated by annual grasses and invasive species common in grazing pastures: ripgut brome, soft chess, turkey mullein, yellow star thistle, skeleton weed, and short pod mustard. Other common species in this habitat include prickly lettuce, white plume wirelettuce (*Stephanomeria exigua* ssp. *coronaria*), and horseweed (*Erigeron canadensis*).

5.2.3 Developed/Roads

Developed areas and roads cover 10.1 acres (3%) of the Study Area. This is not an MCV-defined alliance or a CNPS-described habitat type. It is not classified as sensitive. Due to its developed and highly disturbed nature, the disturbed areas/roads are not expected to support rare plant occurrences or sensitive natural communities, and this area was surveyed at low intensity, per the protocols for "intuitive controlled" surveys (CNPS 2018).

The majority of this habitat consists of an outdoor storage yard and parking lot along the southern border of the Study Area, with some roads in the southern and northwestern portions of the Study Area (**Figure 7**). Some landscaping trees, including blue gum eucalyptus (*Eucalyptus globulus*) and Mexican fan palms (*Washingtonia robusta*) had been planted along the borders of the storage area. Pineapple weed (*Matricaria discoidea*), Mediterranean barley, and slender wild oat were common ground cover in this habitat.

5.2.4 Low-Density Residential

Low-density residential areas covered 7.1 acres (2%) of the Study Area. This is not an MCV-defined alliance or a CNPS-described habitat type. It is not classified as sensitive. Due to its developed and highly disturbed nature, the low-density residential areas are not expected to support rare plant occurrences or sensitive natural communities, and this area was surveyed at low intensity, per the protocols for "intuitive controlled" surveys (CNPS 2018).

The low-density residential habitat occurred along the southern border of the Study Area, and in the central portion of the Study Area, immediately south of the abandoned dry creek channel (**Figure 7**). The herbaceous layer in this natural community was dominated by non-native annual species including wall barley, ripgut brome, rattail sixweeks grass, and short pod mustard. Common fiddleneck (*Amsinckia menziesii*) was a native species common in this habitat. Trees in this habitat were limited to landscaping trees, dominated by blue-gum eucalyptus.

5.2.5 Farm Headquarters

A former small farm covers 17.7 acres (5%) of the Study Area. This is not an MCV-defined alliance or a CNPS-described habitat type. It is not classified as sensitive. Due to its highly disturbed nature, the farm headquarters is not expected to support rare plant occurrences or

sensitive natural communities, and this area was surveyed at low intensity, per the protocols for "intuitive controlled" surveys (CNPS 2018).

The farm headquarters occurs in the south-central portion of the Study Area, and includes dilapidated structures and fallow crop fields, which are now either lightly grazed or left unmanaged (**Figure 7**). Dominant plant species observed within the farm headquarters included non-native annual grasses and invasive species, including yellow star thistle, skeleton weed, soft chess, ripgut brome, and turkey mullein.

5.2.6 Intensive Agriculture

Intensive agriculture occurs on 5.7 acres (2%) of the Study Area. This is not an MCV-defined alliance or a CNPS-described habitat type. It is not classified as sensitive. Due to its highly disturbed nature, the farm headquarters is not expected to support rare plant occurrences or sensitive natural communities, and this area was surveyed at low intensity, per the protocols for "intuitive controlled" surveys (CNPS 2018).

This area consists of a date palm (*Phoenix* sp.) tree nursery. Some Mexican fan palms have also been planted along the periphery. Dominant species in the herbaceous understory included yellow star thistle and soft chess, with common fiddleneck, wall barley, and short-pod mustard also common.

One blue elderberry (*Sambucus mexicana*) was observed along the western border of this habitat. Blue elderberry is the recognized host plant for the federally threatened valley elderberry longhorn beetle (VELB, *Desmocerus californicus dimorphus*). However, it is unlikely that this plant is occupied by VELB, as the entire Study Area falls outside the current published range for this species (USFWS 2023).

5.2.7 Abandoned Dry Creek Channel

The abandoned Dry Creek channel covers 15.2 acres (4%) of the Study Area, crossing over the southeast portion of the Study Area (**Figure 7**). This natural community does not conform to a defined CNPS habitat description or MCV-defined alliance; rather, it was delineated on site based on Study Area conditions. It is not classified as sensitive.

The abandoned Dry Creek channel is an upland habitat characterized by the sandy substrate which remains within the abandoned creek bed and the relatively sparse vegetation (<20% absolute cover) within it. Dominant species within this habitat include Madrid brome, brome fescue, and wall barley throughout. In the eastern portion of the habitat, greenstem filaree (*Erodium moschatum*), slender wooly wild buckwheat (*Eriogonum gracile* var. *gracile*), annual bur-sage (*Ambrosia acanthicarpa*), and northern pectocarya are also common. The central portion of the abandoned Dry Creek channel also supports bluehead gilia (*Gilia capitata* ssp. *pedemontana*),

saltgrass, slender wooly wild buckwheat, and plains evening primrose (*Camissonia contorta*). A large summer lupine stand dominates the western portion of the channel, with northern pectocarya, red maids (*Calandrinia menziesii*), longbeak stork's bill (*Erodium botrys*), and saltgrass as common associates.

5.2.8 Agricultural Tailwater Pond

An agricultural tailwater pond covers 1.129 acres (0.3%) of the central Study Area, immediately east of the spillway canal (**Figure 7**). This wetland habitat conforms to the CNPS habitat description for marshes and swamps, which are defined by the presence of "emergent, suffrutescent herbs adapted to seasonally or permanently saturated soils" (CNPS 2001). Wetland habitats are generally considered to be sensitive and subject to federal jurisdiction; however, the wetland delineation separately conducted by VNLC notes that this pond is likely to be excluded from federal jurisdiction due to its anthropogenic origin within an upland habitat (VNLC 2023).

The agricultural tailwater pond consists of open water throughout its center, with an approximately 3-foot fringing margin of wetland vegetation. Where vegetated, dominant species included burhead, rough cocklebur, tall flatsedge, and common spikerush. Northern water plantain (*Alisma triviale*) and hyssop loosestrife were also dominant in the northern portion of the agricultural tailwater pond.

5.2.9 Canal (Wetland Channel)

Within the Big Dry Creek Reservoir Spillway canal, a total of 0.553 (0.2%) acre was delineated as canal wetlands (wetland channel and fringing wetland margin). This wetland habitat conforms to the CNPS habitat description for marshes and swamps, which are defined by the presence of "emergent, suffrutescent herbs adapted to seasonally or permanently saturated soils" (CNPS 2001). As a wetland habitat, this natural community is classified as sensitive.

The canal (wetland channel) runs diagonally through the center of the Study Area, from the northeast to the southwest (**Figure 7**). Where vegetated, the spillway canal is dominated by wetland plants including burhead, rough cocklebur, tall flatsedge, and common spikerush. The canal was filled with flowing water during the May 2023 survey. No water was flowing through the canal during the June 2023 survey.

5.2.10 Canal (Non-Wetland Channel)

The southern 0.210 acre of the Big Dry Creek Reservoir Spillway canal (0.1% of the Study Area) was delineated as canal (non-wetland channel) (**Figure 7**). This portion of the spillway canal had steeply eroded sides, suggesting that any previous vegetation that may have existed was blown out by recent heavy flows through the spillway canal after high seasonal rains. Without vegetation, the canal (non-wetland channel) does not conform to any CNPS habitat description or MCV-defined alliance. However, as an aquatic resource habitat, it is classified as sensitive.

5.2.11 Depressional Wetland Basin

Depressional wetland basins occur on 0.570 acre (0.2%) of the Study Area. These wetlands are concentrated in the northwestern portion of the Study Area (**Figure 7**) and are connected by a series of apparently remnant, non-wetland swales (see **Section 5.2.1**). The depressional wetland basins conform to the CNPS habitat description for marshes and swamps, which are defined by the presence of "emergent, suffrutescent herbs adapted to seasonally or permanently saturated soils" (CNPS 2001).

The depressional wetland basins are dominated by common lippia, swamp pricklegrass, and saltgrass. Common subdominant species included Mediterranean barley, common vernal pool allocarya, Great Valley button celery, hyssop loosestrife, and Italian rye grass. Due to the presence of some vernal pool indicator species supported by moderate periods of inundation, the depressional wetland basins were determined to have a relatively higher potential to support rare plant occurrences or sensitive natural communities, and these basins were surveyed at high intensity, per the protocols for "intuitive controlled" surveys (CNPS 2018). No special-status plants were observed within depressional wetland basins. As a wetland habitat, this natural community is classified as sensitive.

5.2.12 Stockponds

A total of 0.545 acre (0.1%) of the Study Area was delineated as stockponds. These three created stockponds occur in the northwest corner of the site (**Figure 7**). The stockponds conform to the CNPS habitat description for marshes and swamps, which are defined by the presence of "emergent, suffrutescent herbs adapted to seasonally or permanently saturated soils" (CNPS 2001).

Dominant species in the stockponds included common spikerush, burhead, swamp pricklegrass, curly dock, Great Valley button celery, and hyssop loosestrife. These wetlands included the highest density of species commonly found in vernal pools, including hairy pepperwort (*Marsilea vestita* ssp. *vestita*), common vernal pool allocarya, woolly marbles (*Psilocarphus brevissimus* var. *brevissimus*), water pygmyweed (*Crassula aquatica*), pillwort (*Pilularia americana*), Mediterranean barley, and selfing willowherb (*Epilobium cleistogamum*).

Due to the presence of higher plant diversity supported by a longer period of inundation, the stockponds were determined to have a relatively higher potential to support rare plant occurrences or sensitive natural communities, and these ponds were surveyed at high intensity, per the protocols for "intuitive controlled" surveys (CNPS 2018). No special-status plants were observed within stockponds. As a wetland habitat, the stockponds are classified as sensitive.

5.3 Potential for Special-Status Plant Species Occurrences

Special-status plant taxa documented in the vicinity of the Study Area are listed in **Appendix B**. The Study Area provides low quality habitat for special-status plant species, and no special-status plant species were observed on site. No sensitive natural communities – other than the separately delineated wetlands (see **Sections 5.2.7-5.2.12**) – were observed within the Study Area.

Appendix B provides a list of special-status species documented in the vicinity of the Study Area, as well as a determination of the potential for each species to occur within the Study Area. Species listed in **Appendix B** are deemed to have a low potential based on one or more of the following criteria:

- Absence of suitable habitat within the Study Area.
- Absence of known or documented occurrences within the Project vicinity (approximately 5 miles), or documented occurrences in the Project vicinity which include only historical occurrences which are considered extirpated (locally extinct).
- Absence of (or very minimal and/or degraded) suitable microhabitats (such as rocky outcrops) within the Study Area. For vernal pool species, this includes the absence of vernal pool habitat with a sufficiently long period of inundation to support the species.
- The Study Area is well outside of the known elevation range for the plant taxa.

Three special-status species documented in the Project vicinity have at least moderate potential to occur within the Study Area: Ewan's larkspur (*Delphinium hansenii* ssp. *ewanianum*, CRPR 4.2), forked hare-leaf (*Lagophylla dichotoma*, CRPR 1B.2), and spiny-sepaled button celery (*Eryngium spinosepalum*, CRPR 1B.2). No occurrences of any species of *Delphinium* or *Lagophylla* were observed within the Study Area during 2023 surveys. One *Eryngium* species, Great Valley button celery (*E. castrense*, no special status), which is closely related to spiny-sepaled button celery, occurred within the Study Area's depressional wetland basins and stockponds. All *Eryngium* occurrences within the Study Area were carefully examined and identified as Great Valley coyote-thistle.

Valley and foothill grassland habitat, which is prevalent within the Study Area, supports several special-status plant species in the vicinity of the Study Area. However, the valley and foothill grassland within the Study Area is degraded and/or low-quality habitat and is therefore unlikely to support any special-status plant species.

After thorough, protocol-level surveys, no special-status plant species were observed within the Study Area. Other than separately delineated wetlands and waters, no sensitive natural communities were identified and mapped within the Study Area.

6.0 REFERENCES

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APPENDIX A

Representative Photographs of the Study Area



Photo 1. Representative photo of Study Area, showing annual grassland with a depressional wetland basin. The earthen levee of Big Creek Reservoir appears in the background. (5/10/2023)



Photo 2. Representative photo of dry depressional wetland basin with short hydroperiod. Disturbed/remnant/ruderal grassland in background dominated by ripgut brome (*Bromus diandrus*), turkey mullein (*Croton setigerus*), longbeak stork's bill (*Erodium botrys*), wall barley (*Hordeum murinum*), and soft chess (*Bromus hordeaceus*). (5/10/23)



Photo 3. Representative photo of sandy bed of abandoned channel of Big Dry Creek, dominated by Madrid brome, longbeak stork's bill, annual bur-sage (*Ambrosia acanthicarpa*), and rattail sixweeks grass (*Festuca myuros*). (6/29/23)



Photo 4. Representative photo of Big Dry Creek Dam spillway canal, showing the wetland channel with fringing margin dominated by upright burhead (*Echinodorus berteroi*), cocklebur (*Xanthium strumarium*), tall flatsedge (*Cyperus eragrostis*), and common spikerush (*Eleocharis macrostachya*). (6/29/23)



Photo 5. View of Big Creek Dam spillway canal, and the canal (non-wetland channel). Steeply eroded sides and lack of vegetation, apparently blown out from previous high flows. (6/29/2023).



Photo 6. View of agricultural tailwater pond, with open water at the center and fringing wetland vegetation dominated by burhead, rough cocklebur, tall flatsedge, and common spikerush. Surrounding upland vegetation includes yellow star thistle and horseweed. (6/29/2023)



Photo 7. Stockpond in northeastern portion of Study Area, with long period of inundation. (6/29/2023)



Photo 8. Alkali sacaton (*Sporobolus airoides*) within annual grassland habitat. (6/29/2032)



Photo 9. Lightly grazed pasture with high residual dry matter within the disturbed/remnant/ruderal grassland. (6/29/2023)



Photo 10. Date palm (*Phoenix* sp.) growing in the tree nursery (the intensive agriculture habitat) near the southern border of the Study Area. (6/29/2023)



Photo 11. Tidy-tips (*Laya platyglossa*) within the annual grassland habitat. (5/10/2023)

APPENDIX B

Special-Status Plant Taxa Documented in the Study Area Vicinity

Table B-1. Special-Status Plant Taxa Documented in the Study Area Vicinity

Scientific Name Common Name (Family)	Federal/ State/ CNPS[1]	Habitat; Microhabitat; Elevation (feet); Blooming Period[2]	Potential to Occur in the Study Area
Bryum chryseum brassy bryum (Bryaceae)	--/--/4.3	Chaparral (openings), Cismontane woodland, Valley and foothill grassland; 165-1,970 feet; No bloom period listed	**Low Potential.** There are no documented occurrences within 10 miles of the Study Area. Degraded valley and foothill grasslands occur within the Study Area. Rocky microhabitats are extremely limited within the Study Area.
Calycadenia hooveri Hoover's calycadenia (Asteraceae)	--/--/1B.3	Cismontane woodland, Valley and foothill grassland, Rocky microhabitats; 215-985 feet; July-September	**Low Potential.** The nearest documented species occurrence is 8.3 miles from the Study Area, documented in 2007 (CDFW 2023). Degraded valley and foothill grasslands occur within the Study Area. Rocky microhabitats are extremely limited within the Study Area.
Carex comosa bristly sedge (Cyperaceae)	--/--/2B.1	Coastal prairie, Marshes and swamps (lake margins), Valley and foothill grassland; 0-2,050 feet; May-September	**Low Potential.** There are no documented occurrences within 10 miles of the Study Area. Valley and foothill grasslands occur within the Study Area; however, perennial marshes and swamps and coastal prairie do not occur within the Study Area.
Carpenteria californica tree-anemone (Hydrangeaceae)	--/CT/1B.2	Chaparral, Cismontane woodland, Granitic microhabitats (usually); 1,115-4,395 feet; (April) May-July	**Not Expected.** The Study Area is outside of the elevation range of this species. No suitable habitat occurs within the Study Area.
Castilleja campestris var. *succulenta* succulent owl's-clover (Orobanchaceae)	FT/CE/1B.2	Vernal pools (often acidic); 165-2,460 feet; (March) April-May	**Low Potential**. The nearest documented species occurrence is 2.4 miles from the Study Area, documented in 2008 (CDFW 2023). Vernal pools occur within the Study Area, but the short hydroperiod is unlikely to support this species.
Caulanthus californicus California jewelflower (Brassicaceae)	FE/CE/1B.1	Chenopod scrub, Pinyon and juniper woodland, Valley and foothill grassland, Sandy microhabitats; 200-3280 feet; February-May	**Low Potential**. The only documented species occurrence in the vicinity is 8.2 miles from the Study Area, documented in the late 1890's or early 1900's. No habitat remains in the vicinity (CDFW 2023). Valley and foothill grasslands and sandy microhabitats occur within the Study Area.

Scientific Name **Common Name (Family)**	**Federal/ State/ CNPS[1]**	**Habitat; Microhabitat; Elevation (feet); Blooming Period[2]**	**Potential to Occur in the Study Area**
Claytonia parviflora ssp. *grandiflora* streambank spring beauty (Montiaceae)	--/--/4.2	Cismontane woodland, Rocky microhabitats; 820-3935 feet; February-May	**Not Expected**. The Study Area is outside of the elevation range of this species. There are no documented occurrences within 10 miles of the Study Area, and rocky microhabitats are extremely limited within the Study Area.
Cryptantha hooveri Hoover's cryptantha (Boraginaceae)	--/--/1A	Inland dunes, Valley and foothill grassland (sandy); 30-490 feet; April-May	**Not Expected**. Species is considered extinct, last seen in 1939. There are no documented occurrences within 10 miles of the Study Area.
Delphinium hansenii ssp. *ewanianum* Ewan's larkspur (Ranunculaceae)	--/--/4.2	Cismontane woodland, Valley and foothill grassland, Rocky microhabitats; 195-1,970 feet; March-May	**Moderate Potential**. There are no documented CNDDB occurrences within 10 miles of the Study Area. The annual grassland within the Study Area may provide suitable habitat for this species.
Downingia pusilla dwarf downingia (Campanulaceae)	--/--/2B.2	Valley and foothill grassland (mesic), Vernal pools; 5-1,460 feet; March-May	**Low Potential**. Only one occurrence of this species is documented within 10 miles of the Study Area: a historical occurrence 3.2 miles from the Study Area, documented in 1979 (CDFW 2023). This is the only occurrence of *D. pusilla* mapped in Fresno County and is the southernmost occurrence of mapped by CNDDB. Valley and foothill grasslands and vernal pools occur within the Study Area.
Eryngium spinosepalum spiny-sepaled button celery (Apiaceae)	--/--/1B.2	Valley and foothill grassland, Vernal pools; 260-3,200 feet; April-June	**Moderate Potential**. The nearest documented species occurrence is 7.4 miles from the Study Area, documented in 2010 (CDFW 2023). Notes included with this documentation state it may likely be an intermediate with Great Valley coyote-thistle (*E. castrense*, no special status). Valley and foothill grasslands and Vernal pools occur within the Study Area. *Eryngium* occurrences within the Study Area were carefully examined and identified as Great Valley coyote-thistle.

Scientific Name Common Name (Family)	Federal/ State/ CNPS[1]	Habitat; Microhabitat; Elevation (feet); Blooming Period[2]	Potential to Occur in the Study Area
Erythranthe acutidens Kings River monkeyflower (Phrymaceae)	--/--/3	Cismontane woodland, Lower montane coniferous forest; 1,000-4,005 feet; April-July	**Not Expected.** The Study Area is outside of the elevation range of this species. No suitable habitat occurs within the Study Area.
Erythranthe inconspicua small-flowered monkeyflower (Phrymaceae)	--/--/4.3	Chaparral, Cismontane woodland, Lower montane coniferous forest, Mesic microhabitats; 900-2,495 feet; May-June	**Not Expected.** The Study Area is outside of the elevation range of this species. No suitable habitat occurs within the Study Area.
Erythranthe sierrae Sierra Nevada monkeyflower (Phrymaceae)	--/--/4.2	Cismontane woodland (openings), Lower montane coniferous forest (openings), Meadows and seeps (dry); Vernally wet depressions, swales, Granitic (usually), Gravelly (sometimes), Sandy (usually), Streambanks, and Vernally Mesic microhabitats; 605-7,495 feet; March-July	**Not Expected**. The Study Area is outside of the elevation range of this species. Vernally wet depressions and swales as well as sandy microhabitats occur within the Study Area.
Gratiola heterosepala Boggs Lake hedge-hyssop (Plantaginaceae)	--/CE/1B.2	Marshes and swamps (lake margins), Vernal pools, Clay; 35-7,790 feet; April-August	**Low Potential**. There are no documented occurrences within 10 miles of the Study Area. Vernal pools occur within the Study Area, but with short periods of inundation which are unlikely to support this species.
Imperata brevifolia California satintail (Poaceae)	--/--/2B.1	Chaparral, Coastal scrub, Meadows and seeps (often alkali), Mojavean desert scrub, Riparian scrub, Mesic microhabitats; 0-3,985 feet; September-May	**Not Expected.** The only documented species occurrence in the vicinity is 8.2 miles from the Study Area, documented in the late 1890's or early 1900's. No habitat remains in the vicinity of this occurrence (CDFW 2023). No suitable habitat occurs within the Study Area.

Scientific Name **Common Name (Family)**	**Federal/ State/ CNPS[1]**	**Habitat; Microhabitat; Elevation (feet); Blooming Period[2]**	**Potential to Occur in the Study Area**
Lagophylla dichotoma forked hare-leaf (Asteraceae)	--/--/1B.1	Cismontane woodland, Valley and foothill grassland, Clay (sometimes); 150-1,100 feet; April-May	**Moderate Potential**. The nearest documented species occurrence is 8.6 miles from the Study Area, documented in 2010 (CDFW 2023). Degraded valley and foothill grasslands and clay soils occur within the Study Area**.**
Leptosiphon serrulatus Madera leptosiphon (Polemoniaceae)	--/--/1B.2	Cismontane woodland, Lower montane coniferous forest; 985-4,265 feet; April-May	**Not Expected**. The nearest documented species occurrence is 8.3 miles from the Study Area, documented in 1922 (CDFW 2023). No suitable habitat occurs within the Study Area.
Lupinus citrinus var. *citrinus* orange lupine (Fabaceae)	--/--/1B.2	Chaparral, Cismontane woodland, Lower montane coniferous forest, Granitic microhabitat; 1,245-5,580 feet; April-July	**Not Expected**. The Study Area is outside of the elevation range of this species. There are no documented occurrences within 10 miles of the Study Area. No suitable habitat occurs within the Study Area.
Navarretia eriocephala hoary navarretia (Polemoniaceae)	--/--/4.3	Cismontane woodland, Valley and foothill grassland, Vernally Mesic; 345-1,310 feet; May-June	**Low Potential**. There are no documented occurrences within 10 miles of the Study Area. Degraded valley and foothill grasslands and vernally mesic microhabitats occur within the Study Area**.**
Navarretia myersii ssp. *myersii* pincushion navarretia (Polemoniaceae)	--/--/1B.1	Vernal pools, Acidic (often); 65-1,085 feet; April-May	**Low Potential**. The nearest documented species occurrence is 10.0 miles from the Study Area, documented in 2016 (CDFW 2023). Vernal pool habitas occur within the Study Area. Despite a thorough search of all wetlands and vernally mesic habitats within the Study Area, no Navarretia species were observed within the Study Area.
Orcuttia inaequalis San Joaquin Valley Orcutt grass (Poaceae)	FT/CE/1B.1	Vernal pools; 35-2,475 feet; April-September	**Low Potential**. The nearest documented species occurrence is a historical occurrence from 1976 located 7.5 miles from the Study Area, which is noted as extirpated (CDFW 2023). The nearest extant occurrence is 4.0 miles from the Study Area, documented in 1996 (CDFW 2023). Vernal pools occur within the Study Area, but with short periods of inundation which are unlikely to support this species. No *Orcuttia* species were observed within the Study Area.

Scientific Name **Common Name (Family)**	**Federal/ State/ CNPS[1]**	**Habitat; Microhabitat; Elevation (feet); Blooming Period[2]**	**Potential to Occur in the Study Area**
Orcuttia pilosa hairy Orcutt grass (Poaceae)	FE/CE/1B.1	Vernal pools; 150-655 feet; May-September	**Low Potential**. The nearest documented species occurrence is 7.4 miles from the Study Area (CDFW 2022). Vernal pools occur within the Study Area, but with short periods of inundation which are unlikely to support this species. No *Orcuttia* species were observed within the Study Area.
Pholistoma auritum var. *arizonicum* Arizona pholistoma (Hydrophyllaceae)	--/--/2B.3	Mojavean desert scrub; 900-2,740 feet; March	**Not Expected.** The Study Area is outside of the elevation range of this species. No suitable habitat occurs within the Study Area.
Plagiobryoides vinosula wine-colored tufa moss (Bryaceae)	--/--/4.2	Cismontane woodland, Meadows and seeps, Mojavean desert scrub, Pinyon and juniper woodland, Riparian woodland; Microhabitat: usually granitic rock or granitic soil, Clay (sometimes), Granitic (usually), Seeps, Streambanks; 100-5,695 feet; No bloom period listed	**Low Potential**. There are no documented occurrences within 10 miles of the Study Area. Degraded valley and foothill grasslands and clay microhabitats occur within the Study Area**.**
Pseudobahia bahiifolia Hartweg's golden sunburst (Asteraceae)	FE/CE/1B.1	Cismontane woodland, Valley and foothill grassland, Acidic (often), Clay; 50-490 feet; March-April	**Low Potential.** The nearest documented species occurrence is 5.6 miles from the Study Area, most recently observed in 1994. (CDFW 2022). Degraded valley and foothill grasslands and clay soils occur within the Study Area.
Pseudobahia peirsonii San Joaquin adobe sunburst (Asteraceae)	FT/CE/1B.1	Cismontane woodland, Valley and foothill grassland, Adobe, Clay; 295-2,625 feet; February-April	**Low Potential.** The nearest documented species occurrence is 5.6 miles from the Study Area, most recently observed in 1995. (CDFW 2022). Degraded valley and foothill grasslands and clay soils occur within the Study Area.

Scientific Name **Common Name (Family)**	**Federal/ State/ CNPS[1]**	**Habitat; Microhabitat; Elevation (feet); Blooming Period[2]**	**Potential to Occur in the Study Area**
Sagittaria sanfordii Sanford's arrowhead (Alismataceae)	--/--/1B.2	Marshes and swamps (shallow freshwater); 0-2,135 feet; May-October (November)	**Low Potential.** The nearest documented species occurrence is 3.9 miles from the Study Area (CDFW 2023). This occurrence is mapped within Helm Canal, a slow-flowing ditch with very few other plant species. No perennial marshes and swamps occur within the Study Area. The canal (Big Creek Dam outfall) likely provides poor-quality habitat for this species, due to the intermittent high flows which were observed during field surveys.
Tuctoria greenei Greene's tuctoria (Poaceae)	FE/CR/1B.1	Vernal pools; 100-3,510 feet; May-July (September)	**Low Potential**. Two historical occurrences are documented in the Study Area vicinity, 1.3 and 9.2 miles from the Study Area. Both occurrences, which date from 1936-37, are considered extirpated (CDFW 2023). Vernal pools occur within the Study Area, but with short periods of inundation which are unlikely to support this species.
Wyethia elata Hall's wyethia (Asteraceae)	--/--/4.3	Cismontane woodland, Lower montane coniferous forest; 3,280-4,595 feet; May-August	**Not Expected.** The Study Area is outside of the elevation range of this species. No suitable habitat occurs within the Study Area.
Hesperevax caulescens Hogwallow starfish (Asteraceae)	--/--/4.2	Valley and foothill grassland (mesic clay), Vernal pools (shallow); Microhabitat: Alkaline (sometimes); 0-1655 feet; March-June	**Low potential.** There are no documented occurrences of this species within 10 miles of the Study Area. The depressional wetland basins or stockponds may provide very marginal habitat for this species.
Navarretia nigelliformis ssp. *nigelliformis* Adobe navarretia (Polemoniaceae)	--/--/4.2	Valley and foothill grassland (vernally mesic), Vernal pools (sometimes); Microhabitat: Clay, Serpentine (sometimes); 330-3,280 feet; April-June	**Low potential.** There are no documented occurrences of this species within 10 miles of the Study Area. The depressional wetland basins or stockponds may provide very marginal habitat for this species

Footnotes:

1 Rankings from CNDDB (August 2022) and CNPS (2022). See Column Header Categories and Abbreviations Below.

2 Habitat information from CNPS Rare Plan Program (CNPS 2022), Calflora (Calflora 2022) and the Jepson Flora Project (Jepson 2022).

3 Preliminary evaluations for the potential occur were received from B. Bacciarini, GHD, Inc. (pers. Comm. 2/17/2022). Modifications have been made where deemed appropriate based on field survey data.

Column Header Categories and Abbreviations:

FESA: Listing status under the federal Endangered Species Act (ESA)

FE = Federal Endangered; FT = Federal Threatened; FC = Federal Candidate; FD = Federally Delisted

CESA: Listing status under the California state Endangered Species Act (CESA)

SE = State Endangered; SD = State Delisted; ST = State Threatened.

CRPR: CNPS rankings for rare plants (CNPS 2022) –

1A = Plants presumed extinct in California

1B = Plants rare, threatened or endangered in California and elsewhere

2 = Plants rare, threatened, or endangered in California, but more common elsewhere

3 = Plants about which more information is needed (a review list)

4 = Plants of limited distribution (a watch list); n/a = not applicable

CRPR Threat Code extensions and their meanings:

1 - Seriously threatened in California (over 80% of occurrences threatened / high degree and immediacy of threat)

2 – Moderately 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)" (CNPS 2022).

Potential to Occur:

No Potential: Habitat in and adjacent to the Study Area is clearly unsuitable for the species requirements (cover, substrate, elevation, hydrology, plant community, site history, disturbance regime).

Low Potential: Few of the habitat components meeting the species requirements are present, and/or the majority of habitat on and adjacent to the site is unsuitable or of very poor quality. The species is not likely to be found in the Study Area.

Moderate Potential: Some of the habitat components meeting the species requirements are present, and/or only some of the habitat on or adjacent to the site is unsuitable. The species has a moderate probability of being found in the Study Area.

High Potential: All of the habitat components meeting the species requirements are present and/or most of the habitat on or adjacent to the site is highly suitable. The species has a high probability of being found on in the Study Area

Present: Detected or documented on-site.

APPENDIX C

List of All Vascular Plant Taxa Identified Within the Study Area

Table C-1. List of All Vascular Plant Taxa Identified Within the Study Area

Scientific Name	Common Name	Family	Origin	Cal-IPC Rating	CRPR	State	Federal
Alisma triviale	Northern water plantain	Alismataceae	Native	N/A	N/A	N/A	N/A
Echinodorus berteroi	Burhead	Alismataceae	Native	N/A	N/A	N/A	N/A
Amaranthus albus	Pigweed amaranth	Amaranthaceae	Naturalized	N/A	N/A	N/A	N/A
Amaranthus palmeri	Palmer's amaranth	Amaranthaceae	Native	N/A	N/A	N/A	N/A
Nitrophila occidentalis	Boraxweed	Amaranthaceae	Native	N/A	N/A	N/A	N/A
Eryngium castrense	Great Valley coyote-thistle	Apiaceae	Native	N/A	N/A	N/A	N/A
Asclepias fascicularis	Narrow-leaf milkweed	Apocynaceae	Native	N/A	N/A	N/A	N/A
Phoenix sp.	Palm	Arecaceae	Naturalized	Limited	N/A	N/A	N/A
Washingtonia robusta	Mexican fan palm	Arecaceae	Naturalized	Moderate	N/A	N/A	N/A
Achyrachaena mollis	Blow wives	Asteraceae	Native	N/A	N/A	N/A	N/A
Ambrosia acanthicarpa	Annual bur-sage	Asteraceae	Native	N/A	N/A	N/A	N/A
Centaurea solstitialis	Yellow star-thistle	Asteraceae	Naturalized	High	N/A	N/A	N/A
Centromadia fitchii	Spikeweed	Asteraceae	Native	N/A	N/A	N/A	N/A
Centromadia pungens ssp. *pungens*	Common spikeweed	Asteraceae	Native	N/A	N/A	N/A	N/A
Erigeron canadensis	Horseweed	Asteraceae	Native	N/A	N/A	N/A	N/A
Gnaphalium palustre	Western marsh cudweed	Asteraceae	Native	N/A	N/A	N/A	N/A
Helianthus annuus	Common sunflower	Asteraceae	Native	N/A	N/A	N/A	N/A
Heterotheca grandiflora	Telegraph weed	Asteraceae	Native	N/A	N/A	N/A	N/A
Hypochaeris glabra	Smooth cat's-ear	Asteraceae	Naturalized	Limited	N/A	N/A	N/A
Hypochaeris radicata	Rough cat's-ear	Asteraceae	Naturalized	Moderate	N/A	N/A	N/A
Lactuca serriola	Prickly lettuce	Asteraceae	Naturalized	N/A	N/A	N/A	N/A
Layia platyglossa	Tidy-tips	Asteraceae	Native	N/A	N/A	N/A	N/A
Lepidospartum latisquamum	Nevada broomsage	Asteraceae	Native	N/A	N/A	N/A	N/A
Logfia gallica	Daggerleaf cottonrose	Asteraceae	Naturalized	N/A	N/A	N/A	N/A
Matricaria chamomilla	German chamomile	Asteraceae	Naturalized	N/A	N/A	N/A	N/A
Matricaria discoidea	Pineapple weed	Asteraceae	Naturalized	N/A	N/A	N/A	N/A
Pseudognaphalium luteoalbum	Jersey cudweed	Asteraceae	Naturalized	N/A	N/A	N/A	N/A

Scientific Name	Common Name	Family	Origin	Cal-IPC Rating	CRPR	State	Federal
Psilocarphus brevissimus var. *brevissimus*	Wooly marbles	Asteraceae	Native	N/A	N/A	N/A	N/A
Psilocarphus oregonus	Oregon woolly marbles	Asteraceae	Native	N/A	N/A	N/A	N/A
Silybum marianum	Milk thistle	Asteraceae	Naturalized	Limited	N/A	N/A	N/A
Sonchus asper ssp. *asper*	Prickly sow thistle	Asteraceae	Naturalized	N/A	N/A	N/A	N/A
Sonchus oleraceus	Common sow thistle	Asteraceae	Naturalized	N/A	N/A	N/A	N/A
Stephanomeria exigua ssp. *coronaria*	White plume wirelettuce	Asteraceae	Native	N/A	N/A	N/A	N/A
Stephanomeria virgata ssp. *pleurocarpa*	Tall stephanomeria	Asteraceae	Native	N/A	N/A	N/A	N/A
Xanthium strumarium	Rough cocklebur	Asteraceae	Native	N/A	N/A	N/A	N/A
Amsinckia intermedia	Common fiddleneck	Boraginaceae	Native	N/A	N/A	N/A	N/A
Amsinckia menziesii	Common fiddleneck	Boraginaceae	Native	N/A	N/A	N/A	N/A
Heliotropium curassavicum var. *oculatum*	Alkali heliotrope	Boraginaceae	Native	N/A	N/A	N/A	N/A
Pectocarya penicillata	Northern pectocarya	Boraginaceae	Native	N/A	N/A	N/A	N/A
Plagiobothrys acanthocarpus	Adobe popcornflower	Boraginaceae	Native	N/A	N/A	N/A	N/A
Plagiobothrys arizonicus	Arizona popcornflower	Boraginaceae	Native	N/A	N/A	N/A	N/A
Plagiobothrys canescens var. *canescens*	Valley popcornflower	Boraginaceae	Native	N/A	N/A	N/A	N/A
Plagiobothrys greenei	Greene's popcornflower	Boraginaceae	Native	N/A	N/A	N/A	N/A
Plagiobothrys nothofulvus	Rusty popcornflower	Boraginaceae	Native	N/A	N/A	N/A	N/A
Plagiobothrys stipitatus var. *micranthus*	Common vernal pool allocarya	Boraginaceae	Native	N/A	N/A	N/A	N/A
Brassica nigra	Black mustard	Brassicaceae	Naturalized	Moderate	N/A	N/A	N/A
Brassica rapa	Field mustard	Brassicaceae	Naturalized	Limited	N/A	N/A	N/A
Hirschfeldia incana	Short-pod mustard	Brassicaceae	Naturalized	Moderate	N/A	N/A	N/A
Lepidium latifolium	Perennial pepperweed	Brassicaceae	Naturalized	High	N/A	N/A	N/A
Lepidium nitidum	Shining pepperweed	Brassicaceae	Native	N/A	N/A	N/A	N/A

Scientific Name	Common Name	Family	Origin	Cal-IPC Rating	CRPR	State	Federal
Raphanus raphanistrum	Jointed charlock	Brassicaceae	Naturalized	N/A	N/A	N/A	N/A
Raphanus sativus	Radish	Brassicaceae	Naturalized	Limited	N/A	N/A	N/A
Sisymbrium altissimum	Tumble mustard	Brassicaceae	Naturalized	N/A	N/A	N/A	N/A
Sisymbrium irio	London rocket	Brassicaceae	Naturalized	Moderate	N/A	N/A	N/A
Cylindropuntia californica	California cholla	Cactaceae	Native	N/A	N/A	N/A	N/A
Opuntia x occidentalis	Western prickly pear	Cactaceae	Native	N/A	N/A	N/A	N/A
Downingia ornatissima var. *ornatissima*	Horned downingia	Campanulaceae	Native	N/A	N/A	N/A	N/A
Spergularia macrotheca var. *leucantha*	Sticky sandspurry	Caryophyllaceae	Native	N/A	N/A	N/A	N/A
Spergularia rubra	Red sand-spurrey	Caryophyllaceae	Naturalized	N/A	N/A	N/A	N/A
Stellaria media	Common chickweed	Caryophyllaceae	Naturalized	N/A	N/A	N/A	N/A
Chenopodium album	Lamb's quarters	Chenopodiaceae	Naturalized	N/A	N/A	N/A	N/A
Salsola australis	Russian thistle	Chenopodiaceae	Naturalized	N/A	N/A	N/A	N/A
Cressa truxillensis	Alkali weed	Convolvulaceae	Native	N/A	N/A	N/A	N/A
Cuscuta brachycalyx	San Joaquin dodder	Convolvulaceae	Native	N/A	N/A	N/A	N/A
Crassula aquatica	Water pygmyweed	Crassulaceae	Native	N/A	N/A	N/A	N/A
Crassula connata	Pygmy-weed	Crassulaceae	Native	N/A	N/A	N/A	N/A
Crassula tillaea	Moss pygmyweed	Crassulaceae	Naturalized	N/A	N/A	N/A	N/A
Cucurbita foetidissima	Buffalo gourd	Cucurbitaceae	Native	N/A	N/A	N/A	N/A
Cyperus eragrostis	Tall flatsedge	Cyperaceae	Native	N/A	N/A	N/A	N/A
Eleocharis macrostachya	Pale spikerush	Cyperaceae	Native	N/A	N/A	N/A	N/A
Elatine californica	California waterwort	Elatinaceae	Native	N/A	N/A	N/A	N/A
Croton setigerus	Turkey-mullein	Euphorbiaceae	Native	N/A	N/A	N/A	N/A
Euphorbia ocellata ssp. *ocellata*	Valley spurge	Euphorbiales	Native	N/A	N/A	N/A	N/A
Lupinus bicolor	Miniature lupine	Fabaceae	Native	N/A	N/A	N/A	N/A
Lupinus formosus var. *robustus*	Summer lupine	Fabaceae	Native	N/A	N/A	N/A	N/A
Lupinus nanus	Sky lupine	Fabaceae	Native	N/A	N/A	N/A	N/A

Scientific Name	Common Name	Family	Origin	Cal-IPC Rating	CRPR	State	Federal
Medicago polymorpha	Burclover	Fabaceae	Naturalized	Limited	N/A	N/A	N/A
Melilotus indicus	Sourclover	Fabaceae	Naturalized	N/A	N/A	N/A	N/A
Trifolium depauperatum var. *depauperatum*	Dwarf sack clover	Fabaceae	Native	N/A	N/A	N/A	N/A
Trifolium glomeratum	Clustered clover	Fabaceae	Naturalized	N/A	N/A	N/A	N/A
Trifolium gracilentum	Pinpoint clover	Fabaceae	Native	N/A	N/A	N/A	N/A
Trifolium hirtum	Rose clover	Fabaceae	Naturalized	Limited	N/A	N/A	N/A
Trifolium microcephalum	Small-head clover	Fabaceae	Native	N/A	N/A	N/A	N/A
Trifolium variegatum	Whitetip clover	Fabaceae	Native	N/A	N/A	N/A	N/A
Vicia villosa ssp. *varia*	Winter vetch	Fabaceae	Naturalized	N/A	N/A	N/A	N/A
Vicia villosa	Hairy vetch	Fabaceae	Naturalized	N/A	N/A	N/A	N/A
Erodium botrys	Longbeak stork's bill	Geraniaceae	Naturalized	N/A	N/A	N/A	N/A
Erodium cicutarium	Redstem filaree	Geraniaceae	Naturalized	Limited	N/A	N/A	N/A
Erodium moschatum	Greenstem filaree	Geraniaceae	Naturalized	N/A	N/A	N/A	N/A
Juncus bufonius var. *bufonius*	Toad rush	Juncaceae	Native	N/A	N/A	N/A	N/A
Juncus bufonius var. *congestus*	Clustered toad rush	Juncaceae	Naturalized	N/A	N/A	N/A	N/A
Juncus mexicanus	Mexican rush	Juncaceae	Native	N/A	N/A	N/A	N/A
Triglochin scilloides	Flowering-quillwort	Juncaginaceae	Native	N/A	N/A	N/A	N/A
Marrubium vulgare	White horehound	Lamiaceae	Naturalized	Limited	N/A	N/A	N/A
Pogogyne douglasii	Douglas' beardstyle	Lamiaceae	Native	N/A	N/A	N/A	N/A
Trichostema lanatum	Woolly blue curls	Lamiaceae	Native	N/A	N/A	N/A	N/A
Trichostema lanceolatum	Vinegar weed	Lamiaceae	Native	N/A	N/A	N/A	N/A
Lythrum hyssopifolia	Hyssop loosestrife	Lythraceae	Naturalized	Limited	N/A	N/A	N/A
Malva parviflora	Cheeseweed	Malvaceae	Naturalized	N/A	N/A	N/A	N/A
Malvella leprosa	Alkali mallow	Malvaceae	Native	N/A	N/A	N/A	N/A
Marsilea vestita ssp. *vestita*	Hairy pepperwort	Marsileaceae	Native	N/A	N/A	N/A	N/A
Pilularia americana	Pilwort	Marsileaceae	Native	N/A	N/A	N/A	N/A
Mollugo verticillata	Green carpetweed	Molluginaceae	Naturalized	N/A	N/A	N/A	N/A

Scientific Name	Common Name	Family	Origin	Cal-IPC Rating	CRPR	State	Federal
Calandrinia menziesii	Red maids	Montiaceae	Native	N/A	N/A	N/A	N/A
Eucalyptus globulus	Blue gum	Myrtaceae	Naturalized	Moderate	N/A	N/A	N/A
Camissonia contorta	Plains evening primrose	Onagraceae	Native	N/A	N/A	N/A	N/A
Clarkia purpurea ssp. *quadrivulnera*	Four-spot	Onagraceae	Native	N/A	N/A	N/A	N/A
Epilobium brachycarpum	Tall annual willowherb	Onagraceae	Native	N/A	N/A	N/A	N/A
Epilobium cleistogamum	Selfing willowherb	Onagraceae	Native	N/A	N/A	N/A	N/A
Eschscholzia californica	California poppy	Papaveraceae	Native	N/A	N/A	N/A	N/A
Diplacus tricolor	Tricolor monkeyflower	Phrymaceae	Native	N/A	N/A	N/A	N/A
Erythranthe guttata	Seep monkeyflower	Phrymaceae	Native	N/A	N/A	N/A	N/A
Erythranthe latidens	Broadtooth monkeyflower	Phrymaceae	Native	N/A	N/A	N/A	N/A
Callitriche marginata	Winged water-starwort	Plantaginaceae	Native	N/A	N/A	N/A	N/A
Veronica americana	American brooklime	Plantaginaceae	Native	N/A	N/A	N/A	N/A
Veronica anagallis-aquatica	Water speedwell	Plantaginaceae	Naturalized	N/A	N/A	N/A	N/A
Veronica peregrina ssp. *xalapensis*	Purslane speedwell	Plantaginaceae	Native	N/A	N/A	N/A	N/A
Alopecurus saccatus	Pacific foxtail	Poaceae	Native	N/A	N/A	N/A	N/A
Avena barbata	Slender wild oat	Poaceae	Naturalized	Moderate	N/A	N/A	N/A
Avena fatua	Wild oat	Poaceae	Naturalized	Moderate	N/A	N/A	N/A
Bromus diandrus	Ripgut brome	Poaceae	Naturalized	Moderate	N/A	N/A	N/A
Bromus hordeaceus	Soft chess	Poaceae	Naturalized	Limited	N/A	N/A	N/A
Bromus madritensis	Madrid brome	Poaceae	Naturalized	N/A	N/A	N/A	N/A
Bromus rubens	Red brome	Poaceae	Naturalized	High	N/A	N/A	N/A
Crypsis schoenoides	Swamp pricklegrass	Poaceae	Naturalized	N/A	N/A	N/A	N/A
Cynodon dactylon	Bermudagrass	Poaceae	Naturalized	Moderate	N/A	N/A	N/A
Distichlis spicata	Saltgrass	Poaceae	Native	N/A	N/A	N/A	N/A
Festuca bromoides	Brome fescue	Poaceae	Naturalized	N/A	N/A	N/A	N/A
Festuca myuros	Rattail sixweeks grass	Poaceae	Naturalized	Moderate	N/A	N/A	N/A
Festuca perennis	Rye grass	Poaceae	Naturalized	Moderate	N/A	N/A	N/A

Scientific Name	Common Name	Family	Origin	Cal-IPC Rating	CRPR	State	Federal
Hordeum brachyantherum ssp. *brachyantherum*	Meadow barley	Poaceae	Native	N/A	N/A	N/A	N/A
Hordeum marinum ssp. *gussoneanum*	Mediterranean barley	Poaceae	Naturalized	Moderate	N/A	N/A	N/A
Hordeum murinum	Wall barley	Poaceae	Naturalized	N/A	N/A	N/A	N/A
Hordeum murinum ssp. *glaucum*	Smooth barley	Poaceae	Naturalized	N/A	N/A	N/A	N/A
Melica californica	California melic	Poaceae	Native	N/A	N/A	N/A	N/A
Phalaris paradoxa	Hood canary grass	Poaceae	Naturalized	N/A	N/A	N/A	N/A
Phleum pratense	Cultivated timothy	Poaceae	Naturalized	N/A	N/A	N/A	N/A
Polypogon maritimus	Mediterranean beard grass	Poaceae	Naturalized	N/A	N/A	N/A	N/A
Polypogon monspeliensis	Annual beard grass	Poaceae	Naturalized	Limited	N/A	N/A	N/A
Sporobolus airoides	Alkali sacaton	Poaceae	Native	N/A	N/A	N/A	N/A
Stipa pulchra	Purple needle grass	Poaceae	Native	N/A	N/A	N/A	N/A
Triticum aestivum	Common wheat	Poaceae	Naturalized	N/A	N/A	N/A	N/A
Gilia capitata ssp. *pedemontana*	Bluehead gilia	Polemoniaceae	Native	N/A	N/A	N/A	N/A
Eriogonum gracile var. *gracile*	Slender woolly wild buckwheat	Polygonaceae	Native	N/A	N/A	N/A	N/A
Polygonum aviculare ssp. *rurivagum*	Prostrate knotweed	Polygonaceae	Waif	N/A	N/A	N/A	N/A
Rumex crispus	Curly dock	Polygonaceae	Naturalized	Limited	N/A	N/A	N/A
Rumex dentatus	Toothed dock	Polygonaceae	Naturalized	N/A	N/A	N/A	N/A
Rumex pulcher	Fiddle dock	Polygonaceae	Naturalized	N/A	N/A	N/A	N/A
Eichhornia crassipes	Water hyacinth	Pontederiaceae	Naturalized	High	N/A	N/A	N/A
Myosurus minimus	Tiny mousetail	Ranunculaceae	Native	N/A	N/A	N/A	N/A
Datura wrightii	Sacred thorn-apple	Solanaceae	Native	N/A	N/A	N/A	N/A
Brodiaea elegans ssp. *elegans*	Harvest Brodiaea	Themidaceae	Native	N/A	N/A	N/A	N/A
Dichelostemma capitatum ssp. *pauciflorum*	Bluedicks	Themidaceae	Native	N/A	N/A	N/A	N/A

Scientific Name	Common Name	Family	Origin	Cal-IPC Rating	CRPR	State	Federal
Typha angustifolia	Narrow-leaved cattail	Typhaceae	Native or Naturalized	N/A	N/A	N/A	N/A
Typha latifolia	Broad-leaved cattail	Typhaceae	Native	N/A	N/A	N/A	N/A
Urtica dioica ssp. *gracilis*	American stinging nettle	Urticaceae	Native	N/A	N/A	N/A	N/A
Phyla nodiflora	Common lippia	Verbenaceae	Native	N/A	N/A	N/A	N/A
Verbena bonariensis	Purpletop vervain	Verbenaceae	Naturalized	N/A	N/A	N/A	N/A
Tribulus terrestris	Puncturevine	Zygophyllaceae	Naturalized	N/A	N/A	N/A	N/A

E.1 - H – Madera Terrace Draft Prospectus

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MADERA TERRACE CONSERVATION BANK

Madera County, California

DRAFT PROSPECTUS

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Attachment 2: Representative Ground Photographs
Attachment 3: 2021 CTS Monitoring Report
Attachment 4: Preliminary Title Report

1 INTRODUCTION

We are pleased to present the Draft Prospectus for the proposed 1,902-acre Madera Terrace Conservation Bank ("Bank"), located within the 'Four Corners' Conservation Area in central Madera County, California. The proposed Bank will be a private commercial bank, providing mitigation credits to be sold by Jamison Trust/Elizabeth Cardoza ("Owner") to parties needing mitigation.

The Bank will be established on the 1,907-acre Jamison Ranch property ("Ranch" or "property") (**Figures 1-6**, attached). A five-acre area that includes the ranch corrals and a surrounding 100-foot buffer is excluded from the Bank crediting. The property supports annual grasslands with interspersed vernal pools and swales (approximately 6.8% cover), and a single seasonal stream. The wetlands support robust populations of breeding California tiger salamander (CTS, *Ambystoma californiense*), breeding western spadefoot (WSF, *Spea hammondii*), vernal pool fairy shrimp (VPFS, *Branchinecta lynchi*), midvalley fairy shrimp (MVFS, *Branchinecta mesovallensis*), and succulent owl's-clover (SOC, *Castilleja campestris* ssp. *succulenta*). The grasslands provide suitable habitat for several special-status species, including Swainson's Hawk (SH, *Buteo swainsoni*), San Joaquin kit fox (SJKF, *Vulpes macrotis mutica*), CTS, WSF, and possibly nesting Western Burrowing Owl (WBO, *Athene cunicularia*).

The Bank will offer the following preservation credit types: CTS breeding and upland habitat; WSF breeding and upland habitat; VPFS habitat; MVFS habitat; SH foraging habitat; SJKF movement/foraging habitat; possibly WBO nesting/foraging habitat (if nesting is documented onsite), and preserved vernal pool and seasonal stream wetland habitat.

Given its size, location, and intact mosaic of high-quality wetland and upland habitats, the property offers a unique and important conservation opportunity in the Four Corners area. The property is operated by the Owner as an active cattle ranch, with managed livestock grazing contributing to the on-going maintenance and high-quality of the habitats and associated species.

This Draft Prospectus is organized according to Optional Draft Prospectus Checklist for Conservation and Mitigation Banks in California (Multi-Agency Product Delivery Team, 2021).

2 PROPOSED BANK NAME

Madera Terrace Conservation Bank

3 BANK CONTACTS

Property Owner and Bank Sponsor
Jamison Trust/Elizabeth Cardoza
Contact: William Jamison
Post Office Box 40, O'Neals, CA 93645
Phone: (559) 240-5586
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Proposed Endowment/Easement Holder
Sierra Foothill Conservancy
Contact: Lauren Miller
PO Box 529, Prather, CA 93651
Phone: (209) 742-5556
Email: lauren@sierrafoothill.org

4 BANK PURPOSE

The purpose of this Bank is to preserve vernal pool and swale habitat, stream corridors, high-quality breeding habitat for CTS and WSF, and suitable upland habitat for several special-status species. The factors considered in the Bank selection process included watershed-scale features, ecological benefits, occupancy of listed species and compatibility with adjacent land uses. Its ecological importance is considered with respect to regional, watershed-level and local features.

4.1 Regional and Watershed-Scale Features

The property provides a robust network of vernal pool/swale complexes and upland annual grassland habitat. Preliminary mapping identified a high density of naturally-occurring wetlands (roughly 6.8% cover), corresponding to approximately 130 acres of vernal pools, vernal swales and ephemeral streams as well as approximately 10 acres of seasonal stream habitat (VNLC unpub.). The remainder of the property supports upland annual grassland. As the property is generally free of past grading or other disturbances, it represents a prime opportunity to preserve and maintain naturally-occurring, self-sustaining wetlands through continued good land and grazing management practices (Marty 2005). The property is located in Madera County, which has among the lowest proportion of protected vernal pool habitat in the Great Valley on a County basis, and therefore has a strong need for additional protection (Vollmar et al. 2017).

The area where the property is located has been confirmed as a conservation priority in multiple regional plans. On a regional level, the property is located within a core target conservation area identified by federal and state resource agencies - the 'Madera Core Recovery Area' designated in the Vernal Pool Recovery Plan published by the U.S. Fish and Wildlife Service (USFWS 2005). This core area extends from eastern Merced to Madera County with most existing conservation in the area (as of 2021) in Merced County (**Figures 4, 5, 6a & 6b**). The entire property is also within Designated Critical Habitat for vernal pool fairy shrimp (**Figures 6a & 6b**). The Jamison Ranch is within an area of Madera County known as the 'Four Corners' (**Figure 4**). This area, surrounding Highway 145 near its intersection with Highway 41, is under intensive development pressure from numerous proposed and approved development and crop conversion projects. However, the Four Corners area also includes an approximately 33,000-acre contiguous block of vernal pool habitat in the heart of the southern Madera Core Recovery Area (**Figure 5**). Only about 4,200 acres of this block are currently conserved. As such, conservation of the property makes a significant

contribution to conservation of vernal pool habitat and associated rare species in this area. Conservation of this habitat is also directly linked to conservation of rangelands and viable ranching in the region.

The property provides natural topographical diversity and supports a range of pool types. This is evident based on the diversity of special-status plant and wildlife species known to be present, each of which typically has a unique niche. Several pools on the property are deeper and support CTS and western spadefoot breeding, even during low rain years, and there are also numerous shallow to moderately deep pools supporting a diversity of special-status invertebrate and plant species.

4.2 Occupancy of Listed Species and Other Special-status Species

The property has been documented to support the following listed and/or special-status species:

1) Vernal pool fairy shrimp (*Branchinecta lynchi*; Federally listed as Threatened)
2) Midvalley fairy shrimp (*Branchinecta mesovallensis*; State species of concern)
3) California tiger salamander (breeding) (*Ambystoma californiense*; Federally listed as Threatened, State listed as Threatened)
4) Western spadefoot toad (breeding) (*Spea hammondii*; CDFW Species of Special Concern)
5) Swainson's Hawk (foraging/nesting) (*Buteo swansonii*; State listed as Threatened)
6) Western Burrowing Owl (foraging/nesting) (*Athene cunicularia;* CDFW Species of Special Concern)
7) San Joaquin kit fox (movement/foraging) (*Vulpes macrotis mutica*; State listed as Threatened)
8) Succulent owl's-clover (*Castilleja campestris* ssp. *succulenta*; Federally listed as Threatened, State listed as Endangered, CNPS Rank 1B.2)

All of these species except San Joaquin kit fox have been documented within the proposed Bank area (**Figures 6a & 6b**) (CDFW 2021; VNLC 2021).

The property's regionally significant conservation values, density of high-quality vernal pool habitat, relatively undisturbed state, diverse habitat types, and occupancy of special-status species contribute to the local, regional and ecosystem-level benefits of its conservation. Large protected areas such as this property are critical to ensuring the long-term persistence of viable populations of vernal pool endemics by allowing connectivity between pool complexes and pool and upland environments, and by facilitating migration (Keeler-Wolf et al. 1998). Larger protected areas are also critical for ensuring that populations of rare vernal pool species can persist through unpredictable events such as drought or climate change (USFWS 2005).

4.3 Compatibility with Regional Land Uses

In the past few years, the 640-acre Fenston Preserve was established just east of the Jamison Ranch and the 3,602-acre McKinney Ranch Conservation Easement was established approximately two miles to the west (**Figures 4, 5, 6a & 6b**). Both of these new preserves are within the 33,000-acre contiguous vernal pool habitat block describe above. Preservation of the Jamison Ranch will add significant additional conserved habitat, representing roughly 6% of the vernal pool habitat in the block. Most surrounding lands (except along the northwest) consist of large, established ranches providing good buffer habitat and areas for CTS to migrate and aestivate outside the rainy season. The entire property bordering the property to the east (owned by Vulcan) is proposed as a conservation site and VNLC is working with the owners of other surrounding lands to establish conservation easements. The Jamison Ranch will thus serve as a 1,907-acre core of a larger targeted block of conserved vernal pool habitat in the local area.

5 LOCATION MAPS AND AERIAL PHOTOS

5.1 General Vicinity Map

Figure 1 (attached) shows the proposed bank in its regional vicinity.

5.2 Property Address, Coordinates, and APNs

The Bank property has no street address. It consists of two full sections (approximately 640 acres each) and one nearly-full section (approximately 627 acres) running north to south from Highway 145 to Avenue 15 (**Figure 2**). The coordinates of the center of the property are latitude 119°50'46.812"W and longitude 36°58'48.338"N. The Bank consists of three legal parcels numbered Assessor's Parcel Number (APN) 051-230-010, 0051-230-010, and 051-230-005, located in all of Section 1, 12 and 13, Township 11 South, Range 19 East, Mount Diablo Base and Meridian, in the County of Madera, State of California.

The property can be accessed from the west through a gate near the intersection of Avenue 17 and Road 38, and from the south through a gate along Avenue 15 at the southeast corner of the property.

5.3 USGS Topographic Map

Figure 2 (attached) displays the proposed boundaries of the Bank on the USGS Lane's Bridge and Little Table Mountain 7.5-minute quadrangle maps. The entire approximately 1,907-acre property boundary is available for final siting of the Bank.

5.4 Adjacent Conserved Lands

Figures 4 and 5 depict other conserved lands in the vicinity of the proposed Bank property.

5.5 Color Aerial Photographs and Additional Maps

Figure 3 (attached) displays an aerial photograph showing current conditions of the proposed Bank Property. In addition, **Figures 6a and 6b** (attached) display documented occurrences of special-status species on and in the vicinity of the property (CDFW 2021; VNLC 2017-2021).

6 CREDITING

The Bank will be a private, commercial conservation bank. It will generate credits via preservation of vernal pools/swales, a seasonal stream, and annual grassland providing habitat for several listed and other special-status species (see **Table 1**). Preservation will occur due to the removal of threat from potential agricultural conversion and/or suboptimal grazing. For this project, we have operated on the USFWS regional policy crediting each acre preserved.

CTS, VPFS, SOC, and SJKF are all federally-listed species and mitigation credits would be authorized by USFWS. CTS, SJKF, SOC, and SH are all state-listed species and mitigation credits would be authorized by CDFW. WSF, MVFS, and WBO are also state species of special concern or otherwise state species of interest and mitigation credits would be authorized by CDFW. Any credits for preservation of wetland habitat would be authorized by the federal USACE and/or the state RWQCB. Any preservation credits for seasonal stream habitat would also be authorized by CDFW under Section 1600 provisions.

Table 1. Proposed Habitat and Species Credits, Proposed Madera Terrace Conservation Bank, Madera County, California. All acreages are reasonably accurate estimates based on remote mapping and field surveys completed to date; final, accurate acreages will be developed through additional work.

Habitat Type	Credit Type	# Credits (est'd)
Vernal Pool/ Vernal Swale	Preserved VP/Seasonal Wetland - Total Habitat	130 acres
	Total Occupied Acreage per Species:	
	California tiger salamander breeding habitat	3.8 acres
	Western spadefoot toad breeding habitat	5.8 acres
	Vernal pool fairy shrimp habitat	117 acres (widespread)
	Midvalley fairy shrimp	13 acres
	Succulent owl's-clover habitat	6.5 acres
Annual Grassland	Preserved Annual Grassland - Total Habitat	1762 acres
	Total Suitable Acreage per Species:	
	California tiger salamander upland habitat	1762 acres (100%)
	San Joaquin kit fox habitat	1762 acres (100%)
	Swainson's Hawk foraging habitat	1762 acres (100%)
	Western Burrowing Owl nesting/foraging habitat	TBD acres/# burrows
Seasonal Stream	Preserved Seasonal Stream – Total Habitat	10 acres
	Total Suitable Acreage per Species:	
	Preserved CTS Breeding Habitat	1.00 acres
Total Acreage		**1,902 acres**

Additional wetland preservation credits may also be generated via the preservation of critical upland buffer habitats. Any such credits will be determined in discussion with USACE.

6.1 Service Area

Figure 5 shows the Bank property in relation to the local Hydrologic Unit Code (HUC). This HUC is generally considered to be the service area for any wetland credits approved for the Bank. The figure also shows the location of the Fresno River to the north. This river is considered by USFWS and CDFW to demarcate genetically different populations of CTS north and south of the river. Impacts to CTS habitat south of the river generally need to be mitigated by habitat that is also south of the river. As such, the Fresno River is the proposed northern boundary of the CTS service area for the Bank. Service areas for other species credited in the Bank will be determined through the Bank permitting process in consultation with the IRT. The service areas for vernal pool associated species as well as upland species are proposed to extend throughout the San Joaquin Valley and Southern Sierra Foothill vernal pool regions.

7 BASELINE SITE CONDITIONS

7.1 Existing Site Conditions

The 1,902-acre proposed Bank occupies the entirety of 1,907-acre Jamison Ranch property, with a five-acre area that includes the ranch corrals and surrounding 100-foot buffer excluded from Bank crediting. The Bank will preserve approximately 130 acres of vernal pool/vernal swale seasonal wetland, 1,762 acres of annual grassland and 10 acres of seasonal stream. Habitat acreages are reasonably accurate estimated

based on remote mapping and field surveys conducted by VNLC in 2017-2021. Precise, accurate acreages will be developed through additional remote mapping and field surveys over the next several months.

Overall Condition and Site History

Both wetland and upland habitats within the proposed Bank are in good condition. The property appeared to be appropriately grazed by cattle in a consistent manner across all areas visited during surveys conducted during winter and spring 2017, 2019 and 2021. This is consistent with the historical land use of the property. Aside from low-to-moderate-intensity cattle grazing, it has not seen any form of ground disturbance or development (except a single, limited corral area). Moderate cattle grazing is considered beneficial for the management of vernal pool grasslands, as grazing reduces thatch and controls invasive weeds, thus maintaining vernal pool hydrology and facilitating the establishment and persistence of native forbs (Marty 2005). Vegetation cover observed within the vernal pools and other wetlands on the property are indicative of healthy conditions, featuring a moderate cover of predominantly native forbs and grasses. Like most San Joaquin Valley grassland habitats, the uplands are dominated by introduced annual grasses. Invasive weeds were generally found to be absent during the property visits

Vegetation

The property is dominated by California annual grassland with a high density of interspersed vernal pools and other seasonal wetlands. The terrain consists of level to gently rolling hills and mima mounds. Several types of wetlands exist in this terrain, including ephemeral drainages, vernal swales, and vernal pools. The property supports an estimated total of 130 acres of vernal pools and swales (6.8% overall cover).

Ephemeral Drainages

Ephemeral drainages are small channels with some bed and bank development that convey rain run-off for a few weeks following storm events and often retain isolated ponded areas throughout the rainy season. These features typically support a mix of vernal pool indicator plants and more generalist seasonal wetland plants. They display characteristics of an ordinary high-water mark (OHWM) and are considered jurisdictional waters of the United States. They are differentiated from seasonal streams by having flow only 1-2 weeks after heavy rains and more limited evident channel development.

Vernal Swales

Vernal swales can be differentiated from ephemeral drainages based on a lack of a clearly defined bed and bank and associated OHWM. These features generally support at least 20 percent cover of vernal pool indicator species associated with shallow ponding such as meadowfoam (*Limnanthes* spp.) along with lower cover of generalist wetland species such as Mediterranean barley (*Hordeum marinum* ssp. *gussoneanum*) and Italian ryegrass (*Festuca perennis*). Vernal swales often hydrologically interconnect vernal pools and are thus fundamental to the overall ecological function of vernal pool complexes.

Vernal Pools

Vernal pools are common throughout the property, somewhat evenly distributed within level to rolling mima mound topography. The vernal pools have a dominance of vernal pool indicator plant species such as coyote thistle (*Eryngium castrense*), Fremont's goldfields (*Lasthenia fremontii*), stipitate popcornflower (*Plagiobothrys stipitatus var. micranthus*), and annual hairgrass (*Deschampsia danthonioides*). The vernal pools also support generalist wetland species such as Mediterranean barley and Italian rye grass.

Hydrology

The mean annual precipitation at the property is approximately 13.4 inches (PRISM 2021), with the majority of precipitation falling as rain during the winter months from December to March. Pools generally begin to fill with the onset of heavy rains in the late fall and winter and dry down during the spring. The pools vary in size and depth; the larger and deeper pools typically have a longer hydroperiods while the smaller and shallower pools typically have a shorter hydroperiods. There is also high hydrologic connectivity between pools, either via surface swales or subsurface flow.

Soils

According to the Web Soil Survey (NRCS 2017), soils on the property are predominantly loamy alluvium in the Cometa soil series. The soils on the property are generally underlain by a restrictive hardpan at a depth of 20-30 inches, contributing to a seasonally perched water table. Additionally, deposition of alluvium material on the property has created variable soil conditions. In many locations, soil textures are loam or finer and hydric soil conditions are present. These conditions are present as inclusions within the listed soil mapping units, and are typically too small in scale to be displayed in the area's soil mapping layers.

7.2 Special-Status Species

As described above, the property has been documented to support eight special-status species (**Figures 6a & 6b**). VNLC conducted surveys to detect the presence of special-status species on the property in 2017, 2019, and 2021. Vernal pools, stream pools, and grasslands on the property are host to multiple species listed as endangered or threatened by the Federal Endangered Species Act (FESA) or California Endangered Species Act (CESA), or listed as California species of special concern (CSSC) or otherwise as a "Special Status Species" (SSS) by California Department of Fish and Wildlife (CDFW). These species are listed in Section 4.2 above. VNLC conducted reconnaissance surveys for listed vernal pool species by travelling across the property on foot or on all-terrain vehicles (ATVs) during the wet seasons of 2017, 2019, and 2021, searching for suitable habitat for pool- and pond-breeding amphibians and vernal pool large branchiopods (shrimp). All lead surveyors held valid federal and state permits to handle amphibians and vernal pool large branchiopods, and authorization was obtained from USFWS prior to conducting surveys.

Vernal Pool Large Branchiopods

VNLC conducted large branchiopods surveys during the early part of the wet season, from January through March. Individual surveys were conducted on March 1 and 2, 2017, and on February 20, 2019. All survey rounds only sampled representative pools (not all suitable pools) distributed widely across the property to show species presence across the different micro-watersheds on the property. Large branchiopod surveys were conducted using fine-mesh dipnets. Surveyors netted each survey pool until species had been located, or until they were satisfied no large branchiopods were present. Any large branchiopods captured were identified to species. During these reconnaissance surveys, the maximum current depth of each pool (in inches) and the presence or absence of each species of vernal pool large branchiopod were recorded. GPS points were taken for the locations of each surveyed pool.

Large branchiopods were observed to be widespread throughout the vernal pool complexes present on site. VPFS occurred in 99 vernal pools, totaling 8.8 acres. MVFS occurred in 39 vernal pools, totaling 0.8 acre; and California fairy shrimp (*Linderiella occidentalis*) occurred in 21 vernal pools, totaling 1.8 acres. **Figures 6a and 6b** show the locations of documented vernal pool large branchiopod occurrences by

species. The number and acreage of pools occupied by large branchiopods is a small, representative subset of pools on the property and many more pools are assumed to be occupied by these species. Given the combined prevalence of VPFS and MVFS within the surveyed pools, it is assumed that the full acreage of vernal pool/vernal swale seasonal wetland habitat provides suitable habitat for either VPFS or MVFS.

Special-Status Amphibians

Amphibian larvae surveys were conducted during April and May, with individual surveys conducted for four days each in 2019 and 2021. Surveyors visited relatively large and deep pools on the property considered to provide potential CTS breeding habitat, selected based on aerial photo interpretation, data collected during earlier large branchiopod surveys, and surveyors' observations on the ground.

A 10-ft by 4-ft (= 3.048 m long and 1.219 m deep) haul seine with ¼" mesh was used to sample amphibian larvae. The 2019 surveys were conducted with sampling effort proportional to the area of each pool. Proportional sampling is commonly used when the area of habitat to be sampled at different sampling locations varies in size. This sampling approach has been effectively used in similar aquatic surveys of vernal pools (Marty 2005). The area for each pool was estimated, and each pool was proportionally sampled at least 10% of the surface area by performing a series of 15-ft-long (~5-m long) seine hauls to cover an approximate area of 15 m^2 for each haul. After each haul, all amphibian larvae in the net were identified to species and counted, thereby giving an abundance index for each pond. If CTS larvae were not found after the pre-determined number of seine hauls, the surveyors performed additional pulls until more than 90% of the pool was covered. This procedure was followed to avoid reporting false absence of special-status amphibians. These additional pulls were non-quantitative, and could be of any length. All animals were returned to the pond after being counted (or after being measured, as described below).

For each pond with CTS larvae during the 2019 seine surveys, 10 larvae were collected and measured to generally document the size-range of larvae present. This is a non-random sample, but is intended to show the diversity of size and developmental classes present in the pond. For each of these ten larvae, snout-vent length and overall length (snout-tail length) were taken in millimeters. A developmental stage was assigned to each larva. The developmental stages follow Von May and Vollmar (In Prep) and are as follows:

1 = no leg buds, gills visible
2 = limbs present but digits not visible
3 = fingers visible; feet not completely developed
4 = fingers and toes developed; gills still fully developed
5 = gills partially reduced but still functional, dorsal fin reduced
6 = no gills visible, or gills almost completely reabsorbed (only 1-2 mm visible).

CTS larvae were documented in 20 vernal pools and 9 stream pools, totaling 3.8 acres, and WSF in 40 vernal pools and 4 stream pools, totaling 5.8 acres. Among the documented CTS breeding pools, we recorded mature CTS larvae (late stage 4 through stage 6) in ten of the vernal pools and four of the stream pools. Successful transformation of larvae in these pools was assumed based on the combination of larval size/maturity and water depth at the time of the survey (April 23). Other pools that dried prior to April 23 may have had successful transformation.

VNLC conducted CTS larvae surveys in 2021, a drought year, and documented successful CTS breeding and transformation in several pools. A copy of the survey report is attached for review.

Other Special-Status Species

VNLC biologists made incidental observations of succulent owl's-clover in 5 vernal pools, totaling 0.4 acre. Many more pools are assumed to support the species, to be documented through additional surveys. The biologists also incidentally observed one Western Burrowing Owl at a burrow during the breeding season, and one Swainson's Hawk foraging over the property.

8 REGIONAL CONTEXT

As described above, the Jamison property is located within the Madera Core Area of the Southern Sierra Foothills vernal pool region of the USFWS Vernal Pool Recovery Plan (USFWS 2005). The property is also located in the "Four Corners" region of Madera County, a 33,000-acre contiguous block of vernal pool habitat under intense development pressure (**Figure 5**). As only a few thousand acres of this block are currently conserved, the establishment of the Bank will contribute toward regional conservation planning and goals. The surrounding land uses include cattle grazing, low-density rural residential development, and intensive agriculture (almonds and pistachios orchards).

The proposed Bank will add to a growing network of preserves in the Four Corners region of the Madera Core Area. The 640-acre Fenston Preserve adjoins the property to the east. The 3,602-acre McKinney Ranch preserve is situated approximately 2 miles west of the proposed Bank. The 198-acrea Caltrans Mitigation Bank Madera Pools preserve is located approximately 1.5 miles southeast of the proposed Bank. The Upper and Lower Jamison Ranch Preserves form a 2,269-acre conservation area approximately 4.8 miles east of the property. The 403-acre HOG Hills conservation easement is situated approximately 4.9 miles west of the property (**Figure 4**).

9 CONCEPTUAL PLAN

The Bank will be permitted through the standard process, with final approval from the Interagency Review Team. The preserved habitats will be managed and monitored in perpetuity according to the provisions of the Conservation Easement, Long-term Management Plan, Grazing Plan, and other relevant documents prepared and approved as part of the Bank Enabling Instrument (BEI).

10 REAL ESTATE TITLE EXCEPTIONS

The preliminary title report indicates no significant access or right-of-way easements on the property. All surface and subsurface mineral rights are fully owned by the owners of property fee title, the Jamison Family Community Property Trust (Jamison Trust) and Elizabeth A. Cardoza. The preliminary title report does not list any severed mineral rights.

11 LANDS NOT APPROPRIATE FOR BANKING

Nearly the entire property consists of undeveloped rangelands suitable for crediting as part of the proposed conservation bank. The roads on the property, used for site access and management, consist of mostly ungraded and ungraveled dirt roads. Other than fences, the only development on the property is a set of corrals in the northeast portion of the property. These corrals plus a 100-foot surrounding buffer, totaling approximately 5 acres, are excluded from the Bank crediting on the property.

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Von May, R. and J. E. Vollmar (In Prep). A Preliminary Study of California Tiger Salamander Breeding Habitat Use Patterns and Implications for its Conservation in the Eastern San Joaquin Valley, California, USA

Attachment 1
Map Figures

Attachment 2
Representative Ground Photographs

Attachment 3
2021 CTS Monitoring Report

Attachment 4
Preliminary Title Report

Attachment 1
Map Figures

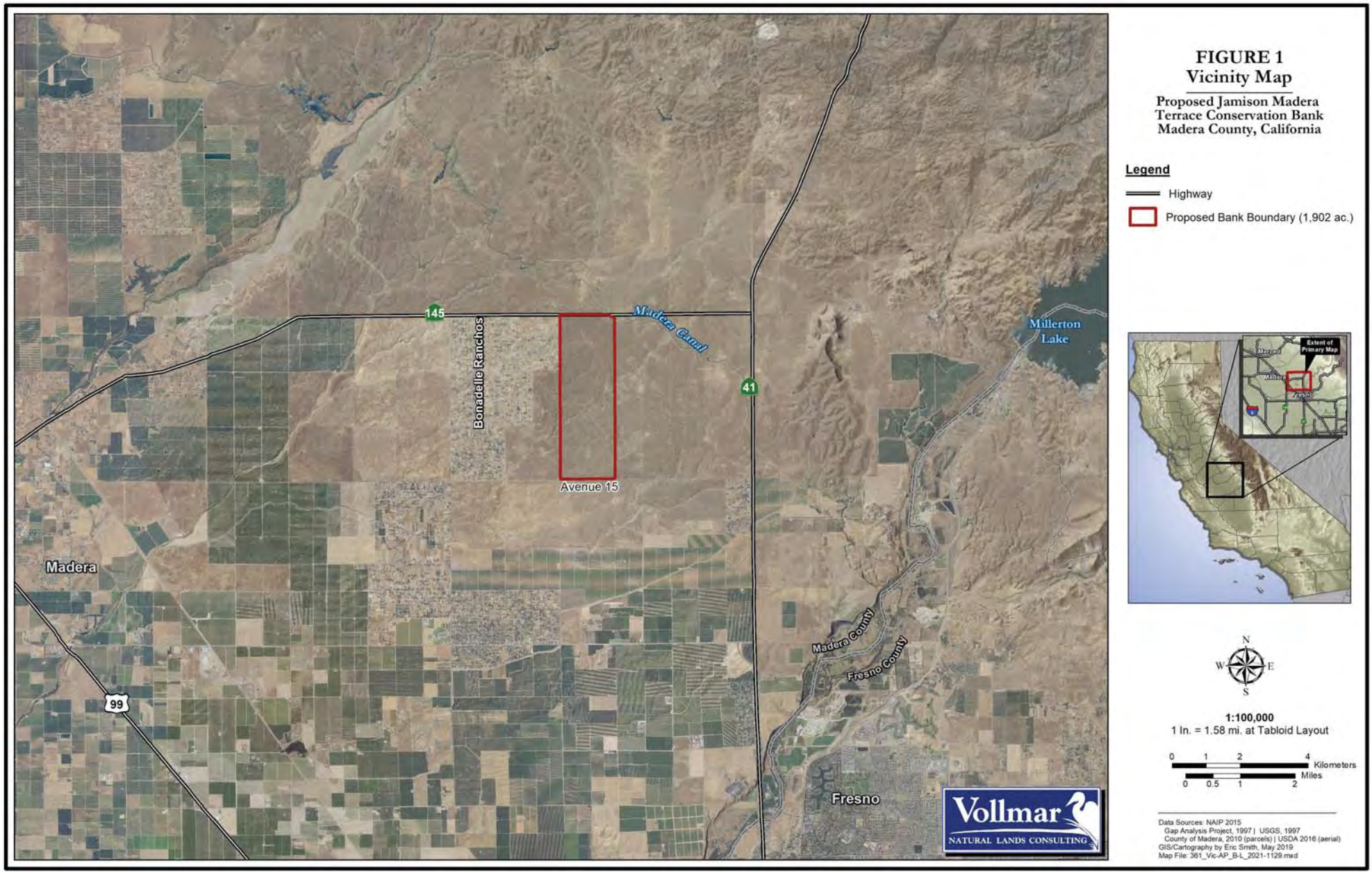


FIGURE 1
Vicinity Map

Proposed Jamison Madera Terrace Conservation Bank
Madera County, California

Legend

- Highway
- Proposed Bank Boundary (1,902 ac.)

Data Sources: NAIP 2015
Gap Analysis Project, 1997 | USGS, 1997
County of Madera, 2010 (parcels) | USDA 2016 (aerial)
GIS/Cartography by Eric Smith, May 2019
Map File: 361_Vic-AP_B-L_2021-1129.mxd

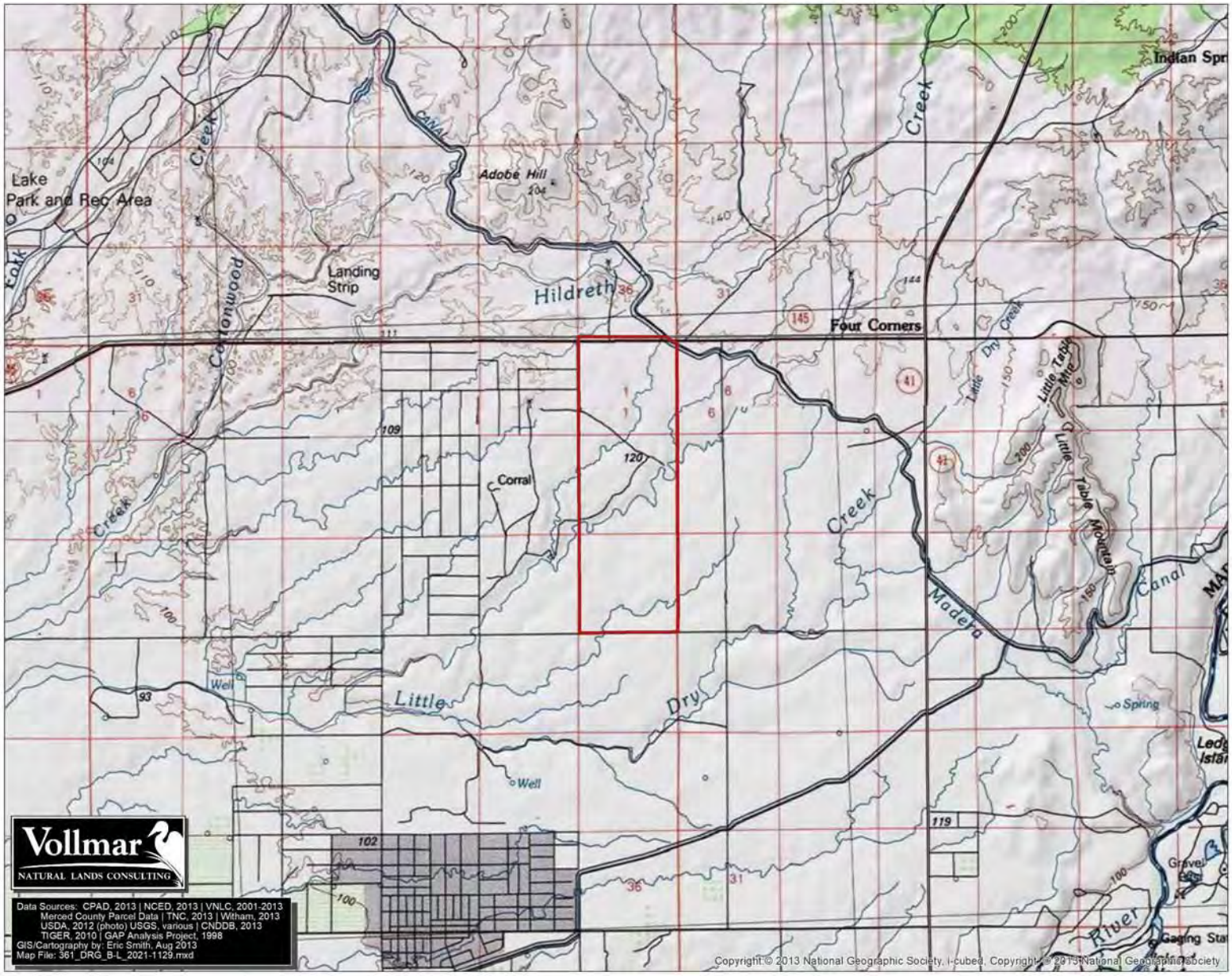


FIGURE 2
USGS Topographic Map

Proposed Jamison Madera
Terrace Conservation Bank
Madera County, California

Legend

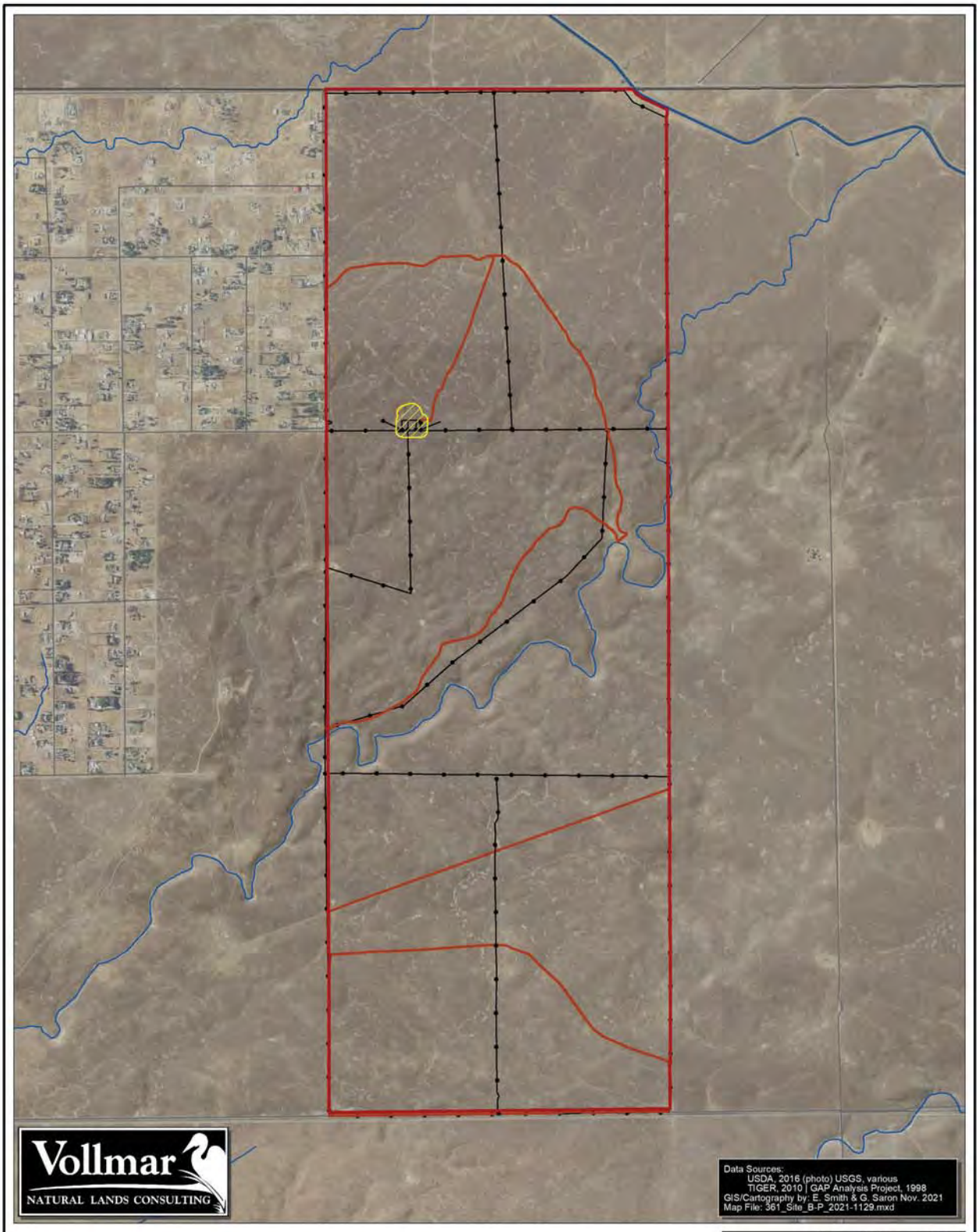
Proposed Bank Boundary (1,902 ac.)



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1 inch = 1 mile at Tabloid Layout

0 0.5 1 2 Kilometers
0 0.5 1 2 Miles



Legend

- Barbed Wire Fence
- Ranch Road or Two-Track
- Stream
- Road
- Highway
- Proposed Bank Boundary (1,902 ac.)
- Corral Area (5 ac.)

FIGURE 3
Site Map

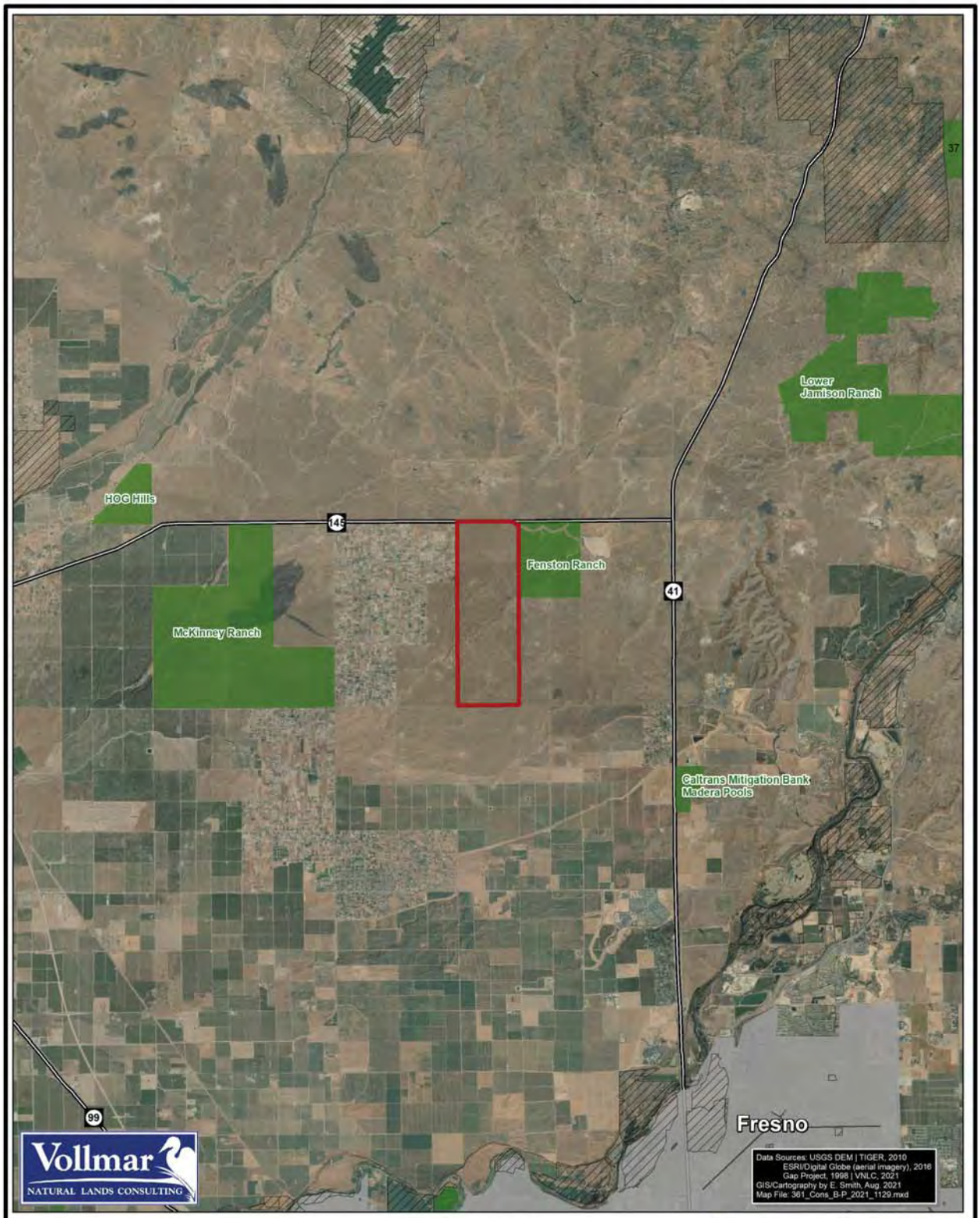
Proposed Jamison Madera Terrace Conservation Bank
Madera County, California

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1 inch = 1,500 feet

0 200 400 800 Meters
0 750 1,500 3,000 Feet





Legend

- Highway
- Proposed Bank Boundry (1,902 ac.)
- Private Preserved Land
- Public Preserved Land
- Urban

FIGURE 4
Public and Preserved Lands Map

Proposed Jamison Madera
Terrace Conservation Bank
Madera County, California

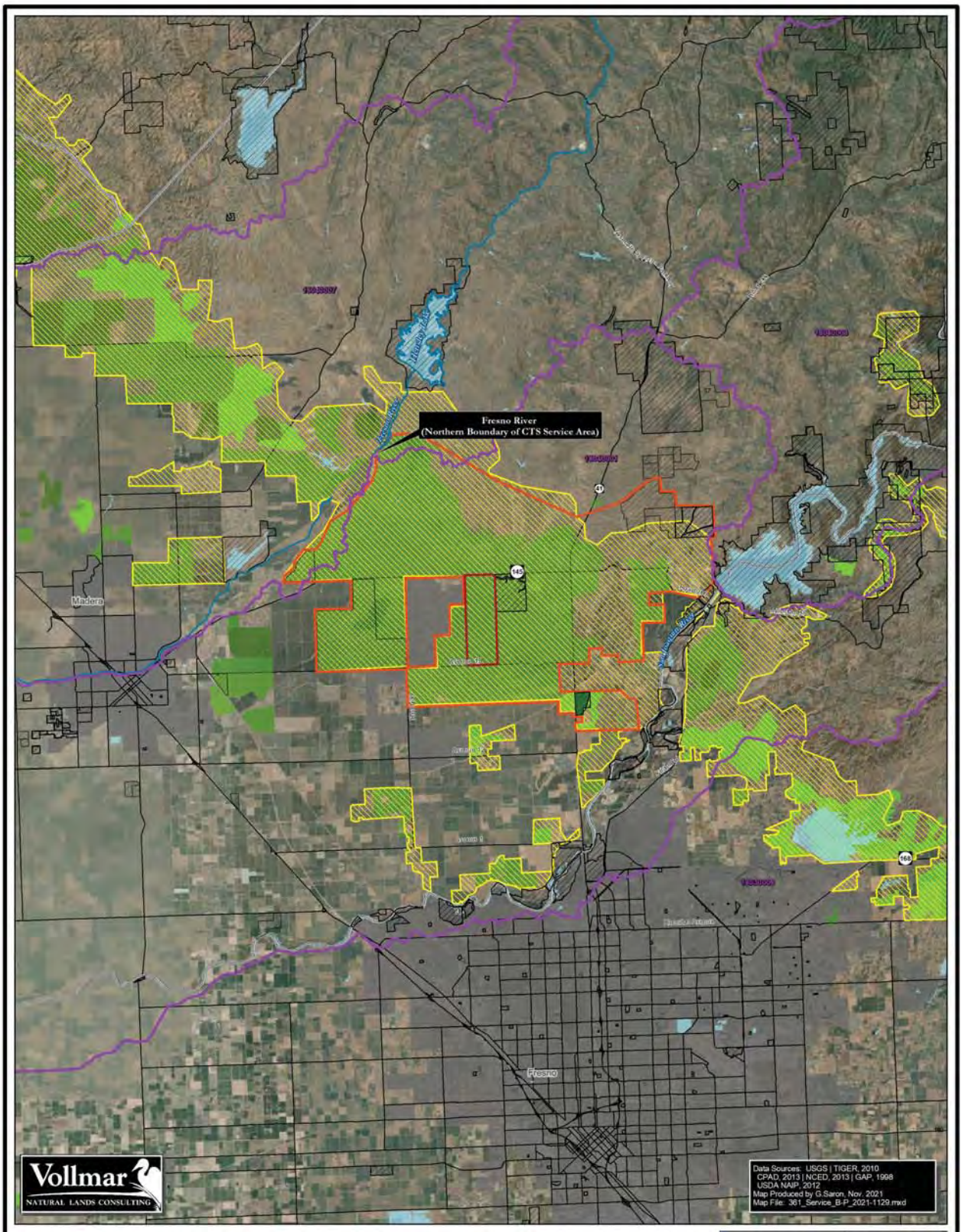
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0 0.5 1 2 Miles





Legend

- Proposed Bank Boundary (1,902 ac.)
- Four Corners Vernal Pool Portfolio Area
- Vernal Pool Core Recovery Areas

Mapped Vernal Pool Habitat (Witham, 2012)

- <2% cover vernal pools
- 2-5% cover vernal pools
- 5-10% cover vernal pools
- Urban Area
- Hydrologic Unit Boundary
- Highway
- Major River

FIGURE 5
Service Area Map
Proposed Jamison Madera Terrace Conservation Bank
Madera County, CA

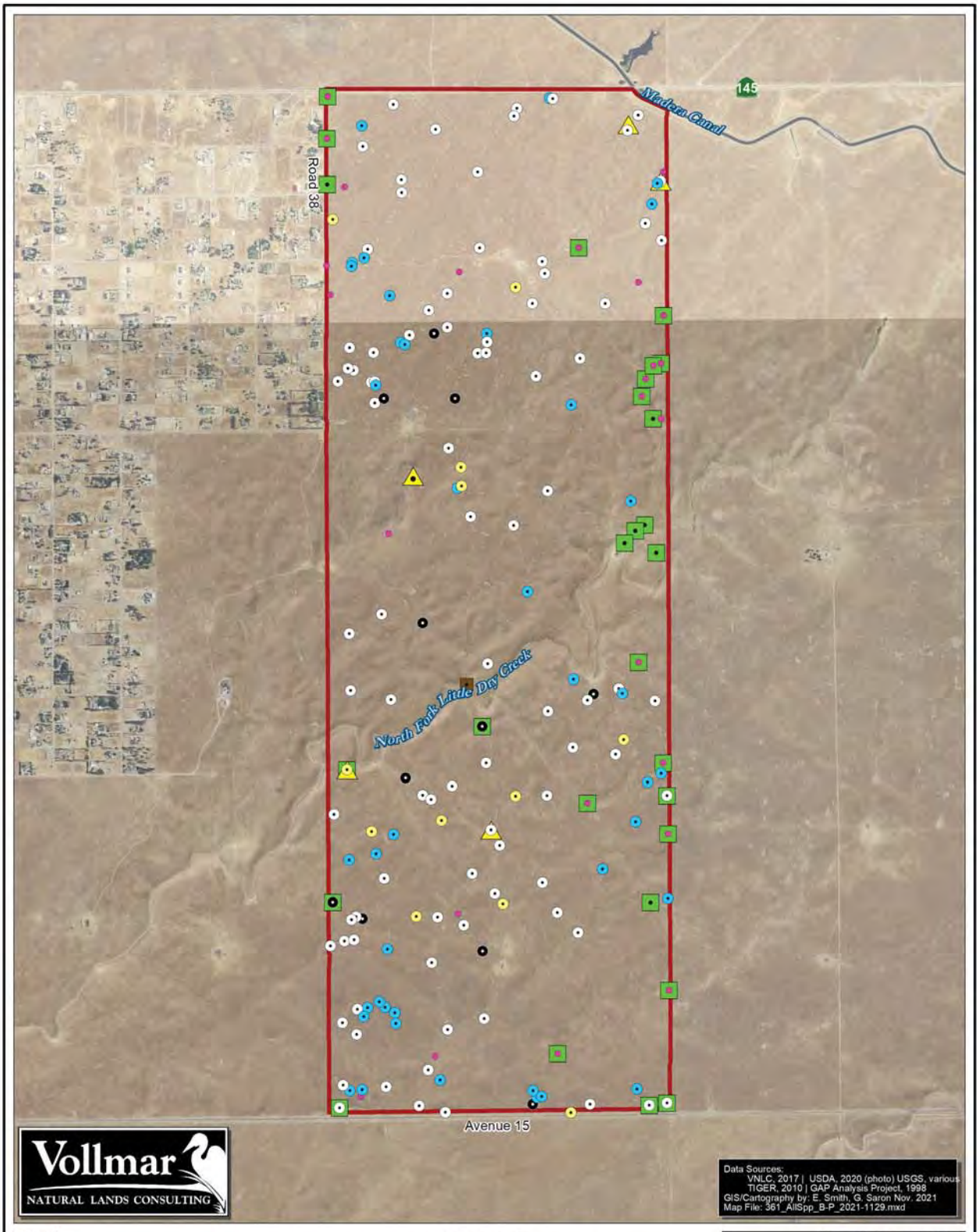
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(1 inch = 3 miles) at tabloid layout

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Legend

- Successfull CTS Breeding in Dirt Tank, 2021
- Other Dirt Tank
- CTS Documented 2017 or 2019
- WSF Documented 2017 or 2019
- Vernal Pool Fairy Shrimp
- Vernal Pool Fairy Shrimp and California Fairy Shrimp
- California Fairy Shrimp
- Midvalley Fairy Shrimp
- Succulent Owl's-Clover
- Swainson's Hawk
- Burrowing Owl
- Proposed Bank Boundary (1,902 ac.)

FIGURE 6a
Site Special-Status Species Map

Proposed Jamison Madera
Terrace Conservation Bank
Madera County, California

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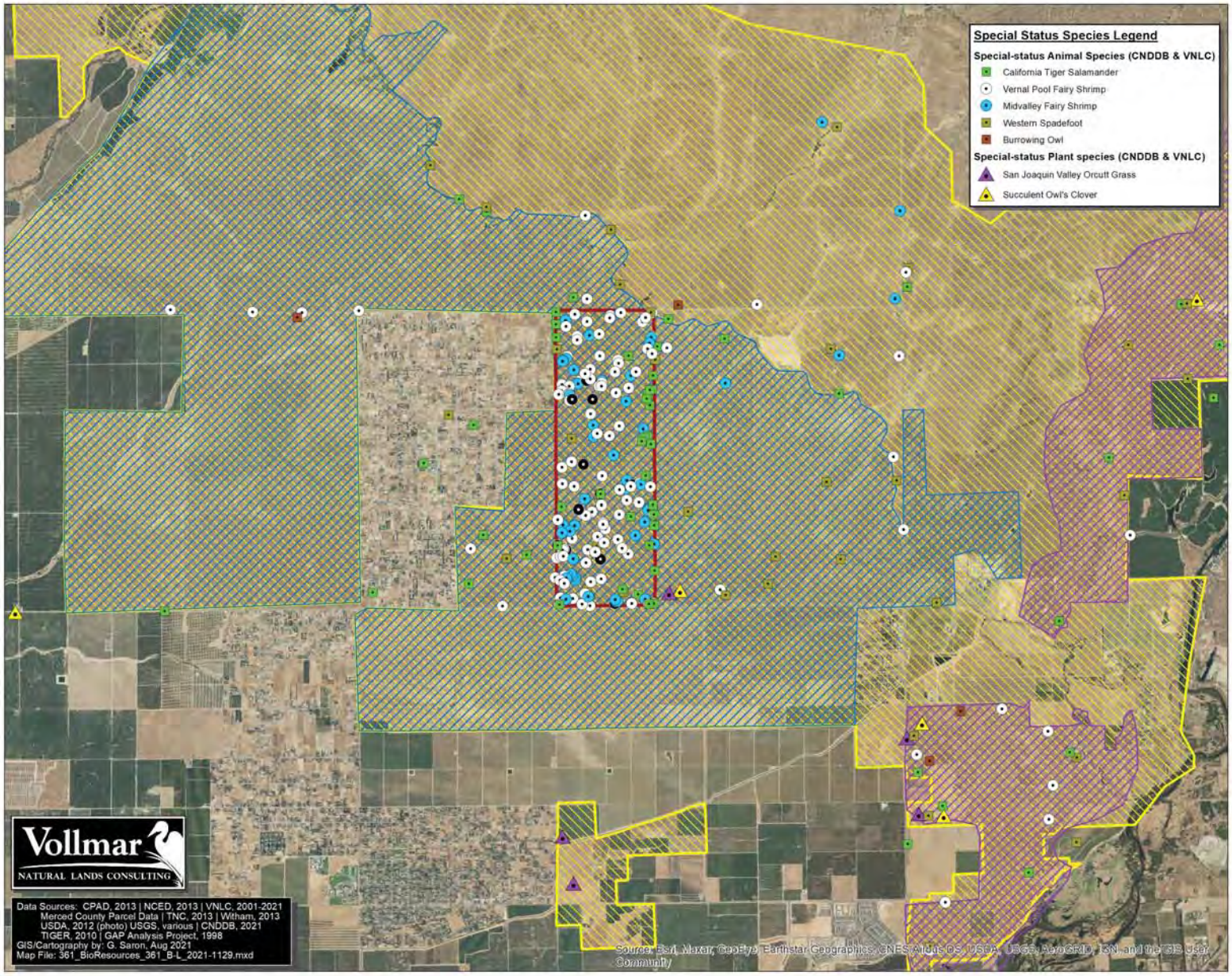
1:18,000
1 inch = 1,500 feet

0 200 400 800 Meters
0 750 1,500 3,000 Feet



FIGURE 6B
Regional Special-Status Species Map

Proposed Jamison Madera Terrace Conservation Bank
Madera County, California



Legend

- Proposed Bank Boundary (1,902 ac.)
- Vernal Pool Core Recovery Areas

Designated Critical Habitat

- California Tiger Salamander
- Vernal Pool Fairy Shrimp



Vollmar NATURAL LANDS CONSULTING

Data Sources: CPAD, 2013 | NCED, 2013 | VNLC, 2001-2021
Merced County Parcel Data | TNC, 2013 | Witham, 2013
USDA, 2012 (photo) USGS, various | CNDDB, 2021
TIGER, 2010 | GAP Analysis Project, 1998
GIS/Cartography by: G. Saron, Aug 2021
Map File: 361_BioResources_361_B-L_2021-1129.mxd

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1 in. = 1 mi. at Tabloid Layout

0 0.63 1.26 2.52 Kilometers
0 0.5 1 2 Miles

Attachment 2
Representative Ground Photographs

Attachment 2.
Representative Ground Photographs



Landscape view across southern portion of proposed Jamison Madera Terrace Conservation Bank Site, facing south (3/10/217)

Attachment 2.
Representative Ground Photographs



Landscape view across eastern portion of proposed Jamison Madera Terrace Conservation Bank Site Site, facing east (3/10/17)

Attachment 2.
Representative Ground Photographs



Dip-netting for vernal pool shrimp within proposed Jamison Madera Terrace Conservation Bank Site (3/10/17)



Series of shallow vernal pools occupied by midvalley fairy shrimp within proposed Jamison Madera Terrace Conservation Bank Site (3/10/17)

Attachment 2.
Representative Ground Photographs



Deeper vernal pool with California tiger salamander breeding on Jamison Madera Terrace Conservation Bank Site (3/10/17)

Attachment 2.
Representative Ground Photographs



Deeper vernal pool with western spadefoot breeding on proposed Jamison Madera Terrace Conservation Bank Site (3/10/17)

Attachment 2.
Representative Ground Photographs



Drone photograph across southern-central portion of proposed Jamison Madera Terrace Conservation Bank Site, facing west (3/10/17)

Attachment 3
2021 CTS Monitoring Report



JAMISON 145 RANCH

Madera County, California

2021 CTS MONITORING REPORT

Prepared for:

William Jamison
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559/240-5586

Prepared by:

Vollmar Natural Lands Consulting
1720 Solano Avenue
Berkeley, CA 94707
Contact: John Vollmar
510/559-9603

July, 2021
J-361

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Appendix A. Pond Photographs
Appendix B. CTS Larvae Photographs

1 ABSTRACT

We monitored 11 small stock ponds or "dirt tanks" on the Jamison 145 Ranch (Ranch) for California tiger salamander (CTS, *Ambystoma californiense*) breeding in 2021. CTS bred successfully in four of these features. Larvae in these features showed complete progress through the stages of metamorphosis, including limb emergence, gill resorption, dorsal fin reduction, and development of adult coloration. Larvae in each of these features achieved a total length of at least 85 mm, and each of these features remained inundated until at least mid-May, despite 2021 having only 56% of average rainfall for the region. These pools meet California Department of Fish & Wildlife's (CDFW) criteria for compensatory mitigation for CTS. 1,751.5 acres of the Ranch are within 0.7 mi of these pools, and should be considered acceptable for compensatory habitat mitigation for CTS upland habitat.

2 INTRODUCTION

The Ranch is an approximately 1,907-acre property in Madera County, located between Highway 145 and Avenue 15, east of Road 38 (**Figure 1**). The Ranch is composed of vernal pool grassland and a single intermittent stream. The vernal pools, stream pools, and grassland on the Ranch are host to a number of rare and endangered species, including CTS, vernal pool fairy shrimp (*Branchinecta lynchi*), midvalley fairy shrimp (*Branchinecta mesovallensis*), succulent owl's-clover (*Castilleja campestris* ssp. *succulenta*), western spadefoot (*Spea hammondii*), California fairy shrimp (*Linderiella occidentalis*), Swainson's Hawk (*Buteo swainsoni*), and Western Burrowing Owl (*Athene cunicularia*) (**Figure 2**) (VNLC 2017).

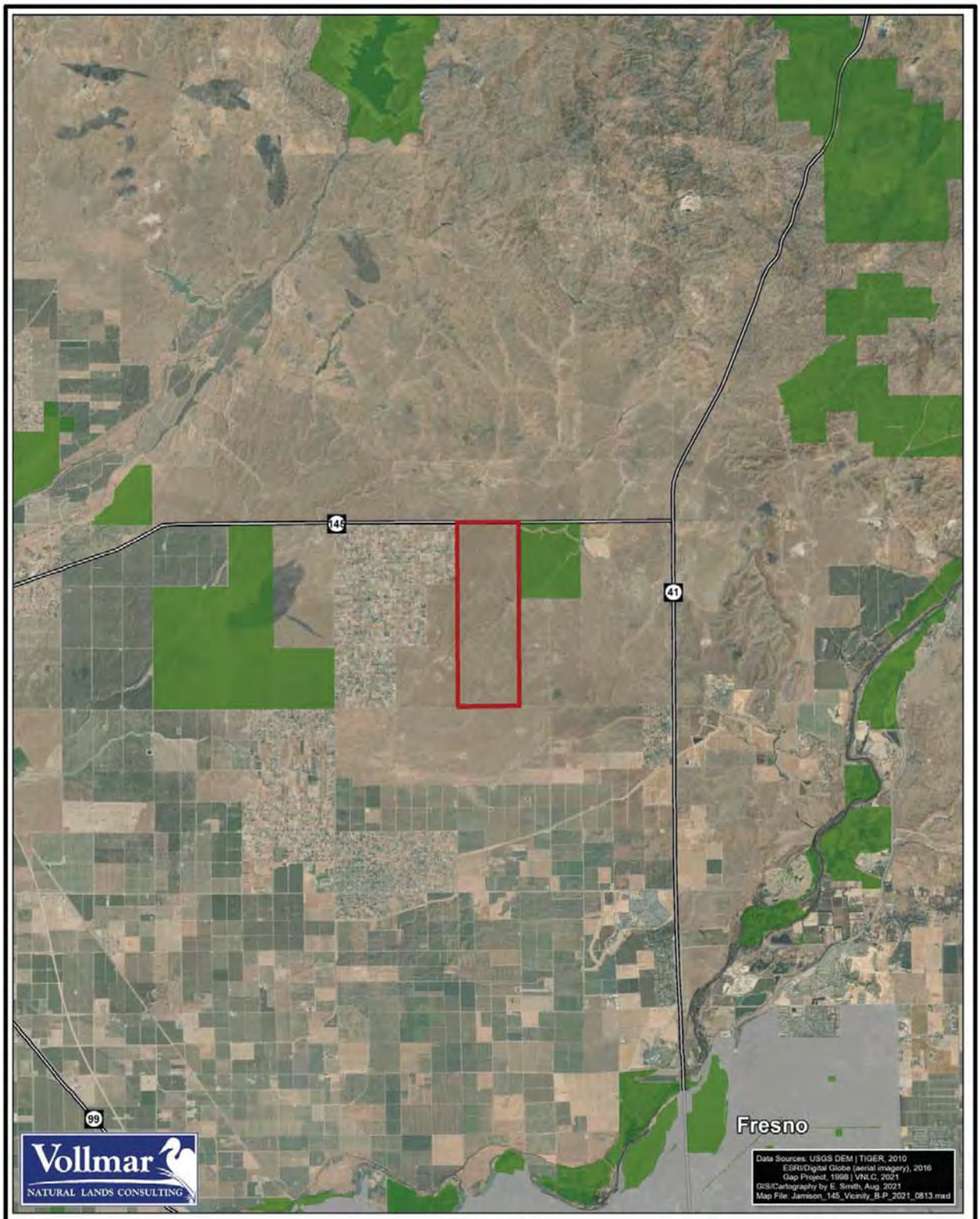
In addition to the natural wetland habitats, 11 dirt tanks have been excavated on the Ranch. Like the natural vernal pools, the dirt tanks have seasonal hydrology driven by direct precipitation and surface and subsurface flow. However, the dirt tanks are deeper than the natural vernal pools, and remain inundated longer. CTS generally take between 100 to 200 days of inundation to go from fertilized egg to emergence of the metamorphosed terrestrial form (Anderson, P. 1968; Petranka 1998; C. Searcy, pers. comm., 2012a). Peak periods for metamorphs to leave their natal ponds have been reported from May to July (C. Searcy, pers. comm., 2012a; Loredo and Van Vuren 1996; Trenham et al. 2000).



Photo 1. Dirt Tank 7, June 17, 2021

The Fresno office of California Department of Fish and Wildlife has established a policy which states that new CTS mitigation preserves must demonstrate:

- Presence of CTS larvae with fully emerged limbs,
- CTS larvae with a minimal total length of 75mm, and
- Sufficient hydrology to support full metamorphosis in average and below-average rainfall years (i.e. standing water into May) (Lori Bono, pers. comm.)



Legend

- Highway
- Jamison 145 Ranch Boundary
- Preserved Land or Public
- Urban

FIGURE 1
Vicinity Map

Jamison 145 Ranch
Madera County, California

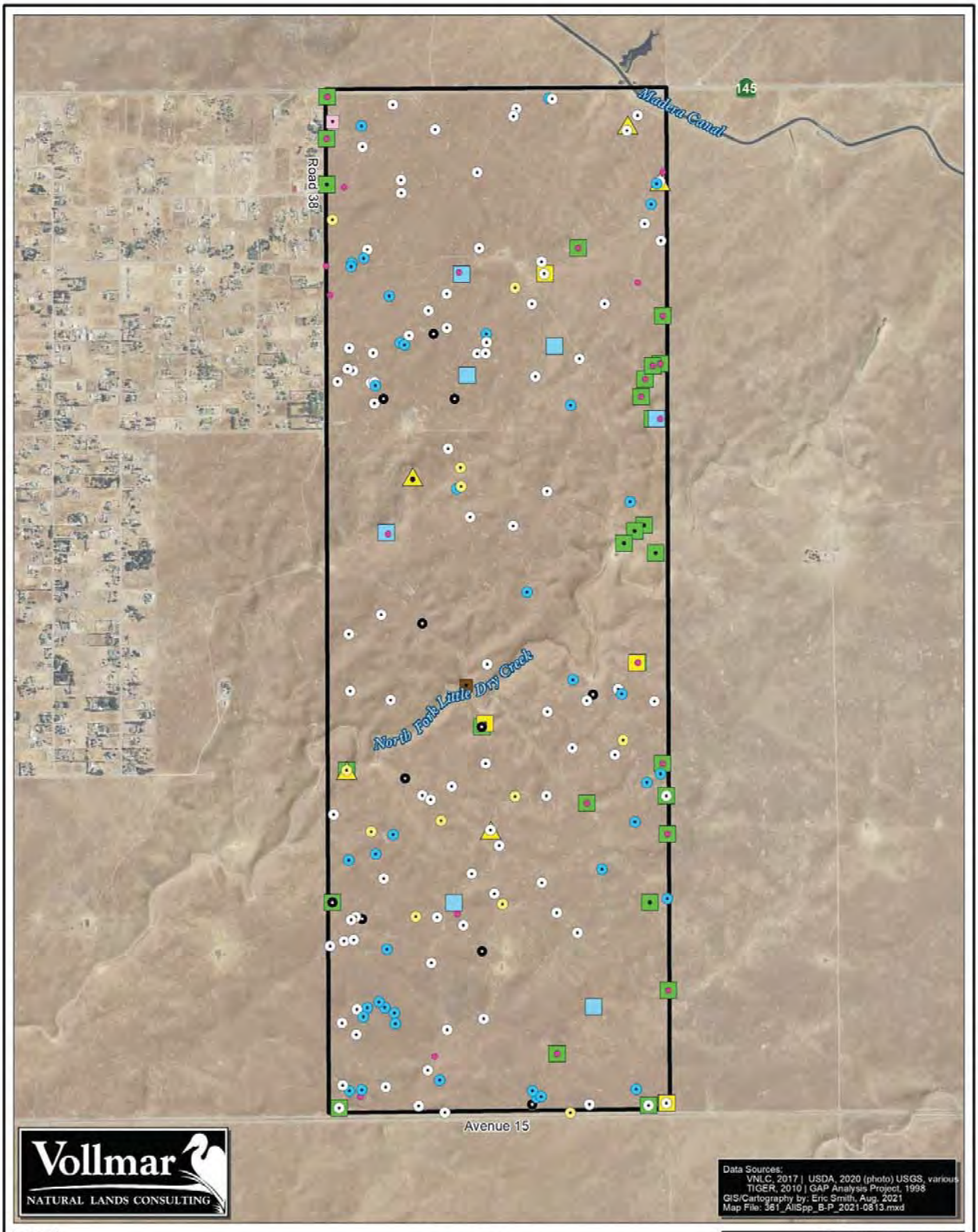
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0 0.5 1 2 Miles





Legend

- Successfull CTS Breeding in Dirt Tank, 2021
- Other Dirt Tank
- CTS Documented 2017 or 2019
- WSF Documented 2017 or 2019
- Vernal Pool Fairy Shrimp
- Vernal Pool Fairy Shrimp and California Fairy Shrimp
- California Fairy Shrimp
- Midvalley Fairy Shrimp
- Succulent Owl's-Clover
- Swainson's Hawk
- Burrowing Owl
- Jamison Ranch (1,907 ac.)

FIGURE 2
Site Biological Resources

Jamison 145 Ranch
Madera County, California

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1 inch = 1,500 feet

0 200 400 800 Meters
0 750 1,500 3,000 Feet



As the dirt tanks are longer-ponding than the natural vernal pools, they are the most likely habitat on the Ranch to meet this strict standard. We monitored the dirt tanks over the course of the Spring of 2021 to document the development and metamorphosis of CTS larvae on the Ranch.

3 METHODS

Vollmar Natural Lands Consulting (VNLC) biologists seine-netted the dirt tanks repeatedly over the course of the spring of 2021; we counted, measured, and characterized the developmental stage of CTS larvae, as described below.

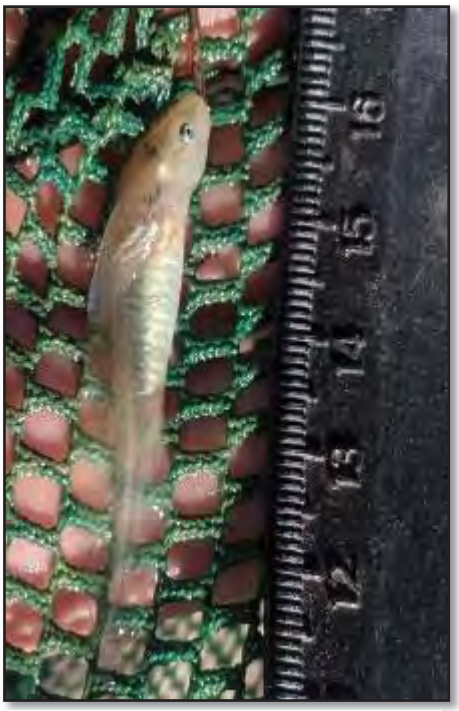


Photo 2. Stage 3 CTS larva, Jamison 145 Ranch, April 29, 2021

3.1 Personnel, Dates, and Sampling Locations

All surveys were led by either John Vollmar or Eric Smith, who are permitted to handle larval CTS under US Fish & Wildlife Service (FWS) Permit #TE-035336-6.3 and by CDFW under a Memorandum of Understanding dated December 20, 2018, attached to Scientific Collecting Permit SC-007774. Surveys were authorized by FWS on February 26, 2021, with file reference number 2021-TA-1136. Mr. Vollmar and Mr. Smith were assisted by Vollmar Natural Lands Consulting employees Henry Hwang, Chris Jasper, and Rachel Miller.

The protocol for determining presence or absence of CTS, published by FWS and CDFW, calls for three surveys per year, conducted in March, April and May, at least 10 days apart (2003). However, this protocol is designed only to detect CTS larvae, not to assess whether the larvae successfully reach metamorphosis. We modified the timing and number of sampling visits in order to capture the transformation and out-migration of the larvae with higher fidelity. We conducted an initial reconnaissance survey to determine that pools had ponded on February 26, 2021. We then conducted dip-net/seine surveys (described below) on April 15, April 29, May 6, May 13, May 20, June 3, and June 17.

The targeted sampling locations were the 11 dirt tanks. Not every tank was visited during each survey visit; we focused our survey efforts during the later rounds on features known to hold CTS larvae, and terminated monitoring of dry tanks and those with no remaining larvae.



Photo 3. Stage 4 CTS larva, Jamison 145 Ranch, June 3, 2021.

3.2 Dip-Net/Seine Survey

For each sampled dirt tank, we used dip-nets or haul seines with ¼" mesh to exhaustively sample the entire water volume of the tank, capturing all CTS larvae. Larvae were temporarily held in

a 5-gallon bucket full of water from their tank during netting. After netting was completed, we visually selected a representative subset of the larvae from each pond. For each CTS larvae selected, surveyors recorded snout-vent length (SVL) in mm, total length (snout-to-tip-of-tail) in mm, and developmental stage according to the following classification:

1 = no leg buds, gills visible;
2 = limbs present but digits not visible;
3 = fingers visible; feet not completely developed;
4 = fingers and toes developed; gills still fully developed; dorsal fin still reaches base of head;
5 = gills reduced in size; dorsal fin reduced to halfway down back; change in coloration may be evident;
6 = gills almost completely reabsorbed (<2 mm visible); dorsal fin reduced to base of tail; change in coloration is evident.

For each surveyed pond, we also recorded current maximum depth in inches, temperature in degrees Celsius, and a visual turbidity estimate on the following scale: 1 = very clear, 2 = somewhat clear, 3 = somewhat turbid, 4 = very turbid. We also recorded incidental observations of other amphibian and invertebrate taxa present during the surveys.



Photo 4. Stage 5 CTS larva, Jamison 145 Ranch, April 29, 2021



Photo 5. Stage 6 CTS larva, Jamison 145 Ranch, May 20, 2021

3.3 Avoidance and Minimization

Surveyors undertook the following measures to reduce the effects of the surveys on special-status species and their habitats:

- Adhered to *The Declining Amphibian Task Force Fieldwork Code of Practice* (1998) *(*This includes cleaning all mud and debris from boots, vehicle tires, nets, and other equipment before entering the site, and after leaving the site before travelling to other amphibian habitats);
- Restricting net surveys to periods when amphibian larvae are likely to be large enough to withstand the stress of netting.

3.4 Precipitation

We retrieved and compared monthly precipitation data for the period from July 2020 to June 2021 to monthly 30-year normals based on the period from 1981-2010 (PRISM Climate Group, 2021).

3.5 Analysis of Recruitment and Upland Habitat

To determine which dirt tanks provided viable CTS breeding habitat in 2021, we analyzed the numbers and developmental stages of the larvae in each pond over time. For any tank in which we observed Stage

6 larvae, we assumed that CTS were recruiting into the terrestrial phase. This assumption was bolstered by the fact that in all ponds with Stage 6 larvae observed, we also observed a decrease in the number of larvae present in subsequent visits, consistent with larvae transforming and leaving the tank.

Trenham and Shaffer (2005) found that 50–95% of adult CTS migrated at least 150 to 620 m from their ponds, respectively. They found that few animals moved more than 1km from their breeding ponds (Trenham pers. comm.). Orloff (2011), however, found that in some cases, a much larger proportion of the population moves much further from their ponds. In some cases, CTS have been documented as much as 2,092 m (1.3 mi) from breeding ponds (S. Sweet, University of California, Santa Barbara, in litt. 1998). 2,092 m is the distance used by FWS to calculate impacts to CTS upland habitat. For calculation of mitigation credits, and mapping of critical habitat, FWS has historically used a buffer of 1.1 km (0.7mi) from breeding ponds (FWS 2005). Searcy and Shaffer (2008) proposed a more complex mitigation scheme, in which impact and credit value would be scaled based on distance to the breeding pond, based on a habitat use curve. In this method, the mitigation factor at the shoreline of a breeding pond would be 10.8:1, the mitigation factor at 945 m would be 1:1, and the mitigation factor at 2,092 m would be 0.06:1. This method has been adopted only by the Ventura FWS office for dealing with the Santa Barbara Distinct Population Segment (Rachel Henry pers. comm.). We have therefore decided to use the regional standard of a 1.1 km (0.7 mi) buffer to determine suitable upland habitat with mitigation potential.

For each tank which met the CDFW criteria in 2021, we plotted a 0.7 mi buffer around the tank using ArcGIS 10.3 (ESRI 2014). We clipped these buffers to the Ranch boundary, and calculated the area of the resulting polygon, which represents the upland habitat likely to be occupied by CTS born in the dirt tanks.

4 RESULTS

We observed CTS larvae in six of the dirt tanks; CTS apparently recruited from four of the tanks. The tanks with recruitment had a minimum inundation period of 104 days, ponding into mid-May. Dirt tank inundation period, maximum depth, number of CTS larvae observed, and apparent recruitment success are summarized in **Table 1**. These data are presented in greater detail below.

4.1 Precipitation

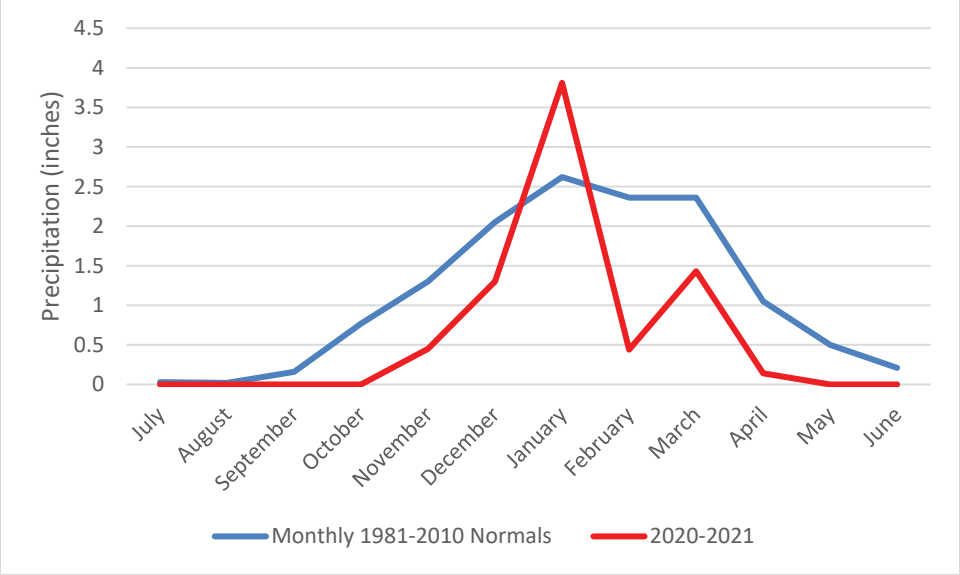
Only 7.57 inches of rain fell on the Ranch between July 2020 and June 2021 (PRISM Climate Group, 2021). This is 56% of the average annual precipitation, 13.43 inches (PRISM Climate Group, 2021). The US Drought Monitor currently rates the entire Great Valley as being in an Exceptional Drought, its most severe drought category (NDMC, USDA, and NOAA, 2021). Monthly precipitation data is displayed on **Figure 3**.

Table 1. Summary of Pool Performance

Pool ID	Max Observed Depth (inches)	Minimum Hydroperiod (days)[1]	Total Number CTS Larvae	CTS Recruitment
DT-01	24	76[2]	0	No
DT-02	12	76[2]	0	No
DT-03	28	90[2]	2	No
DT-04	28	104	28	Yes
DT-05	20	76[2]	0	No
DT-06	12	76[2]	0	No
DT-07	30	139	115	Yes
DT-08	24	104	45	Yes
DT-09	24	76[2]	0	No
DT-10	24	111	1	No
DT-11	24	104	22	Yes

[1]Based on assumed fill date of 1/29/2021, the largest storm of the season.
[2]Pool lacked CTS larvae, and so was not re-visited. Pool was actually inundated longer, but was never re-measured.

Figure 3. Monthly Precipitation



4.2 Hydrology and Water Quality

Table 2 presents the depths of each dirt tank on each occasion that it was monitored. Tanks DT-04, 07, 08, 10, and 11 all remained inundated through mid-May, with DT-07 remaining inundated beyond mid-June.

Table 2. Pool Depth Data

	Date							
	2/26/2021	4/15/2021	4/29/2021	5/6/2021	5/13/2021	5/20/2021	6/3/2021	6/17/2021
DT-01	24	15	n/s	n/s	n/s	n/s	n/s	n/s
DT-02	12	6	n/s	n/s	n/s	n/s	n/s	n/s
DT-03	28	24	9	n/s	n/s	0	0	0
DT-04	28	24	9	7	3	0	0	0
DT-05	20	8	n/s	n/s	n/s	n/s	n/s	n/s
DT-06	12	6	n/s	n/s	n/s	n/s	n/s	n/s
DT-07	30	30	30	30	30	30	26	19
DT-08	24	14	8	7	4	colloidal mud	0	0
DT-09	24	14	n/s	n/s	n/s	0	0	0
DT-10	24	22	n/s	n/s	n/s	11	n/s	n/s
DT-11	24	10	8	7	4	0	0	0

All dirt tanks except DT-09 had very turbid water (rating 4) during all CTS seining visits. DT-09 had water with low turbidity but significant tea-color during the April 15, 2021 visit (it was not re-visited due to lack of CTS). Some pools (notably DT-08) turned to a colloidal mud during their final dry-down.

Table 3 presents water temperatures for sampled dirt tanks. Water temperatures in all dirt tanks generally stayed in the mid-teens until the water levels fell to four inches or less, with a notable exception on June 3rd (air temperatures were approximately 39ºC/103ºF on June 2nd and June 3rd).

Table 3. Pool Temperature Data

	Date							
Pool ID	2/26/2021	4/15/2021	4/29/2021	5/6/2021	5/13/2021	5/20/2021	6/3/2021	6/17/2021
DT-01	n/s	14	n/s	n/s	n/s	n/s	n/s	n/s
DT-02	n/s	15	n/s	n/s	n/s	n/s	n/s	n/s
DT-03	n/s	13	n/s	n/s	n/s	dry	dry	dry
DT-04	n/s	13	16	17	17	dry	dry	dry
DT-05	n/s	15	n/s	n/s	n/s	n/s	n/s	n/s
DT-06	n/s	15	n/s	n/s	n/s	n/s	n/s	n/s
DT-07	n/s	13	16	16	17	13	25	18
DT-08	n/s	13	16	19	26	n/s	dry	dry
DT-09	n/s	15	n/s	n/s	n/s	n/s	n/s	n/s
DT-10	n/s	15	n/s	n/s	n/s	n/s	n/s	n/s
DT-11	n/s	15	16	19	26	dry	dry	dry

4.3 CTS Size, Stage, and Recruitment

The number of CTS larvae captured during each dipnet/seine survey at each pool is presented in **Table 4**. **Table 5** presents the minimum, mean, and maximum total length of the larvae in each pool during each dip-net/seine survey, in mm. **Table 6** presents the minimum, mean, and maximum SVL of the larvae in each pool during each dip-net/seine survey, in mm. **Table 7** presents the minimum, mean, and maximum developmental stage of the larvae in each pool during each dip-net/seine survey. The dead larvae netted in tanks 3 and 10 were not measured or assigned a stage.

It is important to note that for some tanks, the maximum or mean size and stage decrease from one visit to the next (e.g. DT-04 between May 6 and May 13). This is not an error and does not represent animals shrinking; this is an effect of the largest or most mature animals transforming and migrating out of the tank, leaving the smaller or less mature animals behind.

Table 4. Number of CTS Larvae

	Date						
Pool ID	4/15/2021	4/29/2021	5/6/2021	5/13/2021	5/20/2021	6/3/2021	6/17/2021
DT-01	0	n/s	n/s	n/s	n/s	n/s	n/s
DT-02	0	n/s	n/s	n/s	n/s	n/s	n/s
DT-03	2	2 dead	n/s	n/s	dry	dry	dry
DT-04	28	25	19	1	dry	dry	dry
DT-05	0	n/s	n/s	n/s	n/s	n/s	n/s
DT-06	0	n/s	n/s	n/s	n/s	n/s	n/s
DT-07	115	105	100	95	72	30	9
DT-08	45	32	15	4	0	dry	dry
DT-09	0	n/s	n/s	n/s	dry	dry	dry
DT-10	1 dead	n/s	n/s	n/s	0	n/s	n/s
DT-11	22	18	13	2	dry	dry	dry

Table 5. Total Length of CTS Larvae (Min-Mean-Max)

	Date						
Pool ID	4/15/2021	4/29/2021	5/6/2021	5/13/2021	5/20/2021	6/3/2021	6/17/2021
DT-01	n/a	n/s	n/s	n/s	n/s	n/s	n/s
DT-02	n/a	n/s	n/s	n/s	n/s	n/s	n/s
DT-03	50-50-50	n/s	n/s	n/s	dry	dry	dry
DT-04	50-60-80	60-75-85	62-80-85	75-75-75	dry	dry	dry
DT-05	n/a	n/s	n/s	n/s	n/s	n/s	n/s
DT-06	n/a	n/s	n/s	n/s	n/s	n/s	n/s
DT-07	45-70-80	46-88-105	55-90-115	55-100-112	59-100-110	60-102-105	75-95-102
DT-08	45-75-85	63-95-105	75-90-100	68-75-80	n/a	dry	dry
DT-09	n/a	n/s	n/s	n/s	dry	dry	dry
DT-10	n/a	n/s	n/s	n/s	n/a	n/s	n/s
DT-11	68-75-80	68-80-85	80-85-90	90-90-90	dry	dry	dry

Table 6. Snout-Vent Length of CTS Larvae (Min-Mean-Max)

	Date						
Pool ID	4/15/2021	4/29/2021	5/6/2021	5/13/2021	5/20/2021	6/3/2021	6/17/2021
DT-01	n/a	n/s	n/s	n/s	n/s	n/s	n/s
DT-02	n/a	n/s	n/s	n/s	n/s	n/s	n/s
DT-03	30-30-30	n/s	n/s	n/s	dry	dry	dry
DT-04	25-35-45	30-40-50	35-45-55	40-40-40	dry	dry	dry
DT-05	n/a	n/s	n/s	n/s	n/s	n/s	n/s
DT-06	n/a	n/s	n/s	n/s	n/s	n/s	n/s
DT-07	25-40-55	25-48-62	30-55-65	30-58-65	32-55-60	35-54-55	40-50.4-55
DT-08	25-40-45	33-50-55	40-55-60	42-48-52	n/a	dry	dry
DT-09	n/a	n/s	n/s	n/s	dry	dry	dry
DT-10	n/a	n/s	n/s	n/s	n/a	n/s	n/s
DT-11	37-40-45	37-45-48	38-40-50	55-55-55	dry	dry	dry

Table 7. Developmental Stage of CTS Larvae (Min-Mean-Max)

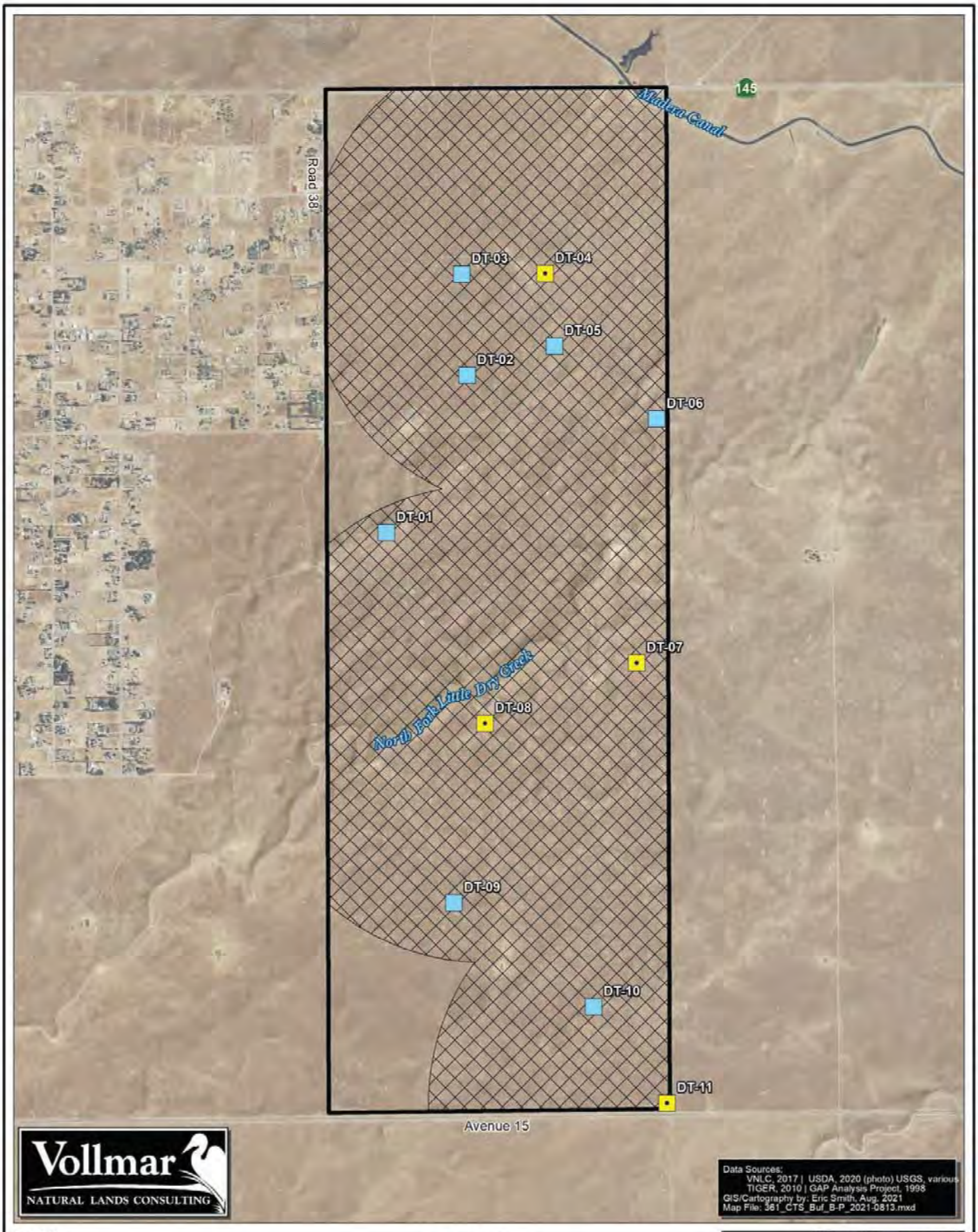
	Date						
Pool ID	4/15/2021	4/29/2021	5/6/2021	5/13/2021	5/20/2021	6/3/2021	6/17/2021
DT-01	n/a	n/s	n/s	n/s	n/s	n/s	n/s
DT-02	n/a	n/s	n/s	n/s	n/s	n/s	n/s
DT-03	3-3-3	n/s	n/s	n/s	dry	dry	dry
DT-04	3-4-4	4-4.75-6	5-6-6	5-5-5	dry	dry	dry
DT-05	n/a	n/s	n/s	n/s	n/s	n/s	n/s
DT-06	n/a	n/s	n/s	n/s	n/s	n/s	n/s
DT-07	3-4-4	3-4-4	4-4.5-5	5-6-6	5-6-6	5-6-6	5-5-6
DT-08	3-4.5-5	4-5-6	5-6-6	5-5.5-6	n/a	dry	dry
DT-09	n/a	n/s	n/s	n/s	dry	dry	dry
DT-10	n/a	n/s	n/s	n/s	n/a	n/s	n/s
DT-11	3-4.5-5	4-5-6	5-5.5-6	6-6-6	dry	dry	dry

4.4 CTS Upland Habitat

Figure 4 presents 0.7 mi buffers around tanks 4, 7, 8, and 11. The total area of the resultant polygon is 1,751.5 acres. The entire 1,907-acre property is within 1.3 mi of at least one of tanks 4, 7, 8, or 11.

4.5 Other Amphibians and Invertebrates

In general, the invertebrate and amphibian communities in the dirt tanks were depauperate (apparently due to predation by CTS larvae). Backswimmers (Notonectidae) and water boatmen (Corixidae) were the most commonly observed invertebrate taxa. Non-biting midges (Chironomidae) were also observed. Predaceous diving beetles (Dytiscidae) were observed only in dirt tanks without CTS larvae. No amphibians other than CTS were observed in any of the tanks.



Legend

- Successfull CTS Breeding in Dirt Tank, 2021
- Other Dirt Tank
- 0.7-mile Buffer from Successful CTS Breeding Pools, 2021 (1,751.5 ac.)
- Jamison Ranch (1,907 ac.)

FIGURE 4
CTS Upland Habitat Buffers

Jamison 145 Ranch
Madera County, California

N
W E
S

1:18,000
1 inch = 1,500 feet

0 200 400 800 Meters
0 750 1,500 3,000 Feet



5 DISCUSSION

CTS bred successfully in ponds distributed throughout the Ranch in 2021, and at least 1,751.5 acres of the Ranch should be considered high-quality CTS habitat suitable for compensatory mitigation. Prior surveys, conducted in 2017 and 2019, documented CTS breeding in numerous other natural vernal pools on the Ranch (**Figure 2**). These pools did not pond sufficiently in the current exceptional drought year to support CTS breeding. In average and above-average rain years, these pools do support successful CTS recruitment (VNLC 2017). CTS live up to a maximum of at least 11 years in the wild (Nafis, 2020), becoming sexually mature between 2-5 years (Cook et al. 2006), but the average CTS female breeds only once in its life (Cook et al. 2006). These are the hallmarks of a boom-and-bust reproductive cycle; we should not expect successful recruitment from a given pool in every year for it to be considered valuable habitat. The "average" vernal pools which support CTS breeding in above-average rain years likely increase the total numbers and resilience of the CTS population on a site, while abnormally long-lasting (often artificial) pools provide stability through droughts. Both should be considered a crucial part of habitat conservation for the species. We hope that mitigation purchasers and regulatory agencies will recognize the high value of sites with natural vernal pools, as well as the importance of protecting sites with proven CTS reproductive success.

6 REFERENCES

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Appendix A
Pond Photographs

Appendix A. Pond Photographs



Dirt Tank 03, April 29, 2021, Depth 9", CTS Present



Dirt Tank 03, May 20, 2021, Dry

Appendix A. Pond Photographs



Dirt Tank 04, April 29, 2021, Depth 9", CTS Present



Dirt Tank 04, May 13, 2021, Depth 3", CTS Present

Appendix A. Pond Photographs



Dirt Tank 04, May 20, 2021, Dry



Dirt Tank 07, April 29, 2021, Depth 30", CTS Present

Appendix A. Pond Photographs



Dirt Tank 07, May 13, 2021, Depth 30", CTS Present



Dirt Tank 07, May 20, 2021, Depth 30", CTS Present

Appendix A. Pond Photographs



Dirt Tank 07, June 03, 2021, Depth 26", CTS Present



Dirt Tank 07, June 17, 2021, Depth 19", CTS Present

Appendix A. Pond Photographs



Dirt Tank 08, April 15, 2021, Depth 14", CTS Present



Dirt Tank 08, April 29, 2021, Depth 8", CTS Present

Appendix A. Pond Photographs



Dirt Tank 08, May 13, 2021, Depth 4", CTS Present



Dirt Tank 08, May 20, 2021, Dried to colloidal mud, CTS Absent

Appendix A. Pond Photographs



Dirt Tank 9, April 15, 2021, Depth 14", CTS Absent



Dirt Tank 10, April 15, 2021, Depth 22", 1 dead CTS larva observed

Appendix A. Pond Photographs



Dirt Tank 10, May 20, 2021, Depth 11", CTS Absent



Dirt Tank 11, April 15, 2021, Depth 10", CTS Present

Appendix A. Pond Photographs



Dirt Tank 11, April 29, 2021, Depth 8", CTS Present



Dirt Tank 11, May 13, 2021, Depth 4", CTS Present

Appendix A. Pond Photographs



Dirt Tank 11, May 20, 2021, Dry

Appendix B
CTS Larvae Photographs

Appendix B. CTS Larvae Photographs



Stage 4 CTS Larva, Dirt Tank 04, April 29, 2021



CTS Larvae in mud, Dirt Tank 04, May 6, 2021

Appendix B. CTS Larvae Photographs



Stage 6 CTS Larva, Dirt Tank 04, May 6, 2021



Stage 5 CTS Larva, Dirt Tank 04, May 13, 2021

Appendix B. CTS Larvae Photographs



Mixed Stage 3 and 4 CTS Larva, Dirt Tank 07, April 29, 2021



Comparison of CTS Sizes, Dirt Tank 07, April 29, 2021

Appendix B. CTS Larvae Photographs



Large Stage 4 CTS Larva, Dirt Tank 07, May 6, 2021



Stage 6 CTS Larva, Dirt Tank 07, May 13, 2021

Appendix B. CTS Larvae Photographs



Large Stage 5 CTS Larva, Dirt Tank 07, May 13, 2021



Stage 6 CTS Larva, Dirt Tank 07, May 20, 2021

Appendix B. CTS Larvae Photographs



Stage 6 CTS Larva, Dirt Tank 07, May 20, 2021



Mixed Stage 5 and 6 CTS Larva, Dirt Tank 07, May 20, 2021

Appendix B. CTS Larvae Photographs



Mixed Stage 5 and 6 CTS Larva, Dirt Tank 07, June 3, 2021



Stage 6 CTS Larva, Dirt Tank 07, June 17, 2021

Appendix B. CTS Larvae Photographs



Stage 5 CTS Larva, Dirt Tank 07, June 17, 2021



Stage 5 CTS Larva, Dirt Tank 08, April 29, 2021

Appendix B. CTS Larvae Photographs



Stage 6 CTS Larva, Dirt Tank 08, May 6, 2021



Stage 4 CTS Larva, Dirt Tank 11, April 29, 2021

Appendix B. CTS Larvae Photographs



Multiple Stage 4 CTS Larva, Dirt Tank 11, April 29, 2021



Stage 5 CTS Larva, Dirt Tank 11, May 6, 2021

Appendix B. CTS Larvae Photographs



Stage 6 CTS Larva, Dirt Tank 11, May 13, 2021



Stage 6 CTS Larva, side view Dirt Tank 11, May 13, 2021

Attachment 4
Preliminary Title Report

Chicago Title Company

2540 West Shaw Lane, #112, , Fresno, CA 93711
Phone: (559) 492-4251 ● Fax:

Issuing Policies of Chicago Title Insurance Company

Order No.: 45000420-450-SCF-MW1

TO:

Ewell Group of Companies
735 W. Alluvial Ave Suite 103
Fresno, CA 93711

ATTN: .**A. Ben Ewell Jr.**
YOUR REFERENCE:

PROPERTY ADDRESS: , , CA

Title Officer: Marc Wisneski

Escrow Officer: Suzanne Ford
7330 N. Palm Avenue, Suite 101
Fresno, CA 93711
(559) 451-3700
(559) 431-8936

PRELIMINARY REPORT

In response to the application for a policy of title insurance referenced herein, ***Chicago Title Company*** *hereby reports that it is prepared to issue, or cause to be issued, as of the date hereof, a policy or policies of title insurance describing the land and the estate or interest therein hereinafter set forth, insuring against loss which may be sustained by reason of any defect, lien or encumbrance not shown or referred to as an exception herein or not excluded from coverage pursuant to the printed Schedules, Conditions and Stipulations or Conditions of said policy forms.*

The printed Exceptions and Exclusions from the coverage and Limitations on Covered Risks of said policy or policies are set forth in Attachment One. The policy to be issued may contain an arbitration clause. When the Amount of Insurance is less than that set forth in the arbitration clause, all arbitrable matters shall be arbitrated at the option of either the Company or the Insured as the exclusive remedy of the parties. Limitations on Covered Risks applicable to the CLTA and ALTA Homeowner's Policies of Title Insurance which establish a Deductible Amount and a Maximum Dollar Limit of Liability for certain coverages are also set forth in Attachment One. Copies of the policy forms should be read. They are available from the office which issued this report.

This report (and any supplements or amendments hereto) is issued solely for the purpose of facilitating the issuance of a policy of title insurance and no liability is assumed hereby. If it is desired that liability be assumed prior to the issuance of a policy of title insurance, a Binder or Commitment should be requested.

The policy(s) of title insurance to be issued hereunder will be policy(s) of Chicago Title Insurance Company, a Nebraska Corporation.

Please read the exceptions shown or referred to herein and the exceptions and exclusions set forth in Attachment One of this report carefully. The exceptions and exclusions are meant to provide you with notice of matters which are not covered under the terms of the title insurance policy and should be carefully considered.

It is important to note that this preliminary report is not a written representation as to the condition of title and may not list all liens, defects and encumbrances affecting title to the land.

Chicago Title Company

By: Mark W. Barsotti
Authorized Signature

By:
Randy Quirk, President
Attest:
Michael Gravelle, Secretary

2540 West Shaw Lane, #112, , Fresno, CA 93711
Phone: (559) 492-4251 ● Fax:

PRELIMINARY REPORT

EFFECTIVE DATE: **February 10, 2017 at 7:30 a.m.**

ORDER NO.: 45000420-450-SCF-MW1

The form of policy or policies of title insurance contemplated by this report is:

CLTA Standard Coverage Policy (4-8-14)

1. THE ESTATE OR INTEREST IN THE LAND HEREINAFTER DESCRIBED OR REFERRED TO COVERED BY THIS REPORT IS:

   Fee Estate

2. TITLE TO SAID ESTATE OR INTEREST AT THE DATE HEREOF IS VESTED IN:

   William O. Jamison and Cinda L. Jamison, Co-Trustees of The Jamison Family Community Property Trust established by The Jamison Family Trust dated May 17, 2013, as to an undivided ½ interest; and

   Elizabeth A. Cardoza, a married woman as her sole and separate property, as to an undivided ½ interest

3. THE LAND REFERRED TO IN THIS REPORT IS DESCRIBED AS FOLLOWS:

   See Exhibit A attached hereto and made a part hereof.

EXHIBIT A

LEGAL DESCRIPTION

THE LAND REFERRED TO HEREIN BELOW IS SITUATED IN THE COUNTY OF MADERA, STATE OF CALIFORNIA, AND IS DESCRIBED AS FOLLOWS:

Parcel 1:

All of Section 13, Township 11 South, Range 19 East, Mount Diablo Base and Meridian, in the County of Madera, State of California, according to the Official Plat thereof.

APN: 051-230-010

Parcel 2:

All of Sections 1 and 12, Township 11 South, Range 19 East, Mount Diablo Base and Meridian, in the County of Madera, State of California, according to the Official Plat thereof..

EXCEPTING THEREFROM that portion thereof described as follows:

Beginning at the Northeast corner of said Section 1, said corner being Engineer's Station 238 plus 72 33 of the Department of Public Works' Survey between 3 miles East and 13 miles East of Madera, Road VI-MAD-126-C; thence, South 40.00 feet along the East line of said Section 1; thence South 89° 45' 30" West 4972.06 feet; thence South 84° 02' 50" West 100.50 feet; thence South 89° 45' 30" West 1500.00 feet; thence North 84° 31' 50" West 100.50 feet; thence South 89° 45' 30" West 89.18 feet; thence South 89° 59' West 2700.69 feet; thence along a curve to the right concentric with and distant 40 feet Southerly measured radially from the center line of said survey, with a radius of 10,040 feet, through an angle of 2° 00' a distance of 350.46 feet; thence North 88° 01' West 412.54 feet; thence along a curve to the left, concentric with and distant 40 foot Southerly, measured radially from the center line of said survey, with a radius of 9960 feet, through an angle of 2° 17' a distance of 396.92 feet; thence South 89° 42' West 4403.06 feet to the West line of said Section 3; thence North 13.57 feet, along said West line to the Northwest corner of said Section 3; thence North 89° 47' 50" East 15,842.49 feet, along the North line of said Sections 3, 2 and 1, to the point of beginning.

ALSO EXCEPTING FROM SECTION, THE FOLLOWING:

Beginning at the Northeast corner of said Section 1 and running thence along the East boundary of said Section 1, South 0° 14' West 466.4 feet; thence North 64° 35' West 573.5 feet; thence North 37° 42' West 276.7 feet to a point on the North boundary of said Section 1, distant along said North boundary South 89° 54' West 689.0 feet from the Northeast corner of said Section 1; thence along said North boundary North 89° 54' East 689.0 feet to the point of beginning.

AND FURTHER EXCEPTING THEREFROM that portion granted to the County of Madera by Grant Deed recorded November 8, 1967 in Book 997, Page 494, Instrument No. 13465, Official Records

APN: **051-230-003, 051-230-010, 051-230-005**

EXCEPTIONS

AT THE DATE HEREOF, ITEMS TO BE CONSIDERED AND EXCEPTIONS TO COVERAGE IN ADDITION TO THE PRINTED EXCEPTIONS AND EXCLUSIONS IN SAID POLICY FORM WOULD BE AS FOLLOWS:

1. Property taxes, which are a lien not yet due and payable, including any assessments collected with taxes to be levied for the fiscal year 2017-2018.

2. Property taxes, including any personal property taxes and any assessments collected with taxes are as follows:

Code Area:	065-019
Tax Identification No.:	051-230-010, as to Parcel 1
Fiscal Year:	2016-2017
1st Installment:	$6,174.05, PAID
2nd Installment:	$6,174.05, OPEN
Exemption:	$0.00
Land:	$1,064,018.00
Improvements:	$0.00
Personal Property:	$0.00

   Property taxes, including any personal property taxes and any assessments collected with taxes are as follows:

Code Area:	065-019
Tax Identification No.:	051-230-003, as to portion Parcel 2
Fiscal Year:	2016-2017
1st Installment:	$6,118.65, PAID
2nd Installment:	$6,118.65, OPEN
Exemption:	$0.00
Land:	$1,054,473.00
Improvements:	$0.00
Personal Property:	$0.00

   Property taxes, including any personal property taxes and any assessments collected with taxes are as follows:

Code Area:	065-019
Tax Identification No.:	051-230-005, as to portion Parcel 2
Fiscal Year:	2016-2017
1st Installment:	$6,209.27, PAID
2nd Installment:	$6,209.27, OPEN
Exemption:	$0.00
Land:	$1,070,089.00
Improvements:	$0.00
Personal Property:	$0.00

   Prior to close of escrow, please contact the Tax Collector's Office to confirm all amounts owing, including current fiscal year taxes, supplemental taxes, escaped assessments and any delinquencies.

EXCEPTIONS
(Continued)

3. Easement(s) for the purpose(s) shown below and rights incidental thereto as reserved in a document;

Purpose:	rights of way for all presently existing roads, telephone, telegraph and electric power and pipe lines, sewers, drainage ditches, canals and other reclamation and irrigation works and the easement to maintain, operate and repair the same
Recording Date:	February 1, 1934
Recording No:	Book 156, Page 469, Official Records
Affects:	Parcel 1 as set forth in said document

4. An oil and gas lease for the term therein provided with certain covenants, conditions and provisions, together with easements, if any, as set forth therein.

Dated:	January 15, 1951
Lessor:	Robert F. Smith an Kenneth J. Smith
Lessee:	Howard H. Bell
Recording Date:	October 11, 1951
Recording No:	Book 534, Page 153, Official Records

No insurance is made as to the present ownership of the leasehold created by said lease, nor as to other matters affecting the rights or interests of the lessor or lessee in said lease.

Affects: portion of Parcel 1

5. Covenants and restrictions imposed by a Land Conservation Contract executed pursuant to Section 51200 et seq. California Government Code (Williamson Act) authorizing the establishment of agricultural preserves. The use of the land within the preserve may be restricted by the contract to agricultural, recreational, open-space, and other approved compatible uses.

Dated:	February 11, 1969
Executed by:	Kenneth J. Smith and Robert F. Smith and the County of Madera
Recording Date:	February 20, 1969
Recording No:	2179, in Book 1030, Page 219, Official Records

Affects: said land and other land

Said contract is subject to the following:

The effect of a document captioned “Notice of Nonrenewal of Land Conservation Contract:

Recorded: October 30, 1995, Instrument No. 9528135, Official Records

Affects: as set forth in said document

By Notice of Non-Renewal recorded August 10, 2006, Instrument No. 2006-035042, Official Records, the above referenced contract is not to be renewed. Said notice recorded August 10, 2006, Instrument No. 2006-035042, Official Records.

No date was offered of record as to the expiration of said contract.

EXCEPTIONS
(Continued)

6. A deed of trust to secure an indebtedness in the amount shown below,

Amount:	$2,500,000.00; $5,200,000.00
Dated:	December 22, 2016
Trustor/Grantor	William O. Jamison and Cinda L. Jamison, husband and wife, as co-Trustees of the Jamison Family Community Property Trust established by the Jamison Family Trust dated May 17, 2013 and Elizabeth A. Cardoza, a married woman as her sole and separate property
Trustee:	Fidelity National Title Company
Beneficiary:	The Prudential Insurance Company of America, a New Jersey corporation
Recording Date:	January 5, 2017
Recording No:	2017000557, Official Records
Affects:	The herein described Land and other land.

7. Any right, interest or claim that may exist, arise or be asserted against the Title under or pursuant to the Perishable Agricultural Commodities Act of 1930, as amended, 7 USC 499a et seq., the Packers and Stockyard Act of 1921, as amended, 7 USC 181 et seq., or any similar state laws.

8. The transaction contemplated in connection with this Report is subject to the review and approval of the Company's Corporate Underwriting Department. The Company reserves the right to add additional items or make further requirements after such review.

PLEASE REFER TO THE "INFORMATIONAL NOTES" AND "REQUIREMENTS" SECTIONS WHICH FOLLOW FOR INFORMATION NECESSARY TO COMPLETE THIS TRANSACTION.

END OF EXCEPTIONS

REQUIREMENTS SECTION

1. Any invalidity or defect in the title of the vestees in the event that the trust referred to herein is invalid or fails to grant sufficient powers to the trustee(s) or in the event there is a lack of compliance with the terms and provisions of the trust instrument.

   If title is to be insured in the trustee(s) of a trust, (or if their act is to be insured), this Company will require a Trust Certification pursuant to California Probate Code Section 18100.5.

   The Company reserves the right to add additional items or make further requirements after review of the requested documentation.

END OF REQUIREMENTS

INFORMATIONAL NOTES SECTION

1. If a county recorder, title insurance company, escrow company, real estate broker, real estate agent or association provides a copy of a declaration, governing document or deed to any person, California law requires that the document provided shall include a statement regarding any unlawful restrictions. Said statement is to be in at least 14-point bold face type and may be stamped on the first page of any document provided or included as a cover page attached to the requested document. Should a party to this transaction request a copy of any document reported herein that fits this category, the statement is to be included in the manner described.

2. Any documents being executed in conjunction with this transaction must be signed in the presence of an authorized Company employee, an authorized employee of an agent, an authorized employee of the insured lender, or by using Bancserv or other approved third-party service. If the above requirement cannot be met, please call the Company at the number provided in this report.

3. Your application for title insurance was placed by reference to only a street address or tax identification number. Based on our records, we believe that the legal description in this report covers the parcel(s) of Land that you requested. If the legal description is incorrect, the seller/borrower must notify the Company and/or the settlement company in order to prevent errors and to be certain that the correct parcel(s) of Land will appear on any documents to be recorded in connection with this transaction and on the policy of title insurance.

4. Note: The name(s) of the proposed insured(s) furnished with this application for title insurance is/are:

   No names were furnished with the application. Please provide the name(s) of the buyers as soon as possible.

5. Note: The only conveyance(s) affecting said Land, which recorded within 24 months of the date of this report, are as follows:

Grantor:	5 S Ranches, Inc., a California corporation
Grantee:	William O. Jamison and Cinda L. Jamison, Co-Trustees of the Jamison Family Community Property Trust established by the Jamison Family Trust dated May 17, 2013, as to an undivided ½ interest and Elizabeth A. Cardoza, a married woman as her sole and separate property, as to an undivided ½ interest
Recording Date:	January 5, 2017
Recording No:	2017000555, Official Records

Grantor:	Gary E. Cardoza, husband of the grantee herein
Grantee:	Elizabeth A. Cardoza, a married woman as her sole and separate property
Recording Date:	January 5, 2017
Recording No:	2017000556, Official Records

6. Note: The charge for a policy of title insurance, when issued through this application for title insurance, will be based on the Short Term Rate.

END OF INFORMATIONAL NOTES

Marc Wisneski/dv

FIDELITY NATIONAL FINANCIAL
PRIVACY NOTICE

At Fidelity National Financial, Inc. and its majority-owned subsidiary companies (collectively, "FNF", "our" or "we"), we value the privacy of our customers. This Privacy Notice explains how we collect, use, and protect your information and explains the choices you have regarding that information. A summary of our privacy practices is below. We also encourage you to read the complete Privacy Notice following the summary.

Types of Information Collected. You may provide us with certain personal information, like your contact information, social security number (SSN), driver's license, other government ID numbers, and/or financial information. We may also receive information from your Internet browser, computer and/or mobile device.	**How Information is Collected**. We may collect personal information directly from you from applications, forms, or communications we receive from you, or from other sources on your behalf, in connection with our provision of products or services to you. We may also collect browsing information from your Internet browser, computer, mobile device or similar equipment. This browsing information is generic and reveals nothing personal about the user.
Use of Your Information. We may use your information to provide products and services to you (or someone on your behalf), to improve our products and services, and to communicate with you about our products and services. We do not give or sell your personal information to parties outside of FNF for their use to market their products or services to you.	**Security Of Your Information**. We utilize a combination of security technologies, procedures and safeguards to help protect your information from unauthorized access, use and/or disclosure. We communicate to our employees about the need to protect personal information.
Choices With Your Information. Your decision to submit personal information is entirely up to you. You can opt-out of certain disclosures or use of your information or choose to not provide any personal information to us.	**When We Share Information**. We may disclose your information to third parties providing you products and services on our behalf, law enforcement agencies or governmental authorities, as required by law, and to parties with whom you authorize us to share your information.
Information From Children. We do not knowingly collect information from children under the age of 13, and our websites are not intended to attract children.	**Privacy Outside the Website**. We are not responsible for the privacy practices of third parties, even if our website links to those parties' websites.
Access and Correction. If you desire to see the information collected about you and/or correct any inaccuracies, please contact us in the manner specified in this Privacy Notice.	**Do Not Track Disclosures**. We do not recognize "do not track" requests from Internet browsers and similar devices.
The California Online Privacy Protection Act. Certain FNF websites collect information on behalf of mortgage loan servicers. The mortgage loan servicer is responsible for taking action or making changes to any consumer information submitted through those websites.	**International Use**. By providing us with your information, you consent to the transfer, processing and storage of such information outside your country of residence, as well as the fact that we will handle such information consistent with this Privacy Notice.
Your Consent To This Privacy Notice. By submitting information to us and using our websites, you are accepting and agreeing to the terms of this Privacy Notice.	**Contact FNF**. If you have questions or wish to contact us regarding this Privacy Notice, please use the contact information provided at the end of this Privacy Notice.

FIDELITY NATIONAL FINANCIAL, INC.
PRIVACY NOTICE

FNF respects and is committed to protecting your privacy. We pledge to take reasonable steps to protect your Personal Information (as defined herein) and to ensure your information is used in compliance with this Privacy Notice.

This Privacy Notice is only in effect for information collected and/or owned by or on behalf of FNF, including collection through any FNF website or online services offered by FNF (collectively, the "Website"), as well as any information collected offline (e.g., paper documents). The provision of this Privacy Notice to you does not create any express or implied relationship, nor create any express or implied duty or other obligation, between FNF and you.

Types of Information Collected
We may collect two types of information: Personal Information and Browsing Information.

Personal Information. The types of personal information FNF collects may include, but are not limited to:

- contact information (*e.g.*, name, address, phone number, email address);
- social security number (SSN), driver's license, and other government ID numbers; and
- financial account or loan information.

Browsing Information. The types of browsing information FNF collects may include, but are not limited to:

- Internet Protocol (or IP) address or device ID/UDID, protocol and sequence information;
- browser language;
- browser type;
- domain name system requests;
- browsing history;
- number of clicks;
- hypertext transfer protocol headers; and
- application client and server banners.

How Information is Collected
In the course of our business, we may collect *Personal Information* about you from the following sources:

- applications or other forms we receive from you or your authorized representative, whether electronic or paper;
- communications to us from you or others;
- information about your transactions with, or services performed by, us, our affiliates or others; and
- information from consumer or other reporting agencies and public records that we either obtain directly from those entities, or from our affiliates or others.

We may collect *Browsing Information* from you as follows:

- Browser Log Files. Our servers automatically log, collect and record certain Browsing Information about each visitor to the Website. The Browsing Information includes only generic information and reveals nothing personal about the user.
- • Cookies. From time to time, FNF may send a "cookie" to your computer when you visit the Website. A cookie is a small piece of data that is sent to your Internet browser from a web server and stored on your computer's hard drive. When you visit the Website again, the cookie allows the Website to recognize your computer, with the goal of providing an optimized user experience. Cookies may store user preferences and other information. You can choose not to accept cookies by changing the settings of your Internet browser. If you choose not to accept cookies, then some functions of the Website may not work as intended.

Use of Collected Information
Information collected by FNF is used for three main purposes:

- To provide products and services to you, or to one or more third party service providers who are performing services on your behalf or in connection with a transaction involving you;
- To improve our products and services; and
- To communicate with you and to inform you about FNF's products and services.

When We Share Information
We may share your Personal Information (excluding information we receive from consumer or other credit reporting agencies) and Browsing Information with certain individuals and companies, as permitted by law, without first obtaining your authorization. Such disclosures may include, without limitation, the following:

- to agents, representatives, or others to provide you with services or products you have requested, and to enable us to detect or prevent criminal activity, fraud, or material misrepresentation or nondisclosure;
- to third-party contractors or service providers who provide services or perform other functions on our behalf;
- to law enforcement or other governmental authority in connection with an investigation, or civil or criminal subpoenas or court orders; and/or
- to other parties authorized to receive the information in connection with services provided to you or a transaction involving you.

We may disclose Personal Information and/or Browsing Information when required by law or in the good-faith belief that such disclosure is necessary to:

- comply with a legal process or applicable laws;
- enforce this Privacy Notice;
- investigate or respond to claims that any information provided by you violates the rights of a third party; or
- protect the rights, property or personal safety of FNF, its users or the public.

We make efforts to ensure third party contractors and service providers who provide services or perform functions on our behalf protect your information. We limit use of your information to the purposes for which the information was provided. We do not give or sell your information to third parties for their own direct marketing use.

We reserve the right to transfer your Personal Information, Browsing Information, as well as any other information, in connection with the sale or other disposition of all or part of the FNF business and/or assets, or in the event of our bankruptcy, reorganization, insolvency, receivership or an assignment for the benefit of creditors. You expressly agree and consent to the use and/or transfer of this information in connection with any of the above-described

proceedings. We cannot and will not be responsible for any breach of security by any third party or for any actions of any third party that receives any of the information that is disclosed to us.

Choices With Your Information
Whether you submit your information to FNF is entirely up to you. If you decide not to submit your information, FNF may not be able to provide certain products or services to you. You may choose to prevent FNF from using your information under certain circumstances ("opt out"). You may opt out of receiving communications from us about our products and/or services.

Security And Retention Of Information
FNF is committed to protecting the information you share with us and utilizes a combination of security technologies, procedures and safeguards to help protect it from unauthorized access, use and/or disclosure. FNF trains its employees on privacy practices and on FNF's privacy and information security policies. FNF works hard to retain information related to you only as long as reasonably necessary for business and/or legal purposes.

Information From Children
The Website is meant for adults. The Website is not intended or designed to attract children under the age of thirteen (13). We do not collect Personal Information from any person that we know to be under the age of thirteen (13) without permission from a parent or guardian.

Privacy Outside the Website
The Website may contain links to other websites, including links to websites of third party service providers. FNF is not and cannot be responsible for the privacy practices or the content of any of those other websites.

International Users
Because FNF's headquarters is located in the United States, we may transfer your Personal Information and/or Browsing Information to the United States. By using our website and providing us with your Personal Information and/or Browsing Information, you understand and consent to the transfer, processing and storage of such information outside your country of residence, as well as the fact that we will handle such information consistent with this Privacy Notice.

Do Not Track Disclosures
Currently, our policy is that we do not recognize "do not track" requests from Internet browsers and similar devices.

The California Online Privacy Protection Act
For some websites which FNF or one of its companies owns, such as the Customer CareNet ("CCN"), FNF is acting as a third party service provider to a mortgage loan servicer. In those instances, we may collect certain information on behalf of that mortgage loan servicer, including:

- first and last name;
- property address;
- user name and password;
- loan number;
- social security number - masked upon entry;
- email address;
- security questions and answers; and
- IP address.

The information you submit is then transferred to your mortgage loan servicer by way of CCN. **The mortgage loan servicer is responsible for taking action or making changes to any consumer information submitted through this website. For example, if you believe that your payment or user information is incorrect, you must contact your mortgage loan servicer.**

CCN does not share consumer information with third parties, other than those with which the mortgage loan servicer has contracted to interface with the CCN application. All sections of this Privacy Notice apply to your interaction with CCN, except for the sections titled Choices with Your Information, and Access and Correction. If you have questions regarding the choices you have with regard to your personal information or how to access or correct your personal information, contact your mortgage loan servicer.

Access and Correction
To access your Personal Information in the possession of FNF and correct any inaccuracies, please contact us by email at privacy@fnf.com or by mail at:

Fidelity National Financial, Inc.
601 Riverside Avenue
Jacksonville, Florida 32204
Attn: Chief Privacy Officer

Your Consent To This Privacy Notice
By submitting Personal Information and/or Browsing Information to FNF, you consent to the collection and use of information by FNF in compliance with this Privacy Notice. We reserve the right to make changes to this Privacy Notice. If we change this Privacy Notice, we will post the revised version on the Website.

Contact FNF
Please send questions and/or comments related to this Privacy Notice by email at privacy@fnf.com or by mail at:

Fidelity National Financial, Inc.
601 Riverside Avenue
Jacksonville, Florida 32204
Attn: Chief Privacy Officer

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Notice of Available Discounts

Pursuant to Section 2355.3 in Title 10 of the California Code of Regulations Fidelity National Financial, Inc. and its subsidiaries ("FNF") must deliver a notice of each discount available under our current rate filing along with the delivery of escrow instructions, a preliminary report or commitment. Please be aware that the provision of this notice does not constitute a waiver of the consumer's right to be charged the field rate. As such, your transaction may not qualify for the below discounts.

You are encouraged to discuss the applicability of one or more of the below discounts with a Company representative. These discounts are generally described below; consult the rate manual for a full description of the terms, conditions and requirements for each discount. These discounts only apply to transaction involving services rendered by the FNF Family of Companies. This notice only applies to transactions involving property improved with a one-to-four family residential dwelling.

FNF Underwritten Title Company
FNTC - Chicago Title Company
FNTCCA –Fidelity National Title Company of California

FNF Underwriter
CTIC - Chicago Title Insurance Company

Available Discounts

CREDIT FOR PRELIMINARY REPORTS AND/OR COMMITMENTS ON SUBSEQUENT POLICIES (CTIC)
Where no major change in the title has occurred since the issuance of the original report or commitment, the order may be reopened within 12 or 36 months and all or a portion of the charge previously paid for the report or commitment may be credited on a subsequent policy charge.

DISASTER LOANS (CTIC)
The charge for a lender's Policy (Standard or Extended coverage) covering the financing or refinancing by an owner of record, within 24 months of the date of a declaration of a disaster area by the government of the United States or the State of California on any land located in said area, which was partially or totally destroyed in the disaster, will be 50% of the appropriate title insurance rate.

CHURCHES OR CHARITABLE NON-PROFIT ORGANIZATIONS (CTIC)
On properties used as a church or for charitable purposes within the scope of the normal activities of such entities, provided said charge is normally the church's obligation the charge for an owner's policy shall be 50% to 70% of the appropriate title insurance rate, depending on the type of coverage selected. The charge for a lender's policy shall be 40% to 50% of the appropriate title insurance rate, depending on the type of coverage selected.

ATTACHMENT ONE

CALIFORNIA LAND TITLE ASSOCIATION
STANDARD COVERAGE POLICY – 1990

EXCLUSIONS FROM COVERAGE

The following matters are expressly excluded from the coverage of this policy and the Company will not pay loss or damage, costs, attorneys' fees or expenses which arise by reason of:

1. (a) Any law, ordinance or governmental regulation (including but not limited to building or zoning laws, ordinances, or regulations) restricting, regulating, prohibiting or relating (i) the occupancy, use, or enjoyment of the land; (ii) the character, dimensions or location of any improvement now or hereafter erected on the land; (iii) a separation in ownership or a change in the dimensions or area of the land or any parcel of which the land is or was a part; or (iv) environmental protection, or the effect of any violation of these laws, ordinances or governmental regulations, except to the extent that a notice of the enforcement thereof or a notice of a defect, lien, or encumbrance resulting from a violation or alleged violation affecting the land has been recorded in the public records at Date of Policy.
   (b) Any governmental police power not excluded by (a) above, except to the extent that a notice of the exercise thereof or notice of a defect, lien or encumbrance resulting from a violation or alleged violation affecting the land has been recorded in the public records at Date of Policy.
2. Rights of eminent domain unless notice of the exercise thereof has been recorded in the public records at Date of Policy, but not excluding from coverage any taking which has occurred prior to Date of Policy which would be binding on the rights of a purchaser for value without knowledge.
3. Defects, liens, encumbrances, adverse claims or other matters:
   (a) whether or not recorded in the public records at Date of Policy, but created, suffered, assumed or agreed to by the insured claimant;
   (b) not known to the Company, not recorded in the public records at Date of Policy, but known to the insured claimant and not disclosed in writing to the Company by the insured claimant prior to the date the insured claimant became an insured under this policy;
   (c) resulting in no loss or damage to the insured claimant;
   (d) attaching or created subsequent to Date of Policy; or
   (e) resulting in loss or damage which would not have been sustained if the insured claimant had paid value for the insured mortgage or for the estate or interest insured by this policy.
4. Unenforceability of the lien of the insured mortgage because of the inability or failure of the insured at Date of Policy, or the inability or failure of any subsequent owner of the indebtedness, to comply with the applicable doing business laws of the state in which the land is situated.
5. Invalidity or unenforceability of the lien of the insured mortgage, or claim thereof, which arises out of the transaction evidenced by the insured mortgage and is based upon usury or any consumer credit protection or truth in lending law.
6. Any claim, which arises out of the transaction vesting in the insured the estate of interest insured by this policy or the transaction creating the interest of the insured lender, by reason of the operation of federal bankruptcy, state insolvency or similar creditors' rights laws.

EXCEPTIONS FROM COVERAGE - SCHEDULE B, PART I

This policy does not insure against loss or damage (and the Company will not pay costs, attorneys' fees or expenses) which arise by reason of:

1. Taxes or assessments which are not shown as existing liens by the records of any taxing authority that levies taxes or assessments on real property or by the public records.
   Proceedings by a public agency which may result in taxes or assessments, or notices of such proceedings, whether or not shown by the records of such agency or by the public records.
2. Any facts, rights, interests, or claims which are not shown by the public records but which could be ascertained by an inspection of the land or which may be asserted by persons in possession thereof.
3. Easements, liens or encumbrances, or claims thereof, not shown by the public records.
4. Discrepancies, conflicts in boundary lines, shortage in area, encroachments, or any other facts which a correct survey would disclose, and which are not shown by the public records.
5. (a) Unpatented mining claims; (b) reservations or exceptions in patents or in Acts authorizing the issuance thereof; (c) water rights, claims or title to water, whether or not the matters excepted under (a), (b) or (c) are shown by the public records.
6. Any lien or right to a lien for services, labor or material not shown by the public records.

CLTA HOMEOWNER'S POLICY OF TITLE INSURANCE (12-02-13)
ALTA HOMEOWNER'S POLICY OF TITLE INSURANCE

EXCLUSIONS

In addition to the Exceptions in Schedule B, You are not insured against loss, costs, attorneys' fees, and expenses resulting from:

1. Governmental police power, and the existence or violation of those portions of any law or government regulation concerning:
   a. building;
   b. zoning;
   c. land use;
   d. improvements on the Land;
   e. land division; and

f. environmental protection.

This Exclusion does not limit the coverage described in Covered Risk 8.a., 14, 15, 16, 18, 19, 20, 23 or 27.

2. The failure of Your existing structures, or any part of them, to be constructed in accordance with applicable building codes. This Exclusion does not limit the coverage described in Covered Risk 14 or 15.
3. The right to take the Land by condemning it. This Exclusion does not limit the coverage described in Covered Risk 17.
4. Risks:
   a. that are created, allowed, or agreed to by You, whether or not they are recorded in the Public Records;
   b. that are Known to You at the Policy Date, but not to Us, unless they are recorded in the Public Records at the Policy Date;
   c. that result in no loss to You; or
   d. that first occur after the Policy Date - this does not limit the coverage described in Covered Risk 7, 8.e., 25, 26, 27 or 28.
5. Failure to pay value for Your Title.
6. Lack of a right:
   a. to any land outside the area specifically described and referred to in paragraph 3 of Schedule A; and
   b. in streets, alleys, or waterways that touch the Land.

   This Exclusion does not limit the coverage described in Covered Risk 11 or 21.
7. The transfer of the Title to You is invalid as a preferential transfer or as a fraudulent transfer or conveyance under federal bankruptcy, state insolvency, or similar creditors' rights laws.
8. Contamination, explosion, fire, flooding, vibration, fracturing, earthquake, or subsidence.
9. Negligence by a person or an Entity exercising a right to extract or develop minerals, water, or any other substances.

LIMITATIONS ON COVERED RISKS

Your insurance for the following Covered Risks is limited on the Owner's Coverage Statement as follows:

- For Covered Risk 16, 18, 19, and 21 Your Deductible Amount and Our Maximum Dollar Limit of Liability shown in Schedule A.

The deductible amounts and maximum dollar limits shown on Schedule A are as follows:

	Your Deductible Amount	Our Maximum Dollar Limit of Liability
Covered Risk 16:	1.00% % of Policy Amount Shown in Schedule A or $2,500.00 (whichever is less)	$ 10,000.00
Covered Risk 18:	1.00% % of Policy Amount Shown in Schedule A or $5,000.00 (whichever is less)	$ 25,000.00
Covered Risk 19:	1.00% of Policy Amount Shown in Schedule A or $5,000.00 (whichever is less)	$ 25,000.00
Covered Risk 21:	1.00% of Policy Amount Shown in Schedule A or $2,500.00 (whichever is less)	$ 5,000.00

2006 ALTA LOAN POLICY (06-17-06)

EXCLUSIONS FROM COVERAGE

The following matters are expressly excluded from the coverage of this policy, and the Company will not pay loss or damage, costs, attorneys' fees, or expenses that arise by reason of:

1. (a) Any law, ordinance, permit, or governmental regulation (including those relating to building and zoning) restricting, regulating, prohibiting, or relating to
   (i) the occupancy, use, or enjoyment of the Land;
   (ii) the character, dimensions, or location of any improvement erected on the Land;
   (iii) the subdivision of land; or
   (iv) environmental protection;

   or the effect of any violation of these laws, ordinances, or governmental regulations. This Exclusion 1(a) does not modify or limit the coverage provided under Covered Risk 5.
   (b) Any governmental police power. This Exclusion 1(b) does not modify or limit the coverage provided under Covered Risk 6.
2. Rights of eminent domain. This Exclusion does not modify or limit the coverage provided under Covered Risk 7 or 8.
3. Defects, liens, encumbrances, adverse claims, or other matters
   (a) created, suffered, assumed, or agreed to by the Insured Claimant;
   (b) not Known to the Company, not recorded in the Public Records at Date of Policy, but Known to the Insured Claimant and not disclosed in writing to the Company by the Insured Claimant prior to the date the Insured Claimant became an Insured under this policy;
   (c) resulting in no loss or damage to the Insured Claimant;
   (d) attaching or created subsequent to Date of Policy (however, this does not modify or limit the coverage provided under Covered Risk 11, 13 or 14); or
   (e) resulting in loss or damage that would not have been sustained if the Insured Claimant had paid value for the Insured Mortgage.
4. Unenforceability of the lien of the Insured Mortgage because of the inability or failure of an Insured to comply with applicable doing-business laws of the state where the Land is situated.
5. Invalidity or unenforceability in whole or in part of the lien of the Insured Mortgage that arises out of the transaction evidenced by the Insured Mortgage and is based upon usury or any consumer credit protection or truth-in-lending law.

6. Any claim, by reason of the operation of federal bankruptcy, state insolvency, or similar creditors' rights laws, that the transaction creating the lien of the Insured Mortgage, is
   (a) a fraudulent conveyance or fraudulent transfer, or
   (b) a preferential transfer for any reason not stated in Covered Risk 13(b) of this policy.
7. Any lien on the Title for real estate taxes or assessments imposed by governmental authority and created or attaching between Date of Policy and the date of recording of the Insured Mortgage in the Public Records. This Exclusion does not modify or limit the coverage provided under Covered Risk 11(b).

The above policy form may be issued to afford either Standard Coverage or Extended Coverage. In addition to the above Exclusions from Coverage, the Exceptions from Coverage in a Standard Coverage policy will also include the following Exceptions from Coverage:

EXCEPTIONS FROM COVERAGE

(Except as provided in Schedule B - Part II,(t(or T)his policy does not insure against loss or damage, and the Company will not pay costs, attorneys' fees or expenses, that arise by reason of:

(PART I

(The above policy form may be issued to afford either Standard Coverage or Extended Coverage. In addition to the above Exclusions from Coverage, the Exceptions from Coverage in a Standard Coverage policy will also include the following Exceptions from Coverage:

1. (a) Taxes or assessments that are not shown as existing liens by the records of any taxing authority that levies taxes or assessments on real property or by the Public Records; (b) proceedings by a public agency that may result in taxes or assessments, or notices of such proceedings, whether or not shown by the records of such agency or by the Public Records.
2. Any facts, rights, interests, or claims that are not shown by the Public Records but that could be ascertained by an inspection of the Land or that may be asserted by persons in possession of the Land.
3. Easements, liens or encumbrances, or claims thereof, not shown by the Public Records.
4. Any encroachment, encumbrance, violation, variation, or adverse circumstance affecting the Title that would be disclosed by an accurate and complete land survey of the Land and not shown by the Public Records.
5. (a) Unpatented mining claims; (b) reservations or exceptions in patents or in Acts authorizing the issuance thereof; (c) water rights, claims or title to water, whether or not the matters excepted under (a), (b), or (c) are shown by the Public Records.
6. Any lien or right to a lien for services, labor or material not shown by the Public Records.

PART II

In addition to the matters set forth in Part I of this Schedule, the Title is subject to the following matters, and the Company insures against loss or damage sustained in the event that they are not subordinate to the lien of the Insured Mortgage:)

2006 ALTA OWNER'S POLICY (06-17-06)

EXCLUSIONS FROM COVERAGE

The following matters are expressly excluded from the coverage of this policy, and the Company will not pay loss or damage, costs, attorneys' fees, or expenses that arise by reason of:

1. (a) Any law, ordinance, permit, or governmental regulation (including those relating to building and zoning) restricting, regulating, prohibiting, or relating to
      (i) the occupancy, use, or enjoyment of the Land;
      (ii) the character, dimensions, or location of any improvement erected on the Land;
      (iii) the subdivision of land; or
      (iv) environmental protection;
      or the effect of any violation of these laws, ordinances, or governmental regulations. This Exclusion 1(a) does not modify or limit the coverage provided under Covered Risk 5.
   (b) Any governmental police power. This Exclusion 1(b) does not modify or limit the coverage provided under Covered Risk 6.
2. Rights of eminent domain. This Exclusion does not modify or limit the coverage provided under Covered Risk 7 or 8.
3. Defects, liens, encumbrances, adverse claims, or other matters
   (a) created, suffered, assumed, or agreed to by the Insured Claimant;
   (b) not Known to the Company, not recorded in the Public Records at Date of Policy, but Known to the Insured Claimant and not disclosed in writing to the Company by the Insured Claimant prior to the date the Insured Claimant became an Insured under this policy;
   (c) resulting in no loss or damage to the Insured Claimant;
   (d) attaching or created subsequent to Date of Policy (however, this does not modify or limit the coverage provided under Covered Risk 9 and 10); or
   (e) resulting in loss or damage that would not have been sustained if the Insured Claimant had paid value for the Title.
4. Any claim, by reason of the operation of federal bankruptcy, state insolvency, or similar creditors' rights laws, that the transaction vesting the Title as shown in Schedule A, is
   (a) a fraudulent conveyance or fraudulent transfer; or
   (b) a preferential transfer for any reason not stated in Covered Risk 9 of this policy.
5. Any lien on the Title for real estate taxes or assessments imposed by governmental authority and created or attaching between Date of Policy and the date of recording of the deed or other instrument of transfer in the Public Records that vests Title as shown in Schedule A.

The above policy form may be issued to afford either Standard Coverage or Extended Coverage. In addition to the above Exclusions from Coverage, the Exceptions from Coverage in a Standard Coverage policy will also include the following Exceptions from Coverage:

EXCEPTIONS FROM COVERAGE

This policy does not insure against loss or damage, and the Company will not pay costs, attorneys' fees or expenses, that arise by reason of:
(The above policy form may be issued to afford either Standard Coverage or Extended Coverage. In addition to the above Exclusions from Coverage, the Exceptions from Coverage in a Standard Coverage policy will also include the following Exceptions from Coverage:

1. (a) Taxes or assessments that are not shown as existing liens by the records of any taxing authority that levies taxes or assessments on real property or by the Public Records; (b) proceedings by a public agency that may result in taxes or assessments, or notices of such proceedings, whether or not shown by the records of such agency or by the Public Records.
2. Any facts, rights, interests, or claims that are not shown in the Public Records but that could be ascertained by an inspection of the Land or that may be asserted by persons in possession of the Land.
3. Easements, liens or encumbrances, or claims thereof, not shown by the Public Records.
4. Any encroachment, encumbrance, violation, variation, or adverse circumstance affecting the Title that would be disclosed by an accurate and complete land survey of the Land and that are not shown by the Public Records.
5. (a) Unpatented mining claims; (b) reservations or exceptions in patents or in Acts authorizing the issuance thereof; (c) water rights, claims or title to water, whether or not the matters excepted under (a), (b), or (c) are shown by the Public Records.
6. Any lien or right to a lien for services, labor or material not shown by the Public Records.
7. (Variable exceptions such as taxes, easements, CC&R's, etc. shown here.)

ALTA EXPANDED COVERAGE RESIDENTIAL LOAN POLICY (12-02-13)

EXCLUSIONS FROM COVERAGE

The following matters are expressly excluded from the coverage of this policy and the Company will not pay loss or damage, costs, attorneys' fees or expenses which arise by reason of:

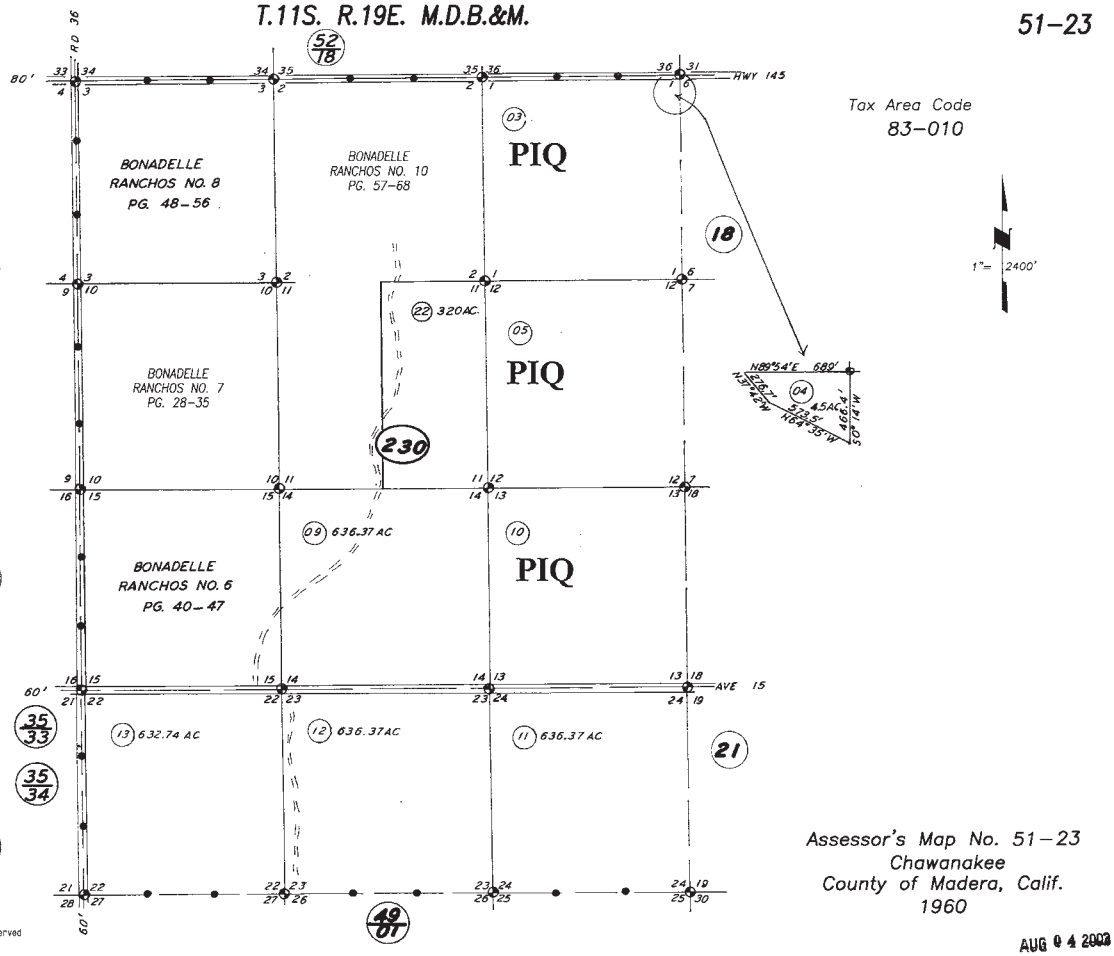
1. (a) Any law, ordinance, permit, or governmental regulation (including those relating to building and zoning) restricting, regulating, prohibiting, or relating to
   (i) the occupancy, use, or enjoyment of the Land;
   (ii) the character, dimensions, or location of any improvement erected on the Land;
   (iii) the subdivision of land; or
   (iv) environmental protection;
   or the effect of any violation of these laws, ordinances, or governmental regulations. This Exclusion 1(a) does not modify or limit the coverage provided under Covered Risk 5, 6, 13(c), 13(d), 14 or 16.
   (b) Any governmental police power. This Exclusion 1(b) does not modify or limit the coverage provided under Covered Risk 5, 6, 13(c), 13(d), 14 or 16.
2. Rights of eminent domain. This Exclusion does not modify or limit the coverage provided under Covered Risk 7 or 8.
3. Defects, liens, encumbrances, adverse claims, or other matters
   (a) created, suffered, assumed, or agreed to by the Insured Claimant;
   (b) not Known to the Company, not recorded in the Public Records at Date of Policy, but Known to the Insured Claimant and not disclosed in writing to the Company by the Insured Claimant prior to the date the Insured Claimant became an Insured under this policy;
   (c) resulting in no loss or damage to the Insured Claimant;
   (d) attaching or created subsequent to Date of Policy (however, this does not modify or limit the coverage provided under Covered Risk 11, 16, 17, 18, 19, 20, 21, 22, 23, 24, 27 or 28); or
   (e) resulting in loss or damage that would not have been sustained if the Insured Claimant had paid value for the Insured Mortgage.
4. Unenforceability of the lien of the Insured Mortgage because of the inability or failure of an Insured to comply with applicable doing-business laws of the state where the Land is situated.
5. Invalidity or unenforceability in whole or in part of the lien of the Insured Mortgage that arises out of the transaction evidenced by the Insured Mortgage and is based upon usury, or any consumer credit protection or truth-in-lending law. This Exclusion does not modify or limit the coverage provided in Covered Risk 26.
6. Any claim of invalidity, unenforceability or lack of priority of the lien of the Insured Mortgage as to Advances or modifications made after the Insured has Knowledge that the vestee shown in Schedule A is no longer the owner of the estate or interest covered by this policy. This Exclusion does not modify or limit the coverage provided in Covered Risk 11.
7. Any lien on the Title for real estate taxes or assessments imposed by governmental authority and created or attaching subsequent to Date of Policy. This Exclusion does not modify or limit the coverage provided in Covered Risk 11(b) or 25.
8. The failure of the residential structure, or any portion of it, to have been constructed before, on or after Date of Policy in accordance with applicable building codes. This Exclusion does not modify or limit the coverage provided in Covered Risk 5 or 6.
9. Any claim, by reason of the operation of federal bankruptcy, state insolvency, or similar creditors' rights laws, that the transaction creating the lien of the Insured Mortgage, is
   (a) a fraudulent conveyance or fraudulent transfer, or
   (b) a preferential transfer for any reason not stated in Covered Risk 27(b) of this policy.
10. Contamination, explosion, fire, flooding, vibration, fracturing, earthquake, or subsidence.
11. Negligence by a person or an Entity exercising a right to extract or develop minerals, water, or any other substances.

T.11S. R.19E. M.D.B.&M.

51–23

This map/plat is being furnished as an aid in locating the herein described Land in relation to adjoining streets, natural boundaries and other land, and is not a survey of the land depicted. Except to the extent a policy of title insurance is expressly modified by endorsement, if any, the Company does not insure dimensions, distances, location of easements, acreage or other matters shown thereon.

ORIGINAL IN BLUE



Tax Area Code
83–010

1"= 2400'

NOTE: This map is for assessment purposes only and is not for the intent of interpreting legal boundary rights, zoning regulations and/or legality of land division laws.

Assessor's Map No. 51–23
Chawanakee
County of Madera, Calif.
1960

AUG 0 4 2003

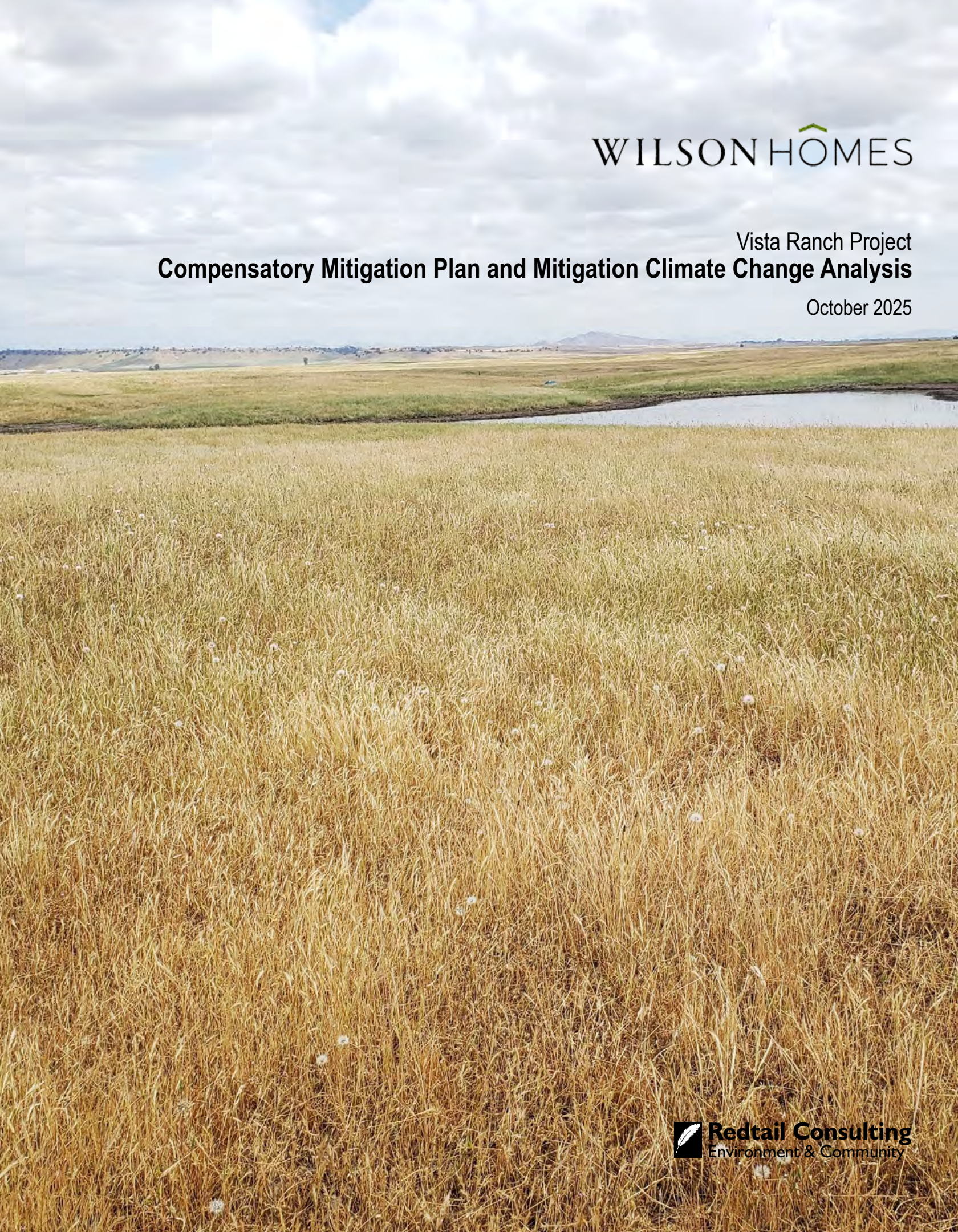
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E.1 - I – Compensatory Mitigation Plan

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WILSON HOMES

Vista Ranch Project

Compensatory Mitigation Plan and Mitigation Climate Change Analysis

October 2025

Redtail Consulting
Environment & Community

Vista Ranch Project
Compensatory Mitigation Plan
and
Mitigation Climate Change Analysis

WILSON HOMES

October 2025

Prepared for:

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Cover photograph of Jamison Ranch Property courtesy of Vollmar Natural Lands Consulting, Sacramento, CA

Wilson Premier Homes – Vista Ranch

Compensatory Mitigation Plan & Mitigation Climate Change Analysis

Introduction

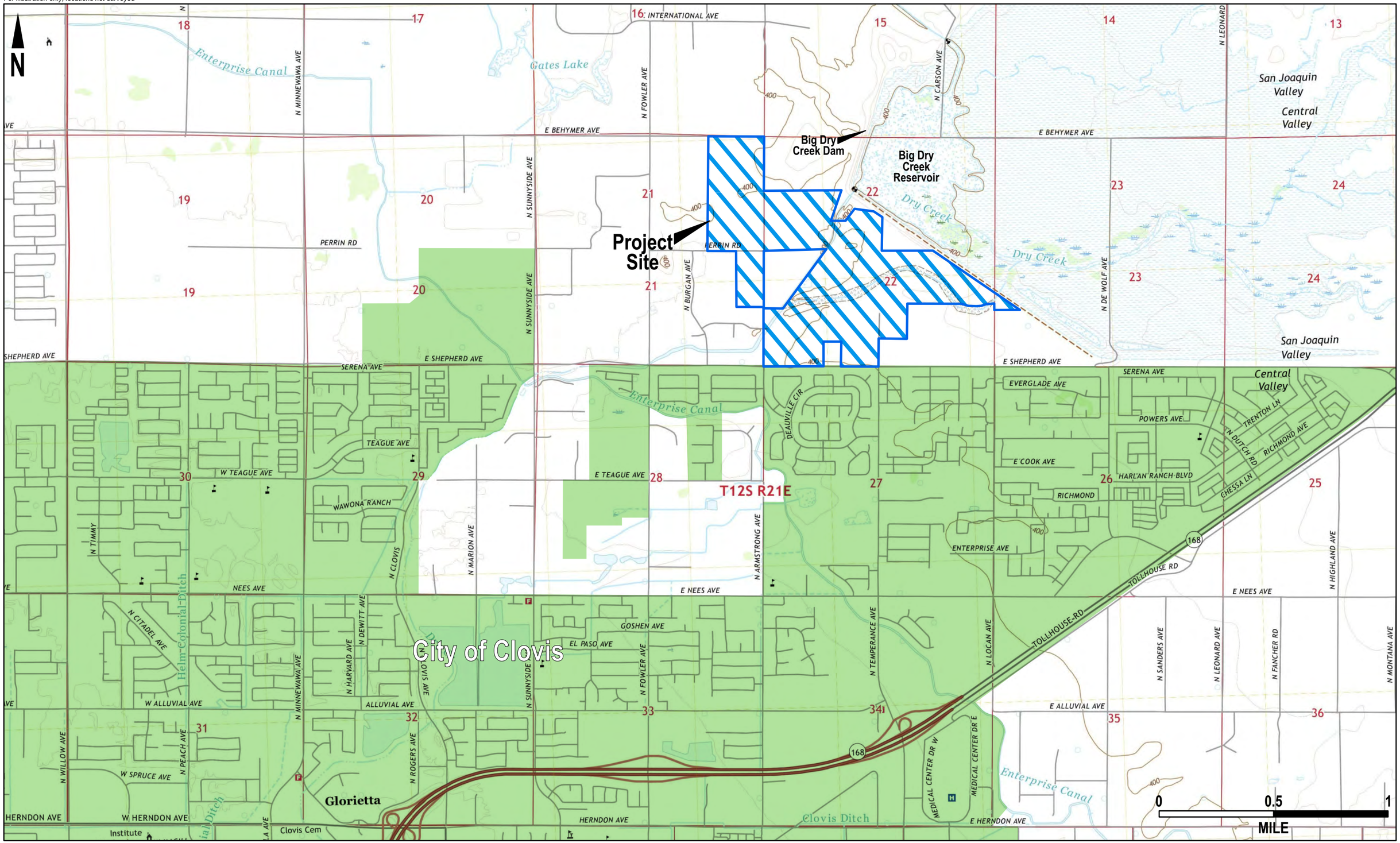
This document constitutes the compensatory mitigation plan required as part of Wilson Premier Homes' application for Clean Water Act Section 401 water quality certification for the proposed Vista Ranch mixed-use development (project), which would be located immediately north of the current limits of the City of Clovis (City), as shown in Figure 1. It also includes an assessment of reasonably foreseeable impacts to the project's proposed compensatory mitigation as a result of climate change, consistent with Section IV.A.2.b.vii of the State Water Resources Control Board's (2021) *State Wetland Definition and Procedures for Discharges of Dredged or Fill Material to Waters of the State* (Procedures, SWRCB Procedures). As such, it updates and expands on the *Conceptual Mitigation Plan* submitted to the U.S. Army Corps of Engineers (Corps) in October 2023 as part of the project's initial application for Clean Water Act Section 404 authorization (Redtail Consulting 2023).

The Vista Ranch project has been configured to avoid impacts on aquatic resources to the extent feasible but would nonetheless incur a total of approximately 0.495 acre of unavoidable permanent impacts. No temporary impacts are anticipated.

The applicant anticipates that mitigation will be required for losses of special-status species habitat through the federal interagency consultation process per Endangered Species Act Section 7 and the state Incidental Take Permit (ITP) process. As of March 2025, it is the applicant's understanding that Section 7 consultation will cover vernal pool fairy shrimp (*Branchinecta lynchi*) (VPFS), California tiger salamander (*Ambystoma californiense*) (CTS), western spadefoot (*Spea hammondii*) (WSF), and western pond turtle (*Actinemys marmorata*) (WPT). The applicant is also applying for a state ITP that is expected to cover Crotch's bumble bee (*Bombus crotchii*), CTS, Western Burrowing Owl (*Athene cunicularia hypugaea*) (BUOW), and San Joaquin kit fox (*Vulpes macrotis mutica*) (SJKF).

To offset impacts on listed and candidate species and their habitat, the applicant intends to conserve a substantial extent of occupied and potential habitat offsite. The proposed mitigation lands support high-quality seasonal stream and vernal pool/vernal swale habitat as well as adjacent grasslands. Preservation of these aquatic resources is proposed as offering at least partial compensation for unavoidable project impacts on wetlands and waters. Any impacts not considered adequately compensated by preservation—which the applicant understands may not be accepted for aquatic resources impacts—will be offset by purchase of aquatic resources credits from an agency-approved source. This Plan focuses on the proposed offsite compensation.

Base Map Sources: City of Clovis 2014; U.S. Geological Survey 2021a, 2021b
For illustration only; locations not surveyed



Redtail Consulting
Environment & Community

Figure 1. Project Site Location
Vista Ranch Compensatory Mitigation Plan
Wilson Premier Homes

Contents of this Plan

The following information is presented in this plan.

- Profiles of the watersheds where the project site and mitigation site are located, to place both the project and the proposed mitigation in their hydrologic context
- An overview of the proposed project (for additional detail, see separately submitted *Project Description*)
- A description of habitat conditions on the project site, including the condition (functions, values, and services) of existing aquatic resources
- Discussion of the project's anticipated impacts on aquatic resources, including
  - avoidance of wetlands/waters incorporated into the design
  - unavoidable impacts on jurisdictional wetlands and other waters
- The mitigation approach proposed for permanent impacts on aquatic resources, including
  - an overview of the preferred mitigation site and its regional conservation context
  - information on the extent and quality of habitat at the mitigation site, including the condition (function, value, and services) of aquatic resources
  - proposed preserve boundaries and potential compensation ratios
  - brief discussion of planning for long-term funding and management of the mitigation site
- An assessment verifying consistency with the California Wetlands Conservation Policy's directive to achieve no net loss/long-term net gain to aquatic resources
- An evaluation of climate change impacts to the proposed compensatory mitigation, including an assessment of long-term net sustainability of aquatic resources by comparison with no-project conditions at the project site
- Alternate planning in the event the proposed mitigation site becomes unavailable for any reason
- A list of references cited

Additional detail on the project is provided in the separately attached *Project Description*, and additional information on aquatic resources at the project site can be found in the project *Delineation of Potential Jurisdictional Aquatic Resources* (Vollmar Natural Lands Consulting 2023a), which was verified by the Corps in November 2023.

Watershed Profiles

Project Site – HUC 18030009

Extent, Principal Drainages, & Land Use

The project site is located in Fresno County, adjacent to the north edge of Clovis and immediately outside current City limits (Figure 1). It lies within U.S. Geological Survey (USGS) HUC 18030009 (Upper Dry), which has an area of 2,126 square miles (1,360,633 acres) and extends from a narrow headwaters region along State

Route (SR) 168 in the Sierra Nevada foothills across the San Joaquin Valley to the eastern flank of the Coast Ranges (U.S. Geological Survey 2022a) (Figure 2).

The Upper Dry watershed, characterized overall by smaller foothills streams and densely gridded agricultural drainages on the Valley floor, is situated between two much larger, regionally extensive systems: the San Joaquin River drainage to the north, and the Kings River drainage to the south (Figure 2). Fresno Slough, a principal distributary of the Kings River, cuts northwest across the approximate center of the watershed to empty into the San Joaquin River at Mendota Pool on the northern boundary of the watershed (Figure 2). Mendota Pool marks the south terminus of the federally constructed Delta-Mendota Canal and is the point where the Canal's remaining flows—ultimately derived from the Sacramento–San Joaquin Delta—are released to the San Joaquin River to offset diversions into the Madera and Friant-Kern Canals upstream (e.g., Water Education Foundation 2023a).

Principal streams draining the Sierra foothills include Dry Creek, Dog Creek, and Fancher Creek. Westside streams draining the Coast Ranges include Panoche Creek, which bounds the northwestern edge of the watershed, and to the south, Arroyo Hondo, Cantua Creek, Salt Creek, Martinez Creek, and Domengine Creek (Figure 2).

As noted above, constructed and/or heavily modified watercourses are conspicuous on the Valley floor. The largest of these include the California Aqueduct, which crosses the western portion of the watershed, paralleling the east flank of the Coast Ranges. Farther east in the Valley are the Herndon Canal, Dry Creek Canal, and Enterprise Canal, while the Friant-Kern Canal, originating at Friant Dam and Millerton Lake on the San Joaquin River, cuts across the eastern tail of the watershed to flow southward past Fresno into the Bakersfield area.

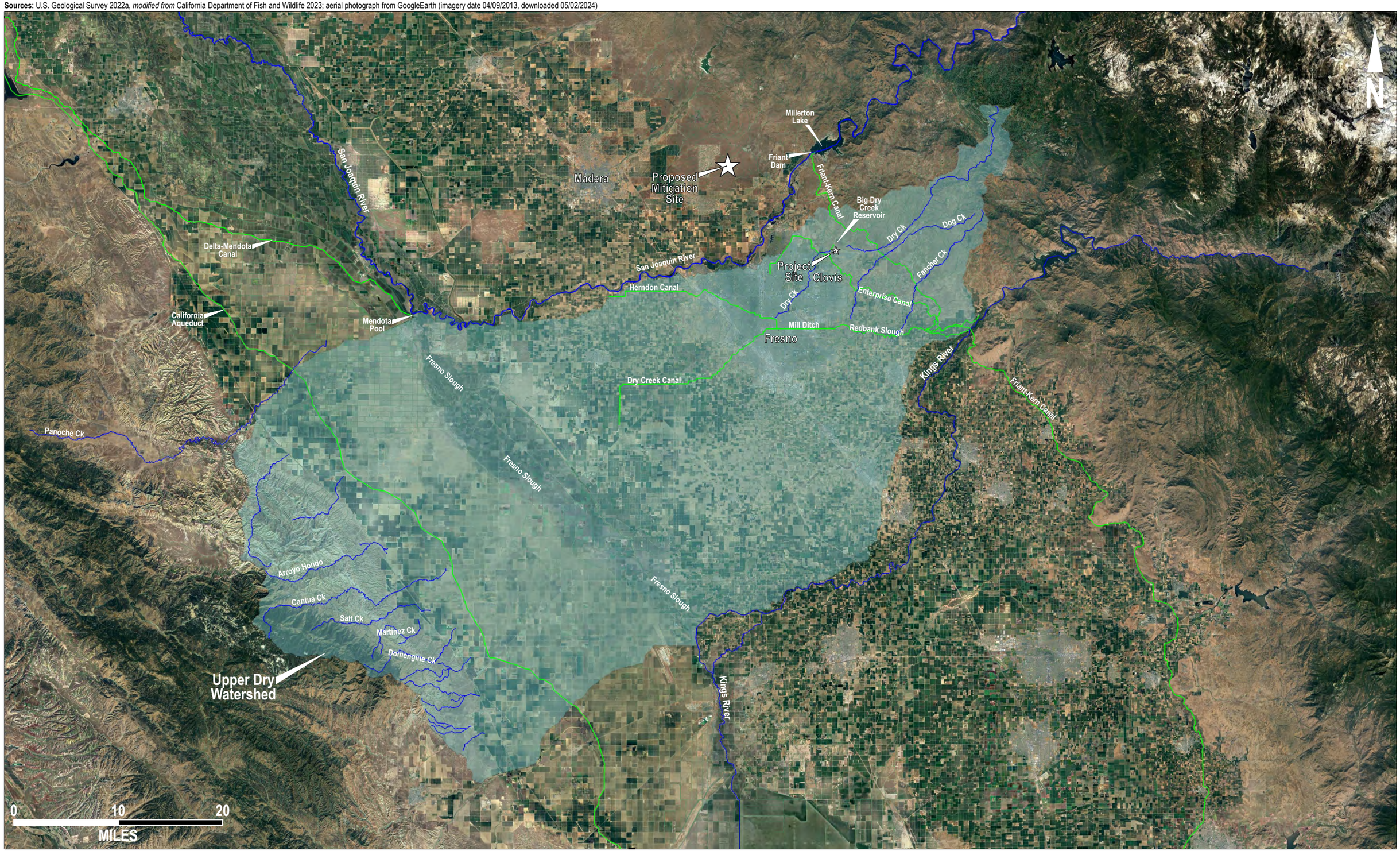
Maximum elevations in the easternmost portion of the watershed near the headwaters of Dry Creek are on the order of 4,500 feet AMSL. Maximum elevations on the west side near the headwaters of Cantua Creek are similar. Elevations on the Valley floor are as low as about 150 feet AMSL along the axial Fresno Slough drainage, sloping gradually upward to the Sierra foothills on the east and more steeply to the Coast Ranges on the west (e.g., GoogleEarth *various dates*).

Land uses and ecosystems in the Upper Dry watershed are diverse. Both Sierran and Coast Range foothill areas remain largely undeveloped; the Valley floor is dominated by intensive agriculture but also supports localized urban expansion, most notably in the rapidly growing Fresno-Clovis area. As shown in Figure 3, the watershed encompasses portions of multiple ecoregions mapped by the USGS, ranging from Southern Sierran Lower Montane Forest and Woodland around the headwaters of Dry Creek, grading downslope into Southern Sierran Foothills, and transitioning onto the Valley floor via Southern Hardpan Terraces and Granitic Alluvial Fans and Terraces. The axis of the Valley is occupied by habitat assigned to the Fresno Slough/Tulare Basin ecoregion, immediately south of the San Joaquin Basin. Alluvial slopes of the watershed's west side are within the Panoche and Cantua Fans and Basins ecoregion, and the western headwaters area climbs into the Eastern Hills and Diablo Range ecoregions. Table 1 provides an overview of key characteristics by ecoregion.

Table 1. Overview of HUC 18030009 Ecoregions

Landform/Elevation	Soil Regimes	Vegetation
Southern Sierra Lower Montane Forests		
Lower flank of the Sierra Nevada, at elevations between 2,500 and almost 6,000 feet AMSL, largely at 3, 000 – 5,000 feet AMSL	Temperature: mesic to thermic Moisture: xeric	At upper elevations, forest and woodlands dominated by ponderosa pine (*Pinus ponderosa*); transitions to oak (*Quercus* spp.)

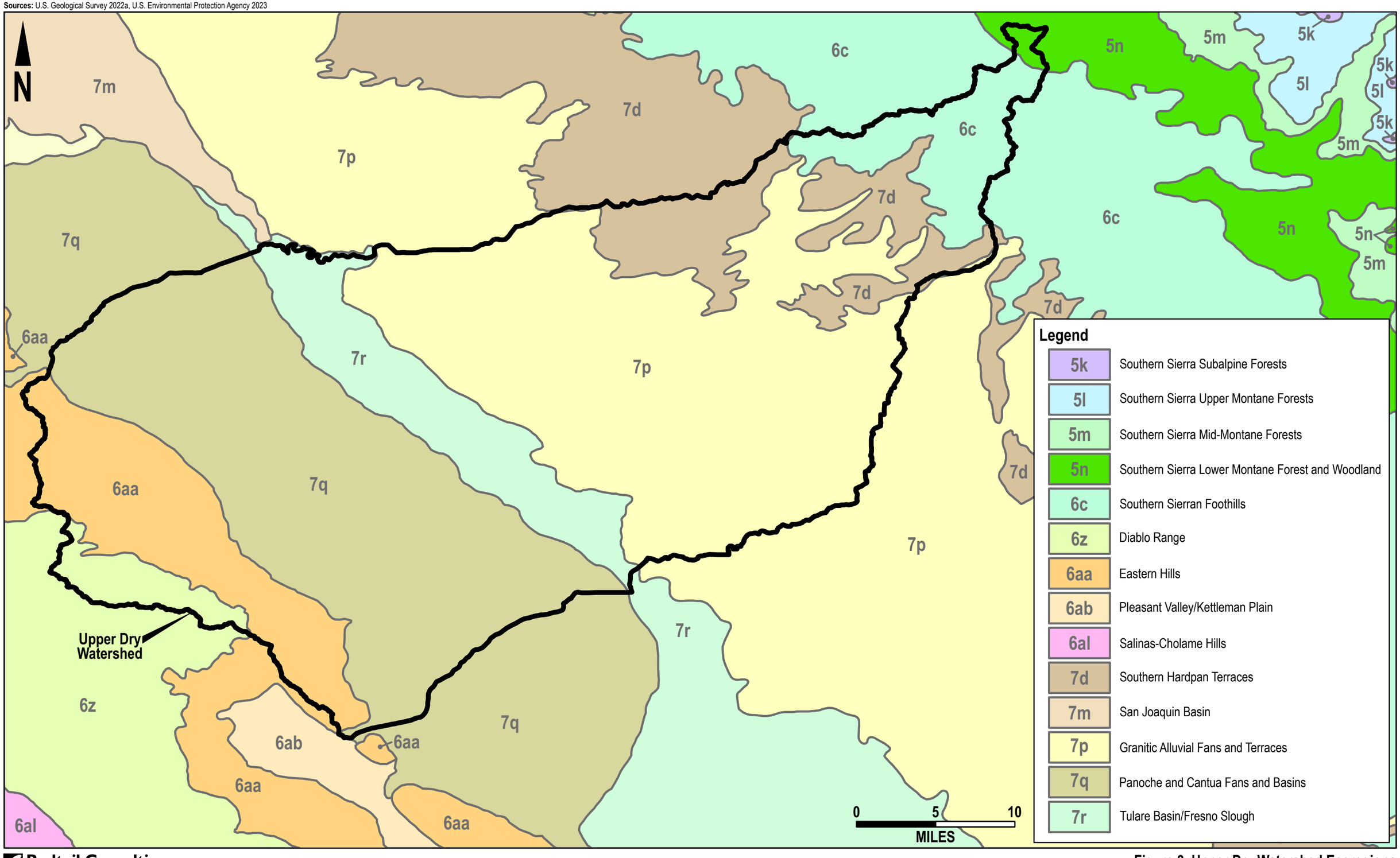
Sources: U.S. Geological Survey 2022a, *modified from* California Department of Fish and Wildlife 2023; aerial photograph from GoogleEarth (imagery date 04/09/2013, downloaded 05/02/2024)



Redtail Consulting
Environment & Community

Figure 2. Upper Dry Watershed
Vista Ranch Project Compensatory Mitigation Plan
Wilson Premier Homes

Sources: U.S. Geological Survey 2022a, U.S. Environmental Protection Agency 2023



Redtail Consulting
Environment & Community

Figure 3. Upper Dry Watershed Ecoregions
Vista Ranch Project Compensatory Mitigation Plan
Wilson Premier Homes

Landform/Elevation	Soil Regimes	Vegetation
		woodlands and chaparral at lower elevations
Southern Sierran Foothills		
Moderately steep hills and low mountains transitioning from the Central Valley to the Sierra Nevada proper	Temperature: thermic Moisture: xeric	Blue oak (*Quercus douglasii*) and other oak species, needlegrass (*Nasella* sp.) and annual grasslands, chamise (*Adenostoma fasciculatum*), *Ceanothus*, local stands of foothill pine (*P. sabiniana*); woodland occurrence increases at higher elevations and in easter parts of region
Southern Hardpan Terraces		
Gently sloping terraces, floodplains, and alluvial fans on east side of San Joaquin Valley, at elevations of 150 – 500 feet AMSL	Temperature: thermic Moisture: largely xeric, approaching aridic in south	Annual grasslands, *Ceanothus* shrublands, and blue oak savannas, with scattered stands of foothill pine in draws and on protected slopes; vernal pools are also characteristic
Granitic Alluvial Fans and Terraces		
Level to very gently sloping alluvial fans and basins below older fans or terraces on east side of San Joaquin Valley, at elevations of 100 – 500 feet AMSL	Temperature: thermic Moisture: xeric, aquic	Grasslands and valley oak (*Q. lobata*) on fans, cottonwood *(Populus* sp.) and willow (*Salix* spp.) along streams, and emergent wetland species in basins; majority of region is currently in croplands, hay, and pasturelands, with some urban and suburban uses
Tulare Basin/Fresno Slough		
Low-lying area formed by merging of alluvial fans from Kings River to east and Los Gatos Creek from to the west, blocking the basin's outlet. Historically supported a system of lakes, including Tulare Lake, largest freshwater lake west of the Mississippi River. In wet season, Fresno Slough conveyed excess water from lakes to San Joaquin River; subsurface flows helped to sustain River flows year-round	Temperature: thermic Moisture: aquic Fine-textured, poorly drained soils foster ponding	Historically supported extensive system of freshwater marshes and sloughs; now extensively modified by agriculture and construction of canals and dams
Panoche and Cantua Fans and Basins		
Nearly level to gently sloping alluvial fans of streams draining from Coast Ranges toward San Joaquin Valley; includes portions of basin floors in west-central portion of Valley. Elevations of 140 – 800 feet AMSL. Annual precipitation is 6 – 8 inches; streams often dry for most of summer	Temperature: thermic Moisture: aridic Soil salinity a local concern	Historic grassland and shrubland vegetation largely replaced by croplands and orchards
Eastern Hills		
Low steep mountains and foothills on east side of Diablo Range, including the Panoche, Ciervo, and Kettleman Hills and Avenal Ridge. Elevations from about 100 feet in the north to 2,000–3,000 feet on highest hills	Temperature: thermic Moisture: largely xeric, locally aridic in southeast Soils well-drained, many with calcareous subsoils	Predominant vegetation is needlegrass and annual grasslands, with some blue oak on north-facing slopes in wetter areas and chamise on shallow soils. Valley oak occurs in fault-controlled lows. Region generally supports less cropland than areas to east on Valley floor proper

Landform/Elevation	Soil Regimes	Vegetation
Diablo Range		
Mountains characterized by rounded ridges and moderately steep to steep flanks, separated by narrow canyons and valleys, largely at elevations between 600 and 4,000 – 5,000 feet AMSL; high point is San Benito Mountain at 5,248 feet AMSL All but larger streams typically dry through most of the summer. No natural lakes, although several reservoirs are present	Temperature: largely thermic; mesic on north-facing slopes in higher areas Moisture: xeric Local areas of serpentine soils	Blue oak savannas and woodlands; chamise on shallow soil. Leather oak (*Q. durata*) and mixed chaparral shrublands on serpentine soils. Sargent cyptress (*Hesperocyparis sargentii*) locally present. North-facing slopes support some black oak and mixed conifers; Jeffrey pine (*P. jeffreyi*) occurs on serpentine soils on San Benito Mountain

Source: Griffith et al. 2016

Historic Influences & Current Status

Hydraulic Modification

Lacking large river systems internal to the watershed, HUC 18030009 has not been subject to the modifications for hydropower that are common on the west flank of the Sierra Nevada. Instead, hydraulic modification has concentrated on water supply—for multiple purposes, both local and regional—as well as flood control.

Water Supply. As noted above, conspicuous regional water supply features in the Upper Dry watershed include the California Aqueduct and Friant-Kern Canal. As identified above, another important regional water conveyance structure, Delta-Mendota Canal, terminates at Mendota Pool on the San Joaquin River, just at the north boundary of the watershed (Figure 2).

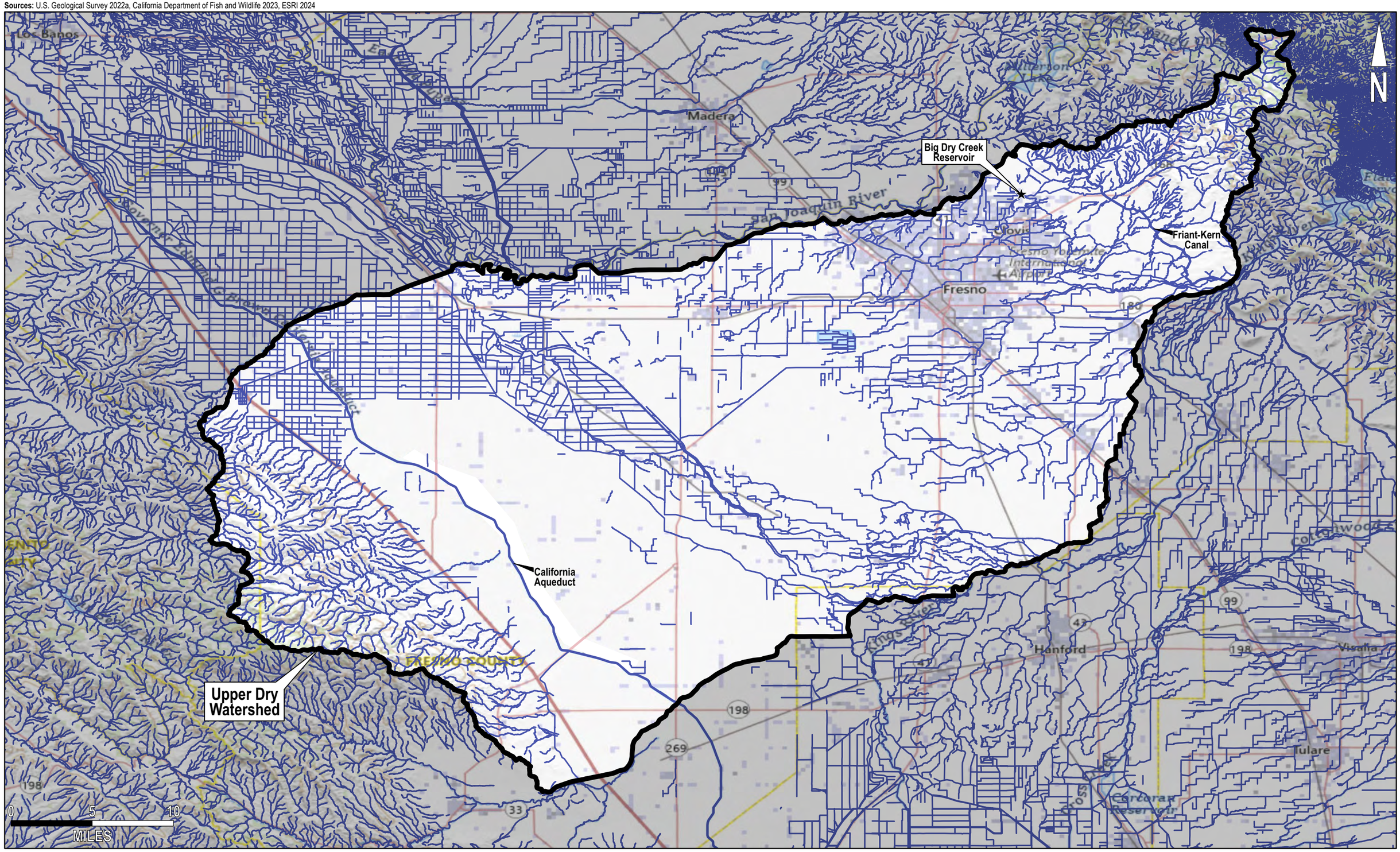
The California Aqueduct, owned and operated by the California Department of Water Resources (DWR), is the backbone of the State Water Project. Constructed between 1960 and 1974, it conveys supply from the Sacramento – San Joaquin Delta almost 450 miles south to San Bernardino County. On average, about 34% of California Aqueduct flow serves agriculture, most of it in the San Joaquin Valley, with the remaining 66% serving homes and businesses in the San Francisco Bay Area and southern California (California Department of Water Resources 2024, Water Education Foundation 2023b).

The Friant-Kern Canal was originally constructed between 1945 and 1951 as part of the U.S Bureau of Reclamation's (USBR's) Central Valley Project and is now operated by the Friant Water Authority. It conveys San Joaquin River flows from Friant Dam in Madera County more than 150 miles south to the Kern River near Bakersfield, providing irrigation supply to more than 1 million acres of agricultural lands and potable supply to more than 250,000 end users (Friant Water Authority 2024).

Drainage on the Valley floor has also been extensively modified over the past 100 or more by a myriad of smaller projects. Figure 4 shows the contrast between foothills and headwaters regions, where natural dendritic drainage remains largely intact, and the central portion of the Valley, where a grid pattern of smaller canals, ditches, and drains carry agricultural supply, collect and dispose tailwater, and manage floodwaters.

Flood Control. The key flood control feature in the Upper Dry watershed is the Big Dry Creek Reservoir complex, located immediately north of Clovis (Figure 2, Figure 4), originally constructed by the Corps in 1948, and operated by the Fresno Metropolitan Flood Control District (FMFCD) since 1987. The Big Dry Creek Dam

Sources: U.S. Geological Survey 2022a, California Department of Fish and Wildlife 2023, ESRI 2024



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Figure 4. Upper Dry Watershed Drainage Network
Vista Ranch Project Compensatory Mitigation Plan
Wilson Premier Homes

captures flows from Dry Creek[1], Dog Creek, and nearby smaller drainages, rerouting them via the Dam spillway to rejoin the Dry Creek channel about 2,500 feet downstream. The Reservoir basin, which has a total capacity of 30,200 acre-feet and as such is the FMFCD's largest flood control facility, is dry for the majority of most years and is leased for cattle grazing and helicopter training maneuvers (Fresno Metropolitan Flood Control District *n.d.).* The Big Dry Creek Dam is adjacent to the project site; local hydrologic implications of the Dam and Reservoir system are discussed further below, in the description of aquatic resources at the site.

Water Quality Impairment

Table 2 summarizes currently identified impairments in the principal water bodies shown on Figure 2. No Total Maximum Daily Load (TMDL) programs are currently in place in the Upper Dry Watershed (State Water Resources Control Board 2023).

Table 2. Identified Water Quality Impairments in Principal Water Bodies, HUC 18030009

Water Body	Impairments
California Aqueduct, Panoche Creek to Grapevine	pH
Mendota Pool	Mercury
San Joaquin River, Friant Dam to Mendota Pool	Invasive species, pH, water temperature
Fresno Slough, Graham Road to James Bypass	Chlorpyrifos, toxicity
Panoche Creek, Silver Creek to Belmont Avenue	Mercury, sedimentation/siltation, selenium, toxicity
Cantua Creek	Chlorpyrifos, selenium, total DDT
Kings River	
Pine Flat Reservoir to Island Weir	Alkalinity as $CaCO_3$, copper, lead, paraquat, toxicity
Island Weir to Stinson and Empire Weirs	Bifenthrin, boron, dissolved oxygen, electrical conductivity, molybdenum, pH, pyrethroids, toxaphene, toxicity
Main Fork	Alkalinity as $CaCO_3$

Source: State Water Resources Control Board 2023

Aquatic Resource Stressors

Key aquatic resource stressors in the Upper Dry watershed are reflected in the impairments identified in Table 2. Historically and into recent decades, they included agricultural uses and the residual effects of mining in upstream/headwaters areas, largely outside the watershed itself. More recently, urban expansion—particularly in and around the Fresno-Clovis metroplex—has also become a factor.

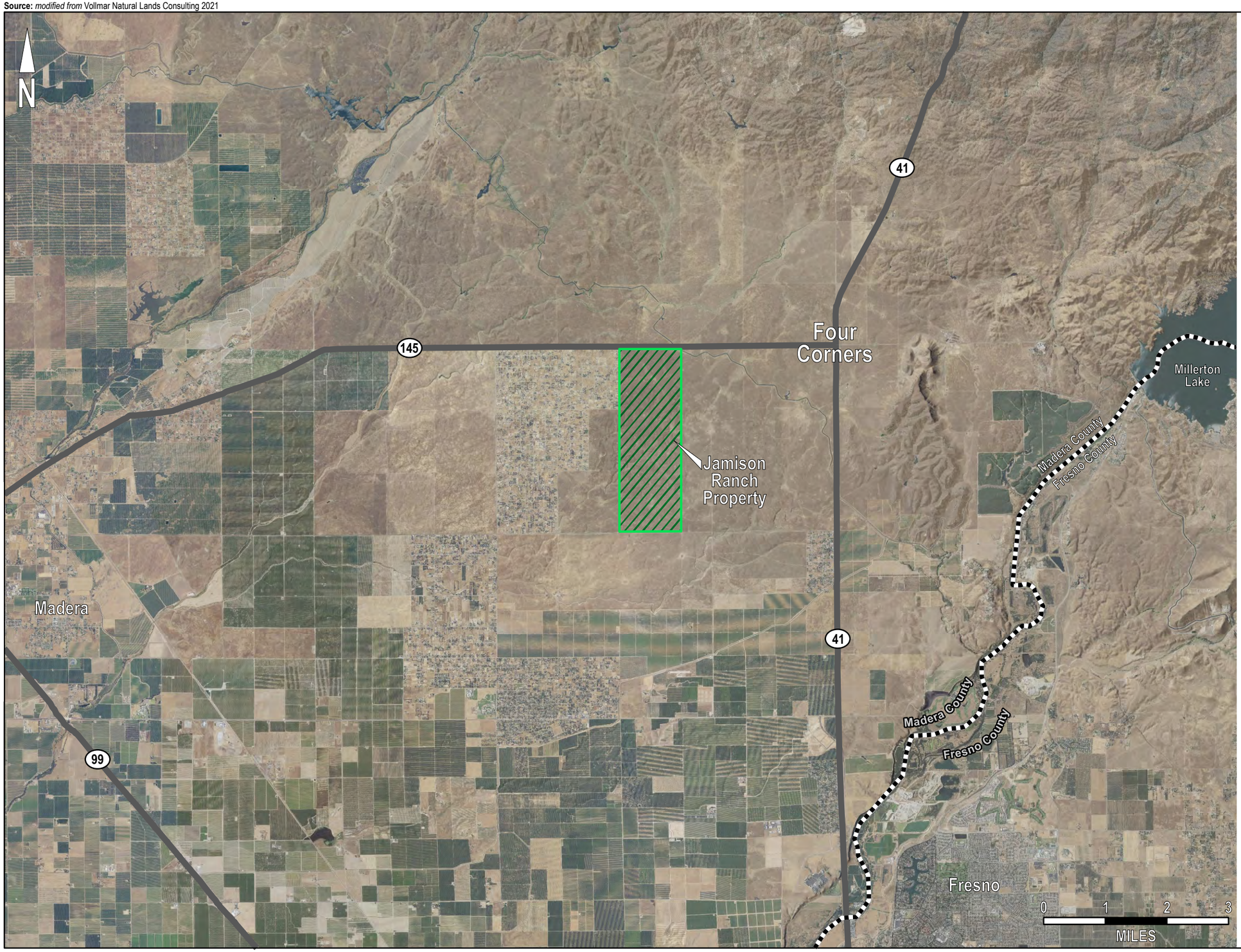
Proposed Mitigation Site – HUC 18040001

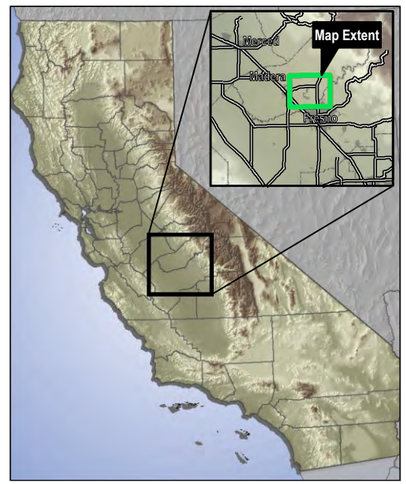
Extent, Principal Drainages, & Land Use

The proposed mitigation site, referred to as the Jamison Ranch Property or Property, is located east of Madera in USGS HUC 18040001 (Middle San Joaquin – Lower Chowchilla) (Figure 5, Figure 6), which has an area of 3,525 square miles (more than 2.26 million acres) (California Water Indicators Portal *n.d.*). Like the Upper Dry watershed immediately adjacent to the south, HUC 18040001 extends from the Sierra Nevada foothills across the San Joaquin Valley to the east flank of the Coast Ranges.

[1] This drainage is also referred to as *Big Dry Creek*, to distinguish it from Little Dry Creek in neighboring Madera County. This document uses *Dry Creek* for consistency with USGS usage and the name of the watershed.

Source: *modified from* Vollmar Natural Lands Consulting 2021

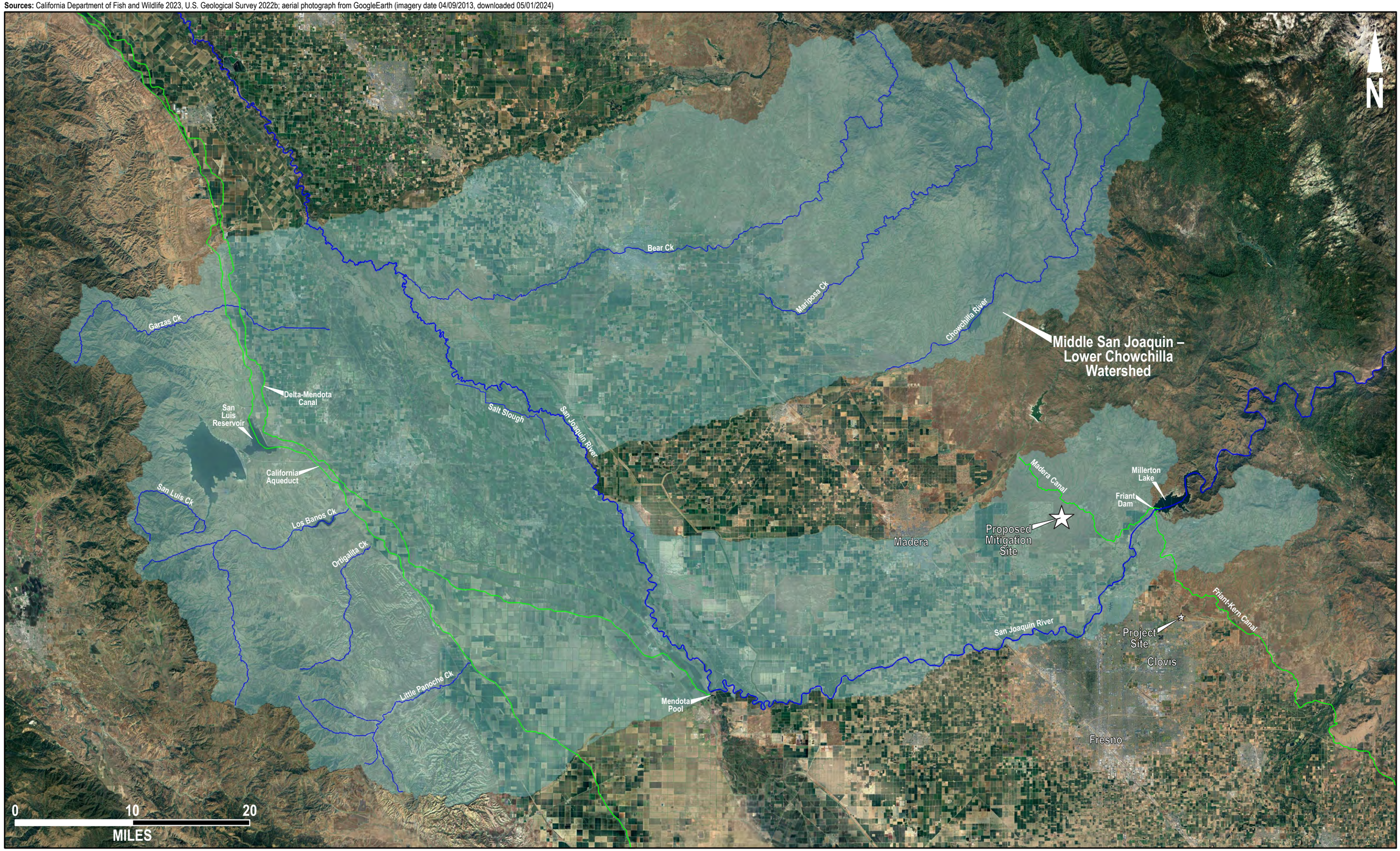




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Figure 5. Jamison Ranch Property Location
Vista Ranch Project Compensatory Mitigation Plan
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Sources: California Department of Fish and Wildlife 2023, U.S. Geological Survey 2022b; aerial photograph from GoogleEarth (imagery date 04/09/2013, downloaded 05/01/2024)



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Figure 6. Middle San Joaquin – Lower Chowchilla Watershed
Vista Ranch Project Compensatory Mitigation Plan
Wilson Premier Homes

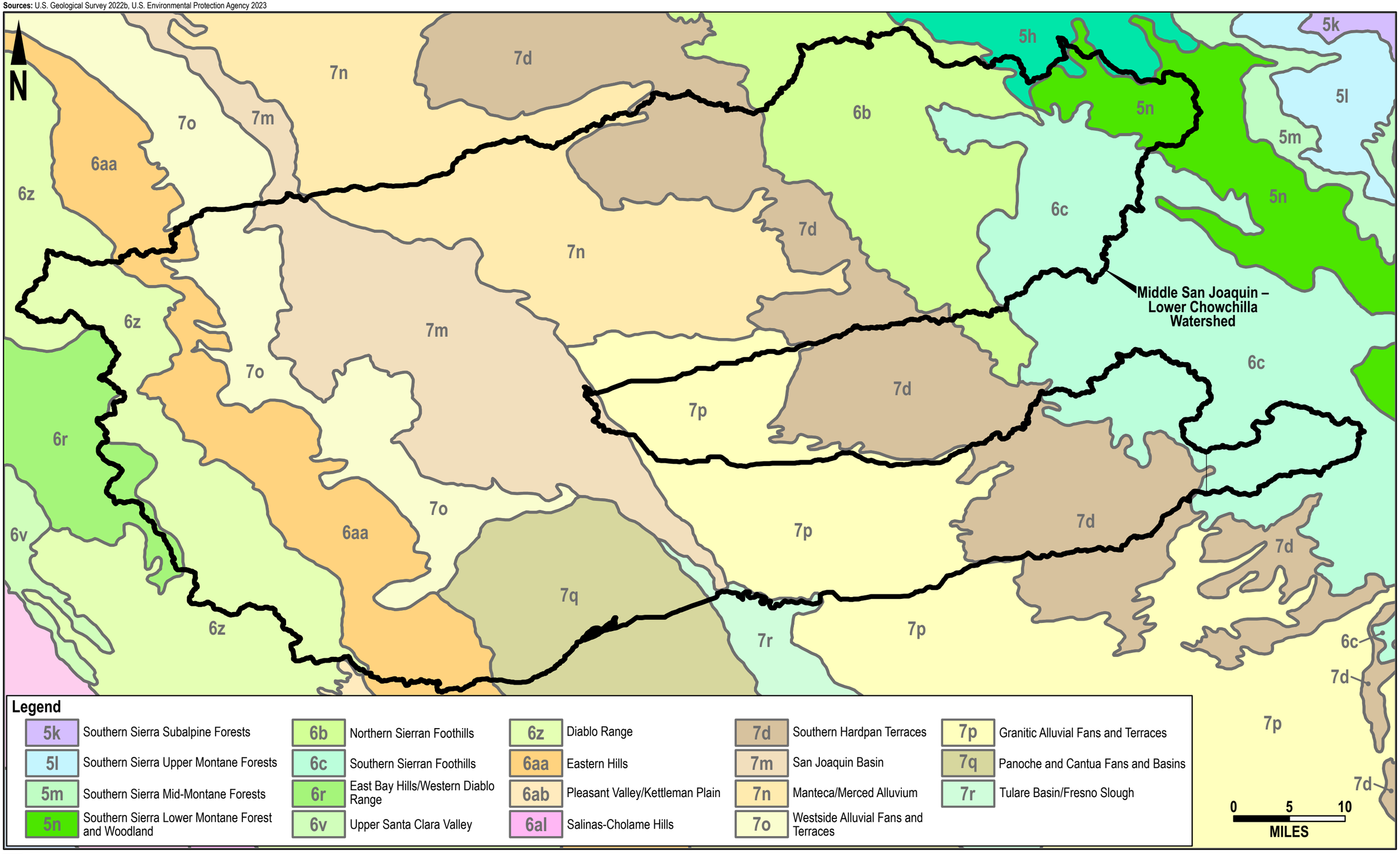
Elevations in the eastern portion of the watershed are as high as 5,000 – 6,000 feet AMSL where tributaries feeding the East Fork of the Chowchilla River originate; at the southeast boundary of the watershed, the San Joaquin River below Friant Dam is just above 300 feet AMSL with surrounding hills as high as 700 – 800 feet AMSL. At the western edge of the watershed, headwaters of Los Banos and Ortigalita Creeks are at 3,000 – 3,500 feet AMSL (ESRI 2021a). Elevations on the Valley floor decrease from south to north: Madera Municipal Airport near the south edge of the watershed lies at 253 feet AMSL (City of Madera 2021), and Gustine Municipal Airport, about 4 miles southeast of the NEWS project site near the north edge of the watershed, is at 78.5 feet AMSL (City of Gustine *n.d.*)

As in HUC 18030009, land uses and land cover types within the Middle San Joaquin – Lower Chowchilla watershed are diverse. As Figure 7 shows, headwaters of the Chowchilla River are in open space of the Sierra Nevada National Forest, within the Southern Sierra Lower Montane Forest and Woodland ecoregion. Evergreen forest in the highest portions of the watershed's east side gives way downstream to limited areas of mixed and deciduous forest (Northern and Southern Sierran Foothills ecoregions) and in turn to extensive grass- and rangelands (Southern Hardpan Terraces, Manteca/Merced Alluvium, Granitic Alluvial Fans and Terraces) and cultivated croplands on the valley floor (San Joaquin Basin, northernmost tip of Tulare Basin/Fresno Slough), rising again to the Diablo Range on the west side. Only a small proportion of the watershed comprises developed land uses; notably in and around the Cities of Atwater, Los Banos, Merced, and Madera, as well as numerous smaller communities that dot the foothills and valley (Griffith et al. 2016, National Fish and Wildlife Foundation 2018, 2021; ESRI 2021a, 2021b; GoogleEarth *various dates*). Dedicated open space is also preserved in a number of locations on the Valley floor and to the west, including the Merced and San Luis National Wildlife Refuges, the California Department of Fish and Wildlife's (CDFW's) North Grasslands, Volta, and Los Banos Wildlife Areas, and a number of state facilities, such as Great Valley Grasslands State Park, San Luis Reservoir State Park, and Pacheco State Park. Table 3 provides an overview of key characteristics by ecoregion. Note that because HUC 18040001 and HUC 18030009 are adjacent, they cover many of the same ecoregions, but because HUC 18040001 is larger, it encompasses ecoregions not included in HUC 18030009.

Table 3. Overview of HUC 18040001 Ecoregions

Landform/Elevation	Soil Regimes	Vegetation
Southern Sierra Lower Montane Forests		
Lower flank of the Sierra Nevada, at elevations between 2,500 and almost 6,000 feet AMSL, largely at 3, 000 – 5,000 feet AMSL	Temperature: mesic to thermic Moisture: xeric	At upper elevations, forest and woodlands dominated by ponderosa pine (*Pinus ponderosa*); transitions to oak (*Quercus* spp.) woodlands and chaparral at lower elevations
Northern Sierran Foothills		
Moderately steep to steep mountains and hills at west foot of northern and central Sierra Nevada Characterized by rapid runoff with streams draining to Feather, Sacramento, and San Joaquin Rivers	Temperature: thermic Moisture: xeric	Needlegrass (*Nasella* sp.) and annual grasslands, chamise (*Adenostoma fasciculatum*), manzanita (*Arctostaphylos manzanita*), interior live oak (*Q. wislizeni*), *Ceanothus*, blue oak (*Q. douglasii*), and foothill pine (*P. sabiniana*)
6c Southern Sierran Foothills		
Moderately steep hills and low mountains transitioning from the Central Valley to the Sierra Nevada proper	Temperature: thermic Moisture: xeric	Blue oak and other oak species, needlegrass and annual grasslands, chamise, *Ceanothus*, local stands of foothill pine; woodland occurrence increases at higher elevations and in easter parts of region

Sources: U.S. Geological Survey 2022b, U.S. Environmental Protection Agency 2023



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Figure 7. Middle San Joaquin – Lower Chowchilla Watershed Ecoregions
Vista Ranch Project Compensatory Mitigation Plan
Wilson Premier Homes

Landform/Elevation	Soil Regimes	Vegetation
7n Manteca/Merced Alluvium		
Very gently to gently sloping floodplains and alluvial fans transitioning toward the San Joaquin River from higher terraces and foothills in regions to the east	Temperature: thermic Moisture: xeric and aquic	Natural vegetation historically included perennial and annual grasslands, valley oak (*Q. lobata*) savannas, cottonwoods *(Populus* sp.), and willows (*Salix* spp.), but region is now dominated by cropland, pasture, and urban uses
Southern Hardpan Terraces		
Gently sloping terraces, floodplains, and alluvial fans on east side of San Joaquin Valley, at elevations of 150 – 500 feet AMSL	Temperature: thermic Moisture: largely xeric, approaching aridic in south	Annual grasslands, *Ceanothus* shrublands, and blue oak savannas, with scattered stands of foothill pine in draws and on protected slopes; vernal pools are also characteristic
Granitic Alluvial Fans and Terraces		
Level to very gently sloping alluvial fans and basins below older fans or terraces on east side of San Joaquin Valley, at elevations of 100 – 500 feet AMSL	Temperature: thermic Moisture: xeric, aquic	Grasslands and valley oak on fans, cottonwood and willow along streams, and emergent wetland species in basins; majority of region is currently in croplands, hay, and pasturelands, with some urban and suburban uses
Tulare Basin/Fresno Slough		
Low-lying area formed by merging of alluvial fans from Kings River to east and Los Gatos Creek from to the west, blocking the basin's outlet. Historically supported a system of lakes, including Tulare Lake, largest freshwater lake west of the Mississippi River. In wet season, Fresno Slough conveyed excess water from lakes to San Joaquin River; subsurface flows helped to sustain River flows year-round	Temperature: thermic Moisture: aquic Fine-textured, poorly drained soils foster ponding	Historically supported extensive system of freshwater marshes and sloughs; now extensively modified by agriculture and construction of canals and dams
Westside Alluvial Fans and Terraces		
Very gently to gently sloping terraces and alluvial fans along west edge of San Joaquin Valley, adjacent to Coast Ranges. Most of region is at elevations of 5 – 300 feet AMSL; western portion reaches 900 feet AMSL	Temperature: thermic Moisture: largely xeric; aridic in south	Natural vegetation characterized by perennial and annual grasslands and bladderpod (*Peritoma arborea*) and *Ephedra* shrublands. Winter ponding and vernal pools locally present. Region now dominated by agricultural uses, with remaining grasslands/shrublands at west margin
Panoche and Cantua Fans and Basins		
Nearly level to gently sloping alluvial fans of streams draining from Coast Ranges toward San Joaquin Valley; includes portions of basin floors in west-central portion of Valley. Elevations of 140 – 800 feet AMSL. Annual precipitation is 6 – 8 inches; streams often dry for most of summer	Temperature: thermic Moisture: aridic Soil salinity a local concern	Historic grassland and shrubland vegetation largely replaced by croplands and orchards
Eastern Hills		
Low steep mountains and foothills on east side of Diablo Range, including the Panoche, Ciervo, and Kettleman Hills and Avenal Ridge.	Temperature: thermic Moisture: largely xeric,	Predominant vegetation is needlegrass and annual grasslands, with some blue oak on north-facing slopes in wetter areas and

Landform/Elevation	Soil Regimes	Vegetation
Elevations from about 100 feet in the north to 2,000–3,000 feet on highest hills	locally aridic in southeast Soils well-drained, many with calcareous subsoils	chamise on shallow soils. Valley oak occurs in fault-controlled lows. Region generally supports less cropland than areas to east on Valley floor proper
Diablo Range		
Mountains characterized by rounded ridges and moderately steep to steep flanks, separated by narrow canyons and valleys, largely at elevations between 600 and 4,000 – 5,000 feet AMSL; high point is San Benito Mountain at 5,248 feet AMSL All but larger streams typically dry through most of the summer. No natural lakes, although several reservoirs are present	Temperature: largely thermic; mesic on north-facing slopes in higher areas Moisture: xeric Local areas of serpentine soils	Blue oak savannas and woodlands; chamise on shallow soil. Leather oak (*Q. durata*) and mixed chaparral shrublands on serpentine soils. Sargent cyptress (*Hesperocyparis sargentii*) locally present. North-facing slopes support some black oak and mixed conifers; Jeffrey pine (*P. jeffreyi*) occurs on serpentine soils on San Benito Mountain
East Bay Hills/Western Diablo Range		
Includes East Bay Hills east of the Berkeley – Oakland – Hayward urban corridor, Mount Diablo and Black Hills area, and hills of the western Diablo Range All but larger streams typically dry through summer	Temperature: largely thermic; mesic on some north-facing slopes Moisture: xeric	Coast live oak (*Q. agrifolia*), blue oak, valley oak, and chamise. In urban/suburban areas, *Eucalyptus* and other fire-prone exotic vegetation presents fire management concerns

Source: Griffith et al. 2016

Historic Influences & Current Status

Hydraulic Modification

The primary drivers of watershed modification in the greater San Joaquin River watershed have been water supply development and agriculture. Gold mining had an indirect influence through demand for water and foodstuffs, and timber harvesting contributed a relatively minor effect (National Fish and Wildlife Foundation 2018, 2021).

Water Supply. Prior to watershed modifications that began in the 19th century, the San Joaquin mainstem provided both cold and warm water habitat; discharge and water temperature were highly variable spatially and temporally because of the watershed's size and the diversity of ecotones it supported. Subsurface seepage from Tulare Lake on the San Joaquin Valley floor may have as much as doubled the River's flow, supporting an extensive system of perennial and seasonal freshwater marshlands along the lower San Joaquin River channel (National Fish and Wildlife Foundation 2018, 2021).

Significant modifications to the system began in 1880, when the Upper San Joaquin Irrigation Company constructed the first large-scale water storage facility in the watershed, intended to provide irrigation supply for some 250,000 acres downstream. This facility was destroyed by flooding in 1882, but the demand for water to support flatland cultivation continued to grow; by 1900, more than 350,000 acres in the San Joaquin basin were under irrigation, reflecting increasingly substantial diversions from the lower San Joaquin River. In 1937, construction of Friant Dam began, planned to provide flood control and irrigation for almost 1 million acres in Fresno, Kern, Madera, and Tulare Counties—and resulting in seasonal dewatering of several reaches of the San Joaquin River in dry and normal water years, along with disruption of native salmonid fisheries. At present, limited outflows from Friant Dam remain insufficient to support year-round salmonid habitat, and much of the

flow remaining in the system is diverted to canals such as the East Side Bypass, which conveys supply for agricultural uses as well as providing flood protection for the topographically lowest portions of the watershed (National Fish and Wldlife Foundation 2018).

Hydraulic modification has also taken place in the western portion of the watershed. Here, the largest changes are related to construction of the throughgoing California Aqueduct and Delta-Mendota Canal paralling the rangefront on the west side of the Valley, and San Luis Reservoir in the hills west of Los Banos (Figure 6).

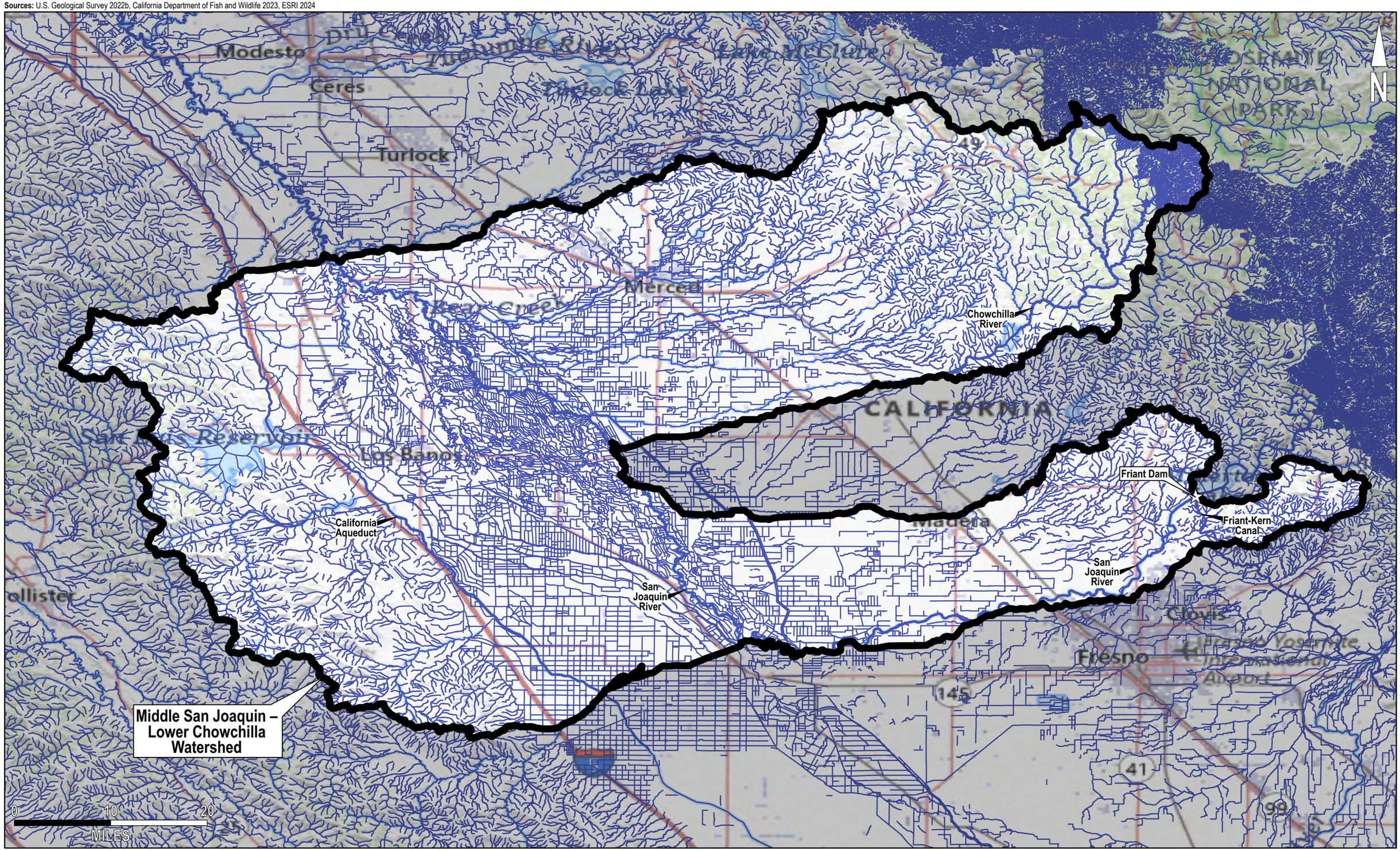
The California Aqueduct is briefly described in *Project Site – HUC 18030009* above. It is roughly paralleled by the Delta-Mendota Canal (Figure 6). The Delta-Mendota Canal conveys water from the Sacramento – San Joaquin Delta 117 miles south to Mendota Pool, with the dual purposes of water supply (largely but not exclusively for irrigation in the San Joaquin Valley) and replenishment of San Joaquin River flows held or diverted at Friant Dam/Millerton Lake. Completed in 1951 as part of USBR's Central Valley project, it is now operated by the San Luis & Delta-Mendota Water Authority (San Luis & Delta-Mendota Water Authority 2023, Water Education Foundation 2023c).

San Luis Reservoir, which was constructed beginning in 1962, sits athwart San Luis Creek (Figure 6) and provides 2 million acre-feet of offstream storage for Sacramento – San Joaquin Delta supply delivered via the California Aqueduct and Delta Mendota Canal. It is jointly owned and operated by DWR and USBR. Water is pumped into the Reservoir during the wet season, and during the dry season is released for conveyance to contractors in the San Joaquin Valley and to the west in Santa Clara, San Benito, Santa Cruz, and Monterey Counties (CALFED Bay-Delta Program and Santa Clara Valley Water District 2003, California Department of Parks and Recreation 2011, U.S. Bureau of Reclamation *n.d.*, U.S. Bureau of Reclamation and California Department of Water Resources 2019).

Agriculture. With the exception of the headwaters areas, where historic drainage patterns are still evident, and the immediate San Joaquin River corridor, which preserves a remnant of the former system of interconnecting channels and sloughs, agricultural supply features have largely replaced natural drainage patterns throughout the Middle San Joaquin River – Lower Chowchilla River watershed. On the Valley floor in particular, the demands of agriculture have resulted in extensive modification of natural drainage patterns, resulting in a complex network of canals, ditches, and drains that convey supply to cultivated lands and collect and dispose tailwater (Figure 8).

Other Influences. Activities outside the immediate watershed boundaries have also exerted importance influences on the lower San Joaquin River, chief among them the development of hydroelectric power, beginning in 1910 with construction of the Big Creek Hydroelectric Project in the foothills above the (future) Friant Dam site. The Big Creek complex, which began delivering power in 1913 and was acquired by Southern California Edison in 1917, now comprises 6 major reservoirs with a combined storage capacity of more than 560,000 acre-feet, 27 dams, and 9 power houses with a total of 23 generating units, as well as associated interconnecting infrastructure (National Wildlife Foundation 2018, 2021; Southern California Edison 2021). The additional dams have further contributed to disruption of migration pathways and loss of spawning habitat for salmonids and other native fishes (National Fish and Wildlife Foundation 2018). Introduction of non-native fish species, which began in the 1870s, has increased competition for sparse resources. Spring-run chinook salmon were extirpated from the watershed by 1949, and salmonid fisheries had become inadequate to support commercial fishing by the late 1950s (National Fish and Wildlife Foundation 2018, 2021).

Sources: U.S. Geological Survey 2022b, California Department of Fish and Wildlife 2023, ESRI 2024



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Figure 8. Middle San Joaquin – Lower Chowchilla Drainage Network
Vista Ranch Project Compensatory Mitigation Plan
Wilson Premier Homes

Water Quality Impairment

Water quality has suffered in the Middle San Joaquin River – Lower Chowchilla River watershed over the past century and a half. Table 4 summarizes currently identified impairments in the principal water bodies highlighted on Figure 6. Numerous other impairments have been identified in additional water bodies not specifically called out on Figure 6 (State Water Resources Control Board 2023).

As of 2024, U.S. Environmental Protection Agency–approved TMDLs are in place for chlropyrifos, diazinon, and selenium in the San Joaquin River from Mud Slough to the Merced River. Numerous other TMDLs are in development. The State Water Resources Control Board's Statewide Mercury Program has also established TMDLs for mercury in multiple downstream waters. None of these apply directly to water bodies within the Middle San Joaquin River – Lower Chowchilla River watershed, but it is our understanding from conversations with staff in the RWQCB Region 5 Mercury and Metals TMDL Unit that mercury contamination is a key focus of concern in upstream waters as well.

Table 4. Identified Water Quality Impairments in Principal Water Bodies, HUC 18040001

Water Body	Impairments
San Joaquin River	
Friant Dam to Mendota Pool	Invasive species, pH, water temperature
Mendota Pool to Bear Creek	DDT, Group A pesticides, pH, toxicity
Bear Creek to Mud Slough	Arsenic, boron, DDT, electrical conductivity, Group A pesticides, indicator bacteria, linuron, mercury, total dissolved solids, toxicity, water temperature
Mud Slough to Merced River	Boron, chlorpyrifos, DDT, diazinon, electrical conductivity, Group A pesticides, indicator bacteria, mercury, selenium, toxicity, water temperature
Salt Slough, upstream from confluence with San Joaquin River	Dissolved oxygen, electrical conductivity, linuron, mercury, prometryn, specific conductivity, total dissolved solids, toxicity
Bear Creek	
Bear Valley to San Joaquin River, Mariposa and Merced Counties	Bifenthrin, indicator bacteria, pyrethroids, toxicity
Deadman Creek	Arsenic, dissolved oxygen, indicator bacteria, linuron, molybdenum, pH, total dissolved solids, toxicity
San Luis Reservoir	Chlordane, mercury, total DDT, polychlorinated biphenyls (PCBs), pH
Los Banos Creek	
Below Los Banos Reservoir, Merced County	Boron, dissolved oxygen, indicator bacteria, linuron, molybdenum, total dissolved solids, toxicity
Little Panoche Creek	Toxicity

Source: State Water Resources Control Board 2023

Aquatic Resource Stressors

Major stressors on aquatic resources in the Middle San Joaquin River – Lower Chowchilla River watershed continue to include water diversions for irrigation, loss of connectivity (up- and downstream passage) due to hydroelectric infrastructure, and intensive cultivation at lower elevations (e.g., National Fish and Wildlife Foundation 2018, 2021). Urban runoff and agricultural tailwater also threaten water quality throughout the watershed as a whole. Interestingly, several water bodies not previously listed for water temperature impairment (State Water Resources Control Board 2016) now carry this designation (State Water Resources Control Board

2023), perhaps reflecting influences of changing climate and/or the increasing visibility of changing temperature regimes as an issue of concern.

Vista Ranch Project Overview

Following is a brief overview of the project as currently proposed. Additional detail is provided in the separately submitted *Project Description*.

Context & Objectives

The Vista Ranch project represents part of a larger City planning undertaking (Figure 9) that comprises

- expansion of the City's Sphere of Influence (SOI) to include an approximately 952-acre area outside the current SOI boundary
- adoption of a comprehensive Master Plan (the Vista Ranch Master Plan) to guide development within approximately 507 acres of the SOI Expansion Area, including pre-zoning and annexation of the Master Plan Area
- approval and implementation of the Vista Ranch project, which would develop some 368 acres of the Master Plan Area as a master-planned community; development of the remaining 139 acres of the Vista Ranch Master Plan area would be the purview of a separate future project or projects that are not currently being contemplated and may be undertaken by other parties[2]

In this context, the Vista Ranch project is proposed to provide

- up to 2,718 residential units, including both single- and multi-family units at varying densities (Figure 10)
- up to 121,000 square feet of "Gateway" neighborhood commercial and community recreation facilities
- approximately 43 acres of parks, trails, and open space
- new public and private roadways providing vehicular, bicycle, and pedestrian access throughout the Development site and connecting to surrounding community areas
- other associated improvements, including water supply, storm drainage, sewer infrastructure, and electrical and telecommunications facilities to serve the community

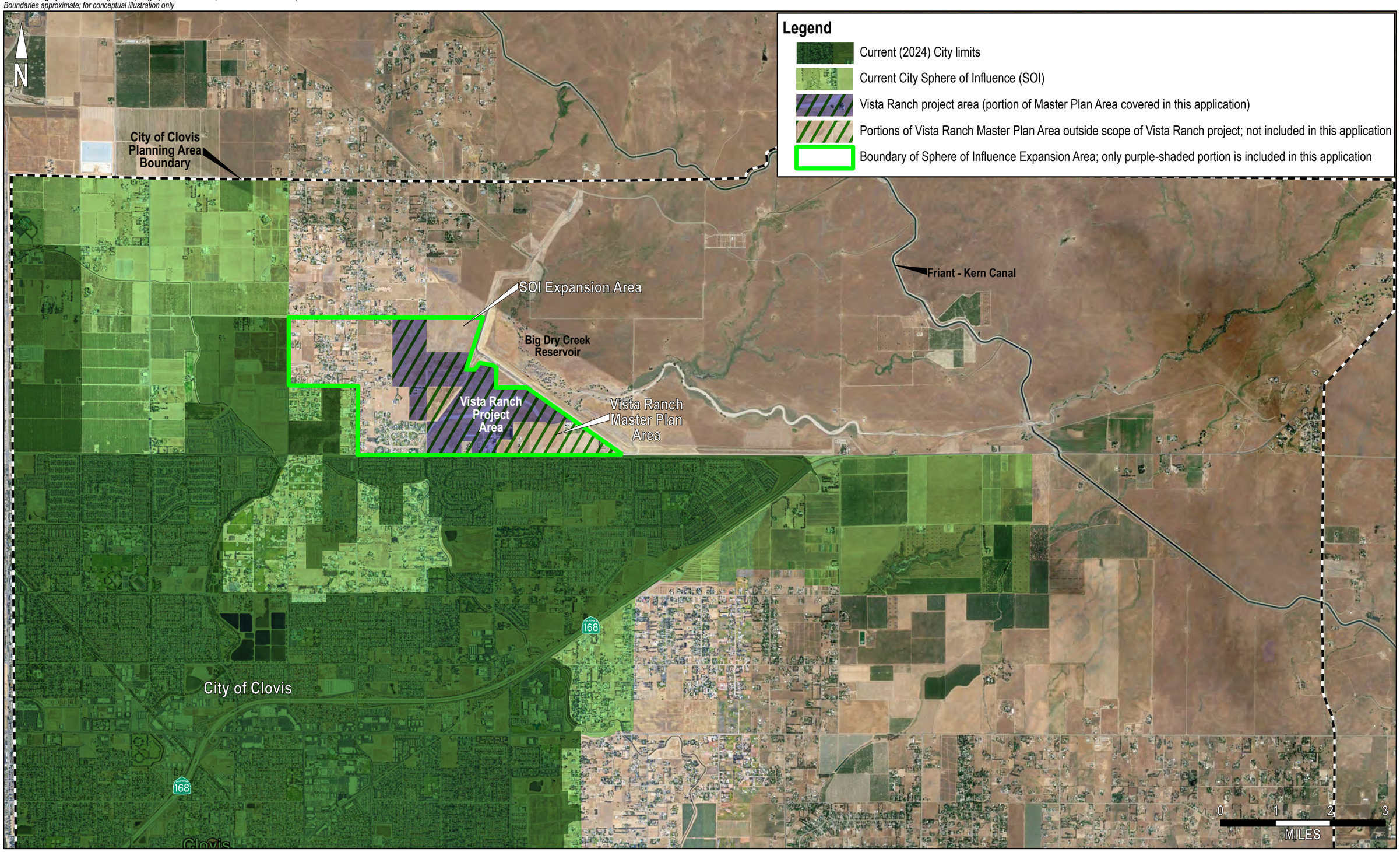
Avoidance of Aquatic Resources

The project has been configured to avoid impacts on aquatic resources to the extent feasible. As shown in Figure 10, this includes the following.

- Leaving a belt of open space along the northeast project boundary undeveloped, protecting a chain of depressional wetlands within remnant floodplain swales in this area
- Protecting additional wetlands in smaller open space areas throughout the development
- Avoiding and protecting an existing agricultural tailwater pond in the central portion of the project site

[2] It is assumed that separate application(s) will be submitted for future development if warranted, potentially by other parties; this application covers only the initial 368-acre Vista Ranch project.

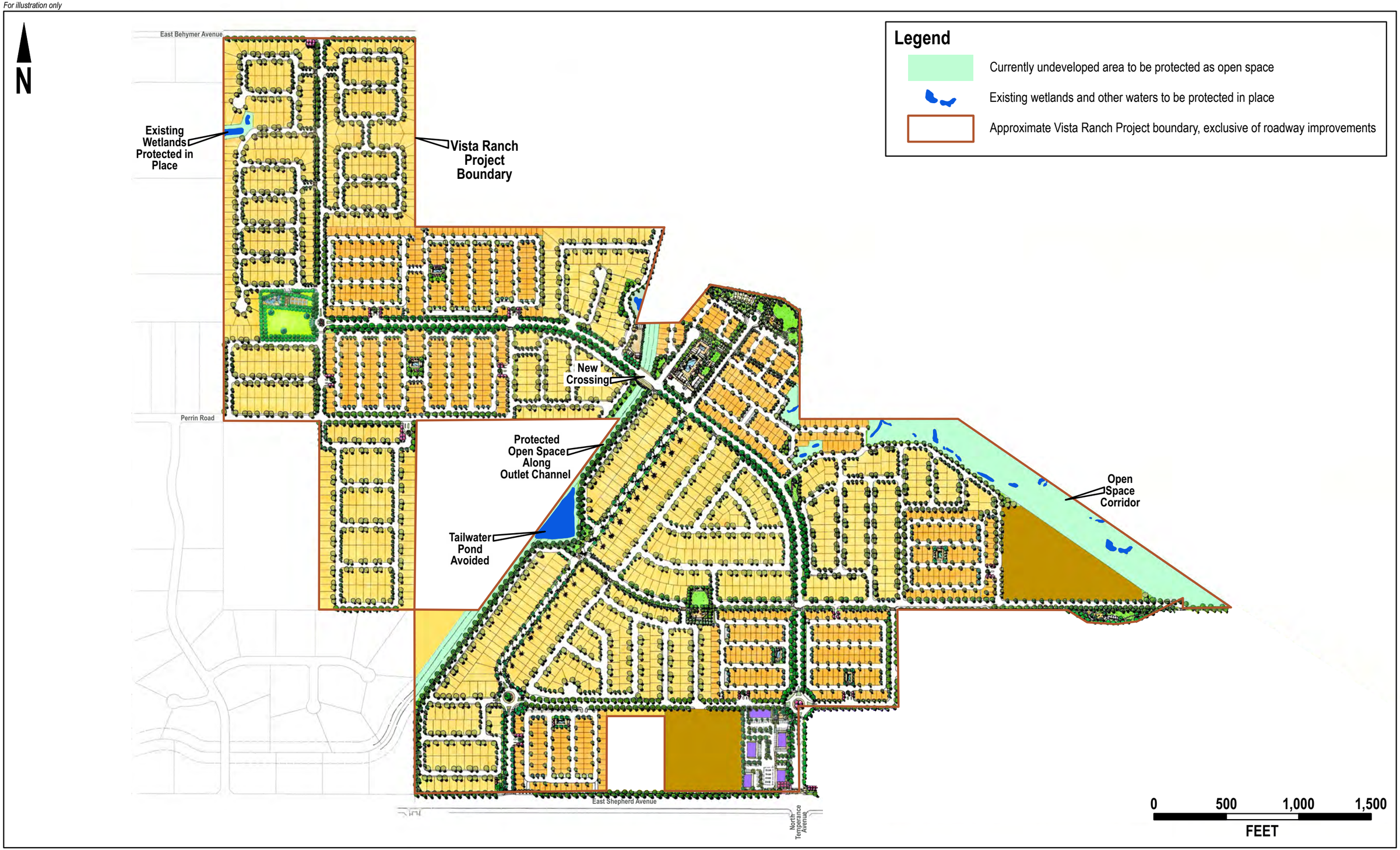
Map Source: *modified from* City of Clovis (2014)
Aerial Photograph Source: GoogleEarth (imagery date: 06/09/2022, downloaded: 08/22/2023)
Boundaries approximate; for conceptual illustration only



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Figure 9. Project Planning Context
Vista Ranch Compensatory Mitigation Plan
Wilson Premier Homes

Source: *modified from* Wilson Premier Homes 2025
For illustration only



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Figure 10. Vista Ranch Project Schematic Development Layout
Vista Ranch Compensatory Mitigation Plan
Wilson Premier Homes

- Discharging stormwater from within the new development to protected wetlands and the tailwater pond to maintain them as aquatic features once they are surrounded by development and no longer receive overland or tailwater input. Stormwater would be routed via appropriate low-impact development (LID) treatment features to manage discharge water quality
- Establishing a protected open space corridor along the Outlet Channel where it bisects the project site. The "Outlet Channel corridor" boundaries would coincide with FMFCD's existing easement limits where an easement is in place. In the southwest portion of the project area, where no easement is currently in place, a new 100-foot-wide easement would be established to protect the Outlet Channel and maintain FMFCD access for operations and maintenance

The project site is bisected by the Outlet Channel, as seen in Figure 10. To provide an internal connection between the east and west segments of the development, the applicant hopes to construct a new crossing over the Outlet Channel downstream of the Big Dry Creek Dam spillway. Two approaches are currently being considered, in cooperation FMFCD as the Outlet Channel's owner/operator and with the City Building Official/City Engineer as the local floodplain manager. Discussion is also ongoing with the Corps, since the Big Dry Creek Dam complex was constructed by the Corps and thus qualifies as federal project works subject to 33 United States Code, Section 408. Although it is highly desirable for convenience and efficient circulation, the crossing is not essential to the function of the new community. Moreover, the crossing concept is still in development. As a result, the crossing is not included in the project as proposed in this application. Assuming it moves forward in the future, a separate application or applications will be submitted for all permits needed to authorize construction.

Project Phasing

Construction of the Vista Ranch project is expected to be phased over about 10 years (Figure 11). The south-central portion of the project (Phases 1 – 3, adjacent to East Shepherd Avenue/North Temperance Avenue) would be constructed first due to proximity to existing development, roadways, and utilities within the City; these Phases would be completed in the first 5 years. Construction of Phase 4 is expected to begin in Year 5, and the remainder of the western phases and the eastern portion of Phase 6 would be built out in Years 5 – 10. The crossing connecting the east and west portions of the Vista Ranch project is conceptualized as a separate Phase 4a, to be constructed along with Phase 4, since bridge/crossing construction would not begin until (1) the east-west connection becomes necessary, and (2) all necessary permit approvals have been issued. Please note that the crossing is not included in this application.

Habitat Conditions on Project Site

Overview

The project site is bordered to the south and west by suburban residential development and to the northwest by more open rural residential development (Figure 1, Figure 9). To the northeast, the site abuts open rangeland and the Big Dry Creek Dam and Reservoir. The site is bisected by the Outlet Channel, a constructed feature fed by the Big Dry Creek Reservoir spillway (Figure 12).

As described above, when the Reservoir was constructed, the natural Dry Creek drainage was re-routed into the Reservoir basin; flow now exits via the spillway and is conveyed in the Outlet Channel to rejoin the Creek about 2,500 feet below the spillway, at the southwest edge of the project site. The truncated and abandoned channel of Dry Creek remains a conspicuous feature in the east-central portion of the site—particularly on aerial

Source: *modified from* Wilson Premier Homes 2023

N

Legend

Wetlands/waters avoidance area (protected open space; no development)

Note: Development Area boundary as shown does not encompass all adjacent roadway improvements

Vista Ranch Project Area Boundary

Phase 4

Phase 5

Phase 6

Phase 4a (Not Included in this Application)

Phase 2

Phase 3

Phase 6

Phase 1

Phase 2

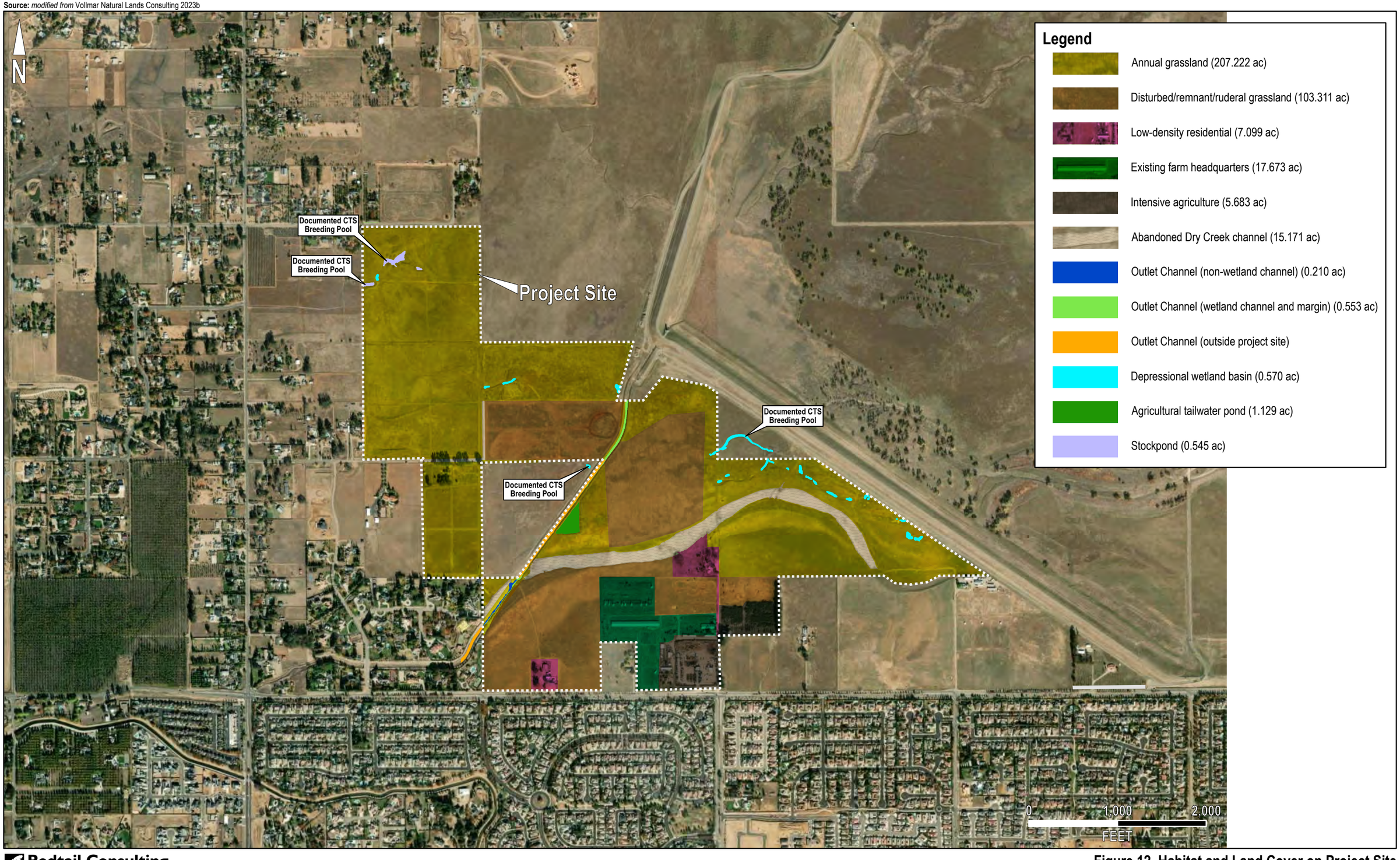
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Figure 11. Anticipated Project Phasing
Vista Ranch Compensatory Mitigation Plan
Wilson Premier Homes

Source: *modified from* Vollmar Natural Lands Consulting 2023b



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Figure 12. Habitat and Land Cover on Project Site
Vista Ranch Project Compensatory Mitigation Plan
Wilson Premier Homes

imagery—but no longer conveys flow, all of which has been re-routed via the Reservoir, Dam, spillway, and Outlet Channel (Vollmar Natural Lands Consulting 2023a) (Figure 12).

Site topography is level to gently rolling, with elevations ranging from about 380 to 413 feet above mean sea level. The most pronounced slopes are in the northwest portion of the site. Site soils appear to lack intact claypan or hardpan, which likely contributes to relatively rapid infiltration throughout much of the site, with a correspondingly low rate of wetland formation even within some depressional features (Vollmar Natural Lands Consulting 2023a).

The majority of the site is non-native annual grassland and degraded pasture land (Figure 12). Scattered depressional wetlands are present within the grasslands, especially along the northeast edge of the site, where they occupy a series of what appear to be remnant floodplain swales north of the remnant Dry Creek channel. Three created stockponds and small depressional wetlands are also present within the grasslands in the northwest portion of the site (Vollmar Natural Lands Consulting 2023a).

The central portion of the site was graded for flood irrigation several decades ago, although flood irrigation is not practiced at this time. This area is divided into several pastures with cross fencing and is at least intermittently used for grazing. It supports degraded pasture with disturbed, ruderal vegetation dominated by non-native grasses and herbs including invasive weeds. Scattered rural/agricultural development features are also present. Current grazing use appears to be light, leading to build-up of thatch and residual dry matter (RDM). A triangular pond located adjacent to the Outlet Channel was apparently constructed in uplands to capture and allow reuse of irrigation water although it also has a culverted connection to the Channel (Vollmar Natural Lands Consulting 2023a).

Upland Habitats

As Figure 12 shows, more than half of the project site supports grassland habitat. Like nearly all California grasslands, the uplands are dominated by non-native European annual grasses. Weedy species are also present, although this habitat is more characterized by forage grasses than noxious weeds *per se*. The areas mapped as grassland have generally been subject only to livestock grazing, but some dirt roads, firebreaks, and other minor infrastructure are present. The northeast and southeast portions of the site appear not to be grazed at present, and grasslands there support a mixture of primarily non-native annual grasses and herbs including invasive non-native species (Vollmar Natural Lands Consulting 2023b).

Approximately another one-third of the project site supports a land cover type referred to here as disturbed/ remnant/ruderal grasslands. This includes areas that were formerly levelled and flood-irrigated but have since been returned to dry pasture, areas that have been dry-farmed or were otherwise subject to severe soil disturbance, and small patches of grassland separated from other habitat by developed land covers. These areas are united by the fact that their land use history has significantly impeded their ability to provide habitat values for listed species (Vollmar Natural Lands Consulting 2023b).

A former small farm occupies about another 5% of the project site. This area includes dilapidated structures and old row crop fields that have been fallowed, and are now used as grazing land or are unmanaged. Their function and value is similar to that of the disturbed/remnant/ruderal grassland areas (Vollmar Natural Lands Consulting 2023b).

The abandoned Dry Creek channel, which occupies about 4% of the project site by acreage, is also considered upland habitat. It exhibits intermittent stream geomorphology—clearly visible on aerial photographs if less so in the field—but no longer conveys any flow, lacks an OHWM, and does not support hydric soils (Vollmar Natural

Lands Consulting 2023a). Rather, it is a sandy area lightly vegetated with plants tolerant of very dry soils (Figure 13). Some of these are native to California, but the very sandy, open habitat is atypical of valley grassland environments and for the most part does not provide grassland habitat values (Vollmar Natural Lands Consulting 2023b). However, a large stand of silver bush lupine (*Lupinus albifrons*) observed in the east half of the channel in spring 2024 would provide suitable forage for multiple pollinator species, and Crotch's bumble bee was observed foraging there during April 2024 surveys for the species (Smith pers. comm.[a]), pers. comm.[b]. As of April 2024, CDFW has confirmed that they will not take jurisdiction over the portion of the remnant channel upstream of the confluence with the Outlet Channel. This is understood to be because it has been functionally replaced by the Outlet Channel; although the remnant channel still exhibits bed and banks geomorphology, it has not received surface flows for about 70 years, does not appear to receive meaningful groundwater input, and thus lacks a low-flow channel and OHWM (Byrd pers. comm.). As a result, it no longer provides stream or riparian values.

Aquatic Resources

A total of 3.053 acres of jurisdictional waters has been mapped on the project site (Figure 14). This includes 1.646 acres of wetlands and 0.278 acre of other waters (the Outlet Channel) (Vollmar Natural Lands Consulting 2023a). The agricultural tailwater pond mentioned above (1.129 acres; Vollmar Natural Lands Consulting 2023a) is also being treated as jurisdictional due to its connection with the Outlet Channel. All of these features are described in more detail below, beginning with open water and wetlands within the Outlet Channel downstream of the Big Dry Creek Reservoir. Additional information on wetlands and waters at the project site is provided in the separately submitted project *Delineation of Potential Jurisdictional Aquatic Resources* (Vollmar Natural Lands Consulting 2023a).

Outlet Channel

The Outlet Channel is a constructed feature with a largely straight plan view and a roughly trapezoidal cross section.

The southern portion of the Outlet Channel has been delineated as non-wetland channel, indicated as *Outlet Channel (non-wetland channel)* on Figure 14. At the time the jurisdictional habitat delineation was conducted for the project (late spring – early summer 2023), it showed a conspicuous lack of vegetation, and its steeply eroded banks suggested that any vegetation previously present may have been washed out in the winter's heavy rains (Vollmar Natural Lands Consulting 2023a).

The Outlet Channel provides minimal habitat value, largely because its sandy soils and lack of vegetation allow moisture to infiltrate rapidly or evaporate when water is not being actively released at the Reservoir spillway. The temporary nature of flows prevents the establishment of any fish species, as well as most aquatic invertebrates. During releases, high flows likely flush any fish or invertebrates that might otherwise attempt to use this habitat. Birds and mammals may gain some use from the availability of drinking water during releases. The lack of vegetation or any other source of channel roughness greatly reduces opportunities for natural water quality improvements or other ecosystem services from this habitat (Smith pers. comm.[c]).

Significant portions of the Outlet Channel also support wetlands, including segments of wetland channel and fringing wetlands along the channel margin, called out as *Outlet Channel (wetland channel and margins)* on Figure 14. Vegetation in these areas is dominated by wetland plants including burhead (*Echinodorus berteroi*), rough cocklebur (*Xanthium strumarium* [*X. orientale*]), tall flatsedge (*Cyperus eragrostris*), and common spikerush (*Eleocharis macrostachya*) (Vollmar Natural Lands Consulting 2023a, 2023b).

Source: photos by Vollmar Natural Lands Consulting, Sacramento, CA

Abandoned Dry Creek Channel on Project Site



View to west at angle to channel, from 36°52'18.3"N, 119°39'57.9"W (approximate center of channel on project site)



View northeast across channel from 36°52'12.2"N, 119°40'23.2"W (just east of Big Dry Creek Dam spillway channel)

Functional Channel Upstream of Big Dry Creek Dam



Drone aerial view, looking downstream toward Clovis and Fresno, from upstream of Friant-Kern Canal

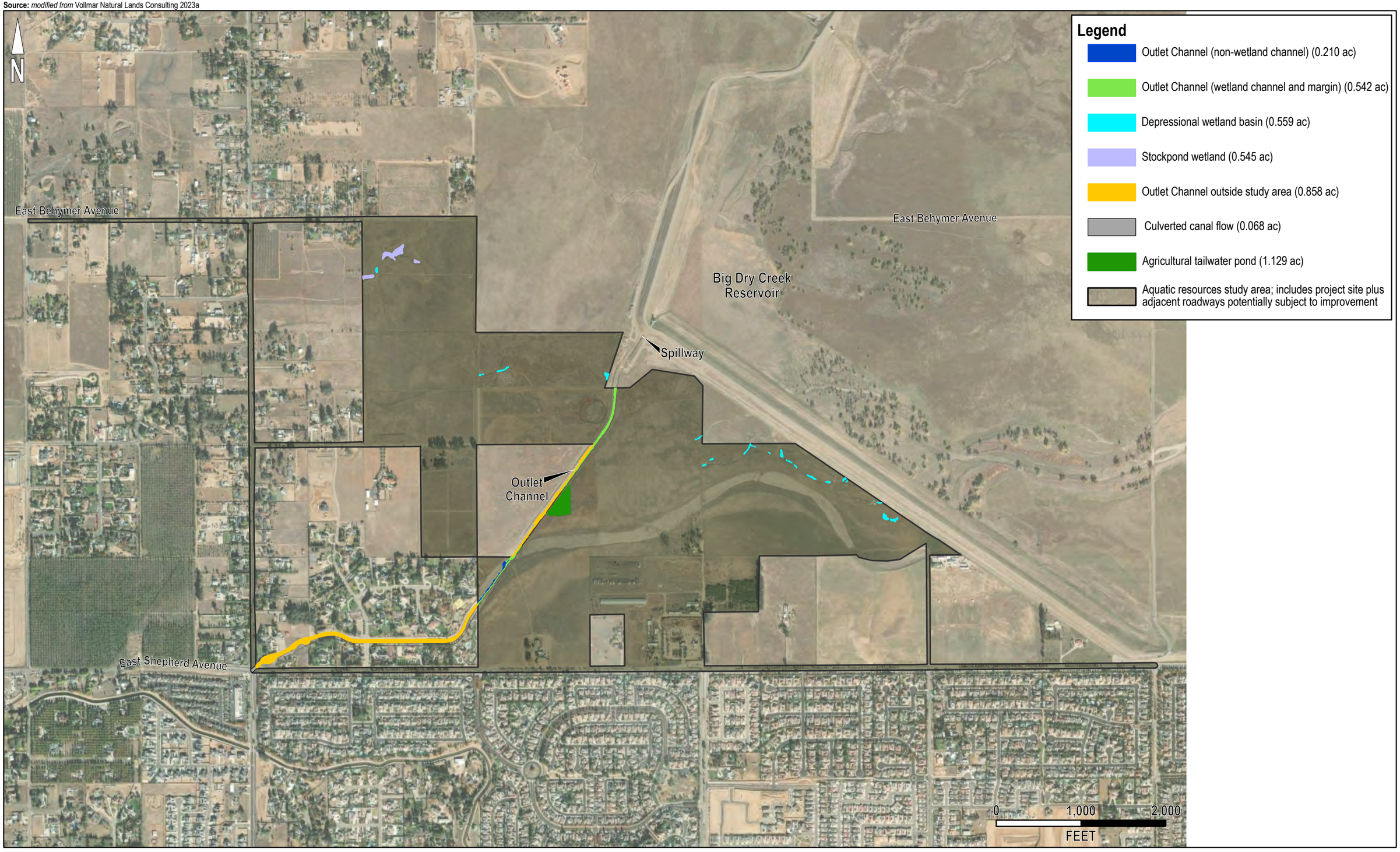


View upstream from bank of reach shown above; flow toward viewer

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Figure 13. Dry Creek Channel Above and Below Big Dry Creek Dam
Vista Ranch Project Compensatory Mitigation Plan
Wilson Premier Homes

Source: *modified from* Vollmar Natural Lands Consulting 2023a



Redtail Consulting
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Figure 14. Aquatic Resources on Project Site
Vista Ranch Compensatory Mitigation Plan
Wilson Premier Homes

The wetland portions of the Outlet Channel and its fringing wetland margins provide some habitat value. Like the non-wetland channel described above, the hydroperiod of wetland channel reaches is restricted almost entirely to the period of Reservoir releases, preventing the establishment of fish. However, the presence of vegetation on the channel bottom provides slightly increased moisture retention, allowing this area to provide some sheltering habitat for invertebrates and amphibians. Birds or mammals may also forage here, though watering opportunities are still very limited. The vegetation in this area likely provides minor water quality improvements locally and downstream. However, the type of vegetation in this channel—relatively small-statured plants at low density—is not well suited to providing significant water quality improvements, carbon sequestration, or other ecosystem services that might be provided by larger, denser marshland plants (Smith pers. comm.[c]).

Depressional Wetlands

Depressional wetlands occupying natural basins and topographic lows (totaling 0.559 acre) are scattered throughout the portions of the site that have not experienced significant grading, with concentrations along the northeast site margin and in the northwest (Figure 14). Some appear to occupy remnant floodplain swales that are now beheaded by the Big Dry Creek Reservoir system. No wetlands are present in the central portion of the site where there is more history of past grading (Vollmar Natural Lands Consulting 2023a).

Common dominant vegetation within the delineated depressional wetland basins includes common lippia (*Phyla nodiflora*), swamp picklegrass (*Crypsis schoenoides*), and saltgrass (*Distichlis spicata*). Common subdominant species include Mediterranean barley (*Hordeum marinum* ssp. *gussoneanum*), common vernal pool allocarya (*Plagiobothrys stipitatus* var. *micranthus*), coyote thistle (*Eryngium castrense*), hyssop loosestrife (*Lythrum hyssopifolia*), and Italian rye grass (*Festuca perennis*). The wetland delineation team observed that as the basins dried following the heavy winter rains of 2023, many showed reduced vegetation cover and were colonized by upland species such as pigweed amaranth (*Amaranthus albus*), common sunflower (*Helianthus annuus*), seaside heliotrope (*Heliotropium curassavicum*), lamb's quarter's (*Chenopodium album*), alkali mallow (*Malvella leprosa*), and puncture vine (*Tribulus terrestris*) (Vollmar Natural Lands Consulting 2023a).

Because most of the site soils are developed on highly permeable alluvium, the depressional wetlands generally have a shorter hydroperiod than typical vernal pools in the project region. They support some generalist vernal pool species at low densities (e.g., common vernal pool allocarya and coyote thistle), but the vegetation is more typified by generalist seasonal wetland plants. Rare vernal pool plants are not expected to occur in these wetlands (Smith pers. comm.[c]), and no rare plants were observed anywhere onsite during protocol-level surveys conducted in 2023 (Vollmar Natural Lands Consulting 2023c).

The depressional wetlands provide potential habitat for vernal pool wildlife, including VPFS and midvalley fairy shrimp (*Branchinecta mesovallensis*). VPFS were detected in several wetlands onsite during protocol-level surveys conducted in 2023 – 2024, but midvalley fairy shrimp has not been confirmed (Vollmar Natural Lands Consulting 2023d, Smith pers. comm.[d]). WSF has also been documented as breeding in several of the depressional wetlands, and all of them provide potential habitat for WSF. The largest and deepest of these features—which extends off the project site and onto neighboring FMFCD property adjacent to the Big Dry Creek Reservoir—supports breeding CTS. This feature is underlain by the San Joaquin loam, a hardpan-developing soil, which likely accounts for its longer hydroperiod and greater ability to support special-status species. Two other depressional wetlands on the site that are also located on San Joaquin loam substrate provide additional areas of potential CTS breeding habitat (Smith pers. comm.[c]).

In addition to these special-status species, the depressional wetlands provide potential habitat value for a variety of generalist wetland invertebrates, birds, reptiles, and mammals. However, the relatively short

hydroperiod and generalist-dominated vegetation community means that this value is lower than would be expected for a typical vernal pool in the region. Additionally, because the depressional wetlands are (highly) seasonal and lack surface connectivity to other waters, they provide little to no water quality service or carbon sequestration, although they likely make a limited contribution to groundwater infiltration (Smith pers. comm.[c]).

Stockpond Wetlands

Three stockponds totaling 0.545 acre are located in the northwest portion of the site, where they cluster with naturally formed depressional wetlands (Figure 14). They are dominated by a mixture of obligate and facultative wetland plant species, including common spikerush, burhead, and curly dock (*Rumex crispus*). The upper rim of one of the ponds also supports some additional wetland plant species such as coyote thistle, hyssop loosestrife, and Mediterranean barley (Vollmar Natural Lands Consulting 2023a). The stockponds are created features rather than natural vernal pools; their hydrology and soils are not conducive to development of vernal pool vegetation communities or to support of vernal pool specialist invertebrates (Smith pers. comm.[c]).

Two of the stockponds provide documented CTS breeding habitat, and a third provides potential breeding habitat for the species. All of them also provide potential habitat for WSF, as well as for generalist wildlife, including other amphibians, birds, mammals, reptiles, and invertebrates (Smith pers. comm.[c]).

Because the stockponds are seasonal and lack surface connections to other waters, they provide little to no water quality service or carbon sequestration. However, they provide moderate groundwater infiltration service (Smith pers. comm.[c]).

Agricultural Tailwater Pond

A large (1.129 acres) agricultural tailwater pond is located in the central portion of the site adjacent to the outer toe of the berm bordering the Outlet Channel (Figure 14). Based on historic topographic maps and aerial photographs, it appears to have been constructed in the 1950s when this portion of the site was graded for flood irrigation, to enable capture and recirculation/reuse of irrigation water from irrigated pastures on the site. Flood irrigation is no longer conducted on the site, but the pond likely still receives stormflow from the graded field areas via remnant tailwater ditches (Vollmar Natural Lands Consulting 2023a).

The pond also has a culvert connection to the Outlet Channel. The purpose of the culvert is uncertain; it was probably intended to allow excess irrigation water to drain to the Outlet Channel, but observations during the 2023 – 2024 wet season suggest it also allows flows from the Outlet Channel to enter the pond (Vollmar Natural Lands Consulting 2023b, Maners and Smith pers. comm.).

The pond was fully inundated in 2023's heavy winter rains and remained ponded at least 4 feet deep in June when fieldwork was conducted for the jurisdictional habitat delineation (Vollmar Natural Lands Consulting 2023a). At this time, prolonged ponding had enabled establishment of a narrow (approximately 3-foot-wide) band of wetland vegetation around the rim of the pond. The remainder of the pond was open water in June 2023 (Vollmar Natural Lands Consulting 2023a).

Interestingly, although studies in June 2023 documented hydric soils at the pond, a previous investigation mapped this area as annual grassland lacking both wetland soils and wetland vegetation (ECORP Consulting 2023, Vollmar Natural Lands Consulting 2023a). As of the 2023 surveys, vegetation fringing the pond was characterized by northern water plantain (*Alisma triviale*), burhead, common spikerush, and hyssop loosestrife (Vollmar Natural Lands Consulting 2023a).

The pond provides habitat for wildlife, including breeding amphibians, aquatic reptiles, waterfowl, and mammals. As of 2023, western toad (*Anaxyrus boreas*) appeared to be breeding there, but 2023 surveys did not detect CTS (Vollmar Natural Lands Consulting 2023b).[3] While the pond does retain water long enough to allow CTS to breed in some years, its variable hydrology—well outside the normal range for Central Valley wetland systems, and likely the result of intermittent input from Reservoir releases—greatly reduces its habitat value (Vollmar Natural Lands Consulting 2023b).

Due to its variable hydrology and uncertain ponding period, the tailwater pond is not expected to provide significant water quality or carbon capture services. However, the same factors considered likely to be responsible for year-to-year differences in ponding duration—i.e., unpredictable input from spillway releases via the Outlet Channel—mean that it intermittently provides a small increase in flood protection to downstream waters, as well as contributing to groundwater recharge (Smith pers. comm.[e]).

CRAM Assessment Scores for Aquatic Features on Project Site

California Rapid Assessment Method (CRAM) evaluations were conducted at the Vista Ranch project site in late September 2023 in order to assess the ecological function and value of impacted wetlands and waters. A range of features distributed across the site was evaluated, with the goal of capturing the diversity of resources present and arriving at an approximate sitewide characterization. Assessment methods followed the current CRAM Field Books for depressional wetlands, riverine wetlands, and vernal pool systems (California Wetlands Monitoring Workgroup 2013a, 2013b, 2020).

Locations of the evaluated features are shown in Figure 15. Wetland Assessment Area D1 consists of the largest stock pond proposed for fill. This feature was selected for evaluation because it was considered likely to offer the highest wetland habitat values of the stock ponds and depressional wetlands, based on its large size and relatively long hydroperiod. Assessment Area D2 is a centrally located depressional wetland in a swale, also planned for fill. This feature is more representative of the smaller wetlands on the project site, both those that would be filled and those that would be avoided. Riverine Assessment Area R1 comprises 100 meters of the Outlet Channel in the central project area. This location was selected per CRAM guidelines to allow for evaluation of the area of maximum impact from the bridge crossing that will eventually connect the east and west portions of the project.[4] Assessment Area R2 is a representative reach of the abandoned former Dry Creek channel.[5]

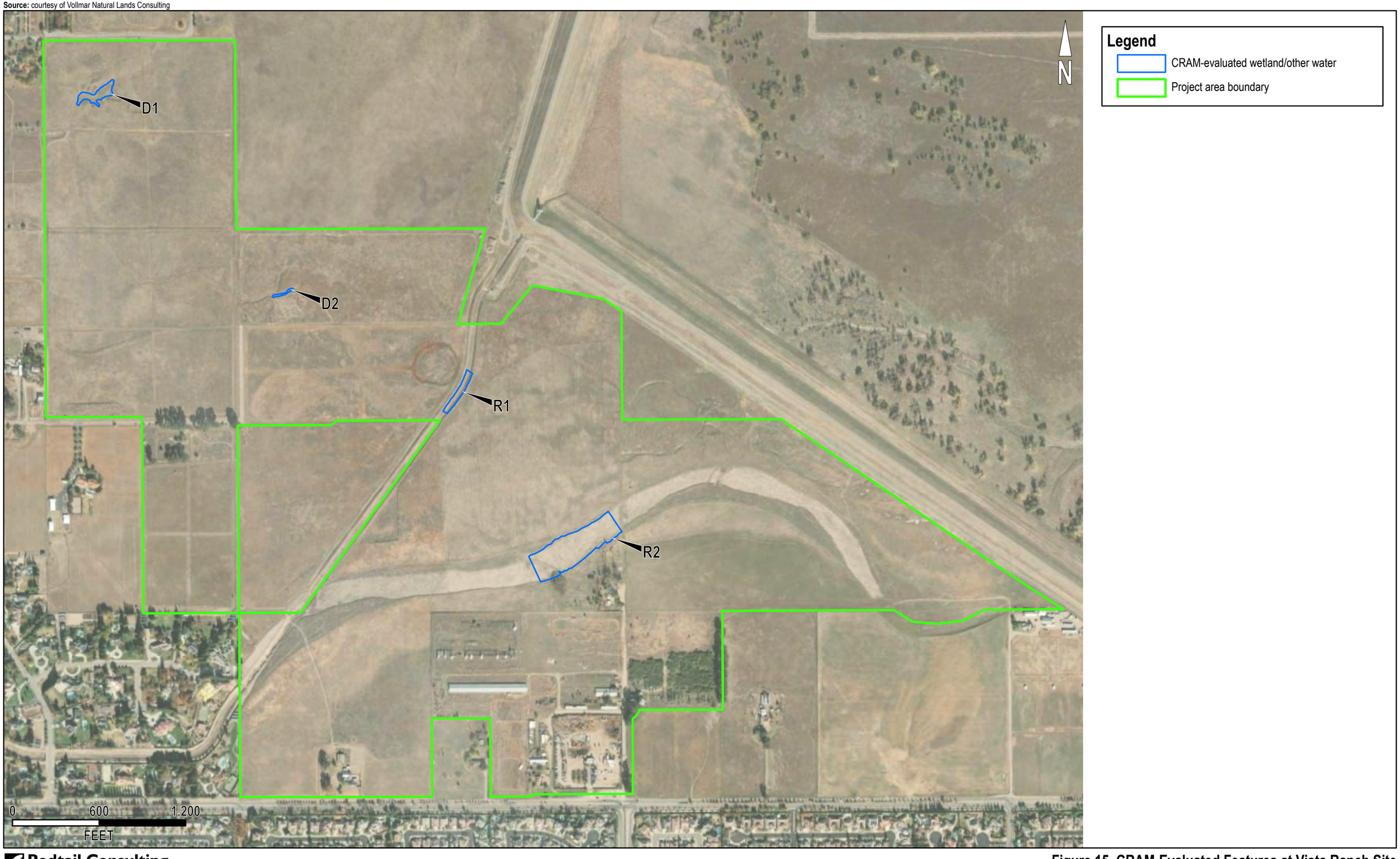
Table 5 on the next page summarizes the results for each feature by wetland attribute; the feature's index score is the average of the four attribute-specific scores. CRAM field worksheets are provided in Appendix A.

[3] Protocol-level surveys were not conducted in 2023; however, CTS was notably present in other features onsite at this time, and was not detected in the pond (Vollmar Natural Lands Consulting 2023b).

[4] As identified above, the bridge crossing is conceptualized as a separate future undertaking and is not included in this application.

[5] CRAM evaluation of the abandoned former channel is arguably inappropriate since it lacks both wetland soils and vegetation and has been truncated from sources of upstream flow, and thus, as discussed above, is neither a wetland nor an active stream channel at present. This feature was chosen for evaluation as a means of further examining the initial assessment that it provides little or no riparian/wetland value. Interestingly, as Table 5 shows, it received a score of 75 for the Hydrology attribute, due to the geomorphic stability of the (no longer functional) channel, and its direct connection to overland flow via low banks and a lack of natural levees. This higher single-attribute score elevated the feature's overall score, and the overall score of 40 should probably be considered as overestimating the beheaded channel's actual function and value.

Source: courtesy of Vollmar Natural Lands Consulting



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Figure 15. CRAM-Evaluated Features at Vista Ranch Site
Vista Ranch Compensatory Mitigation Plan
Wilson Premier Homes

Table 5. CRAM Assessment Scores for Project Site Aquatic Features

Feature	Score by Wetland Attribute				Index Score
	Buffer & Landscape	Hydrology	Physical Structure	Biotic Structure	
Depressional Wetland					
D1	47.88	83.33	50	41.67	56
D2	47.88	58.33	62.5	41.67	53
Riverine					
R1	45.4	66.67	37.5	66.67	54
R2	36	75	25	25	40

Index scores for the two depressional wetland features (56 and 53 respectively) are below the statewide median index score of 60 for depressional wetlands and are just above the range of scores considered to represent Poor condition. Scores for the two "riverine" features (54 for the Outlet Channel and 40 for the abandoned Dry Creek channel) are also unimpressive; 54 is at the low end of Fair condition, and 40 is well within the Poor condition range (Redtail Consulting 2023).[6]

Project Impacts on Aquatic Resources

Wetlands/Waters Avoidance

As noted above, the project development layout has been configured to avoid wetland impacts to the extent feasible while still achieving project objectives (Figure 10). This includes the following.

- Leaving a belt of open space along the northeast project boundary undeveloped, protecting the chain of depressional wetlands within remnant floodplain swales in this area
- Protecting additional wetlands in smaller open space areas throughout the development
- Avoiding and protecting the agricultural tailwater pond in the central portion of the project site
- Discharging stormwater from within the new development to protected wetlands and the tailwater pond to maintain them as aquatic features once they are surrounded by development and no longer receive overland or tailwater input. Stormwater would be routed via appropriate low-impact treatment features to manage discharge water quality
- Establishing a protected open space corridor along the Outlet Channel where it bisects the project site

The open space belt at the northeast project boundary would be approximately 250 feet wide for most of its length, which provides an approximately 25-foot-wide buffer between the most westerly wetlands and the closest developed feature. Other open space areas have also been configured to provide a minimum 25-foot-wide buffer around depressional wetlands and the agricultural tailwater pond. Post-and-cable fencing and informational signage is proposed to discourage entry into the open space areas.

Open space protecting wetlands and waters to be avoided and preserved in place would be placed under conservation easement and would be managed over the long term by the Vista Ranch Homeowners' association or another entity approved by the resource agencies. A long-term management plan to maintain

[6] As of this writing, no statewide median score for riverine features has been published (see additional discussion in Redtail Consulting 2023).

water quality and habitat value in these areas will be developed and provided for resource agency review and approval.

Unavoidable Impacts

The total footprint of unavoidable impacts on wetlands and other waters of the State of California[7] is expected to be 0.495 acre, reflecting removal (grading and/or fill) of wetlands for project construction. Table 6 itemizes these impacts in more detail. Impacts are broken down two ways in the table: first by type of aquatic resource, and second by the federally listed species affected, since impacts on federally listed species were an important driver for the approach to compensate for all project impacts. Unless noted otherwise, impact acreages reflect direct impacts as a result of development construction. Acreages are rounded to three decimal places/four significant figures for simplicity; more precise acreages are given in the project *Biological Assessment* (Vollmar Natural Lands Consulting 2023b, 2025). Compensation is addressed in the following section.

Table 6. Vista Ranch Project Impacts

Impact	Acres Impacted	
	Permanent Loss	Temporary Disturbance
Impacts by Aquatic Resource Type		
Wetlands, total	0.495	0
Outlet Channel, wetland channel and fringing wetland margin	0	0
Depressional wetland basin	0.061	0
Stockpond	0.434	0
Other waters (Outlet Channel, non-wetland channel)	0	0
Impacts by Species		
CTS, total	332.0*	0
Documented breeding habitat	0.390	0
Documented breeding habitat (avoided and protected in place; long-term indirect impact due to surrounding development and loss of overall connectivity)	0.369	0
Suitable breeding habitat, presumed occupied	0.105	0
Low-suitability breeding habitat (avoided and protected in place; long-term indirect impact due to surrounding development and loss of overall connectivity)	1.129	0
Suitable upland habitat, presumed occupied	189.7	0
Low-suitability upland habitat	140.3	0
VPFS, total	0.806	0
Suitable wetland habitat, presumed occupied (direct loss)	0.061	0
Suitable wetland habitat, presumed occupied (avoided and protected in place; long-term indirect impact due to surrounding development and loss of overall connectivity)	0.745	0

Note:
* Total reflects rounded acreages below; using unrounded figures, impacts on CTS habitat total 331.93 acres (see Vollmar Natural Lands Consulting 2023b, 2025). CTS breeding habitat impacts include acreage within the Vista Ranch project site as well as suitable breeding habitat within the standard 250-foot USFWS indirect impacts buffer.

Source: Vollmar Natural Lands Consulting 2023b

[7] All features identified as Waters of the State are also considered federally jurisdictional based on the Corps' November 2023 PJD.

Proposed Compensation for Project Impacts

Summary of Compensation Approach

As noted above, Wilson Premier Homes proposes to provide compensatory mitigation for losses of listed and candidate species habitat on a portion of the 1,920-acre Jamison Ranch property (Property), which lies in Madera County about 15 miles northwest of the project site (Figure 5), and—like the project site—is south of the Fresno River, a key boundary from the species perspective. The Property also offers opportunities to offset losses of aquatic resources.

Because of its undeveloped condition and the habitat resources it offers, the Property was previously identified as a potential conservation bank site planned to offer credits for purchase (e.g., Vollmar Natural Lands Consulting 2021). With the exception of a 5-acre core that encompasses the ranch corrals plus a surrounding 100-foot-wide buffer, the entirety of the Property could be conserved and dedicated for mitigation (Figure 16). Extensive studies were conducted at the Property from 2017 through 2023, beginning in conjunction with the landowner's initial planning to create a commercial mitigation bank at the site. Based on these studies, the site appears to be an excellent candidate for conservation.

Conservation of lands on the Property is expected to create a substantial preserve offering a connective mosaic of high-quality vernal pool/swale, stream, and annual grassland habitat that is currently documented as supporting at least 13 special-status species, including those affected by the Vista Ranch project (Vollmar Natural Lands Consulting 2021, Smith pers. comm.[c]). Preservation of documented breeding habitat for CTS, VPFS, and WSF, along with adjacent upland habitat, will be proposed as compensation for unavoidable project impacts on these species.

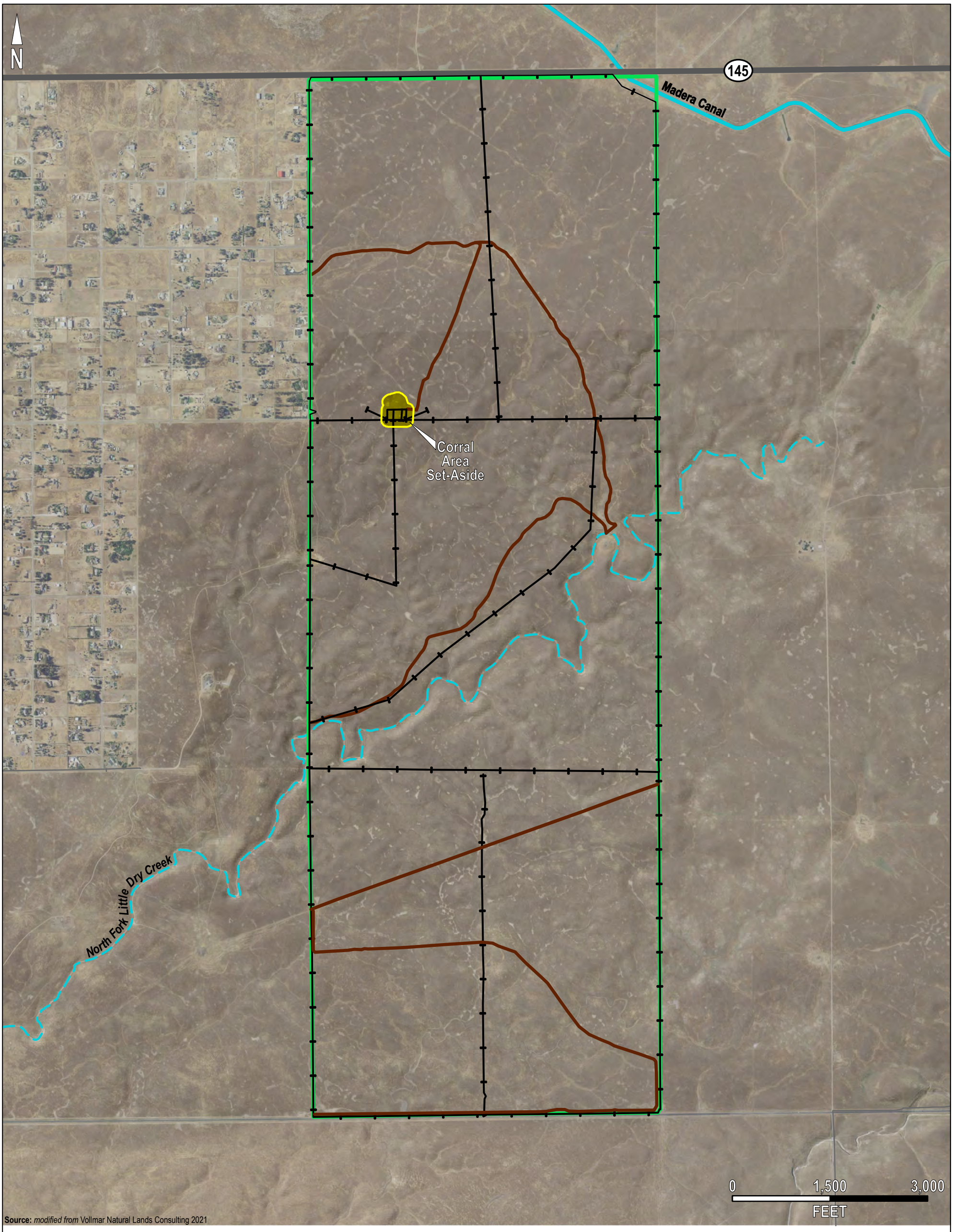
Preservation of aquatic resources on the Property, including vernal pools, vernal swales, and functional seasonal stream corridor, is also proposed as providing at least partial compensation for unavoidable project impacts on wetlands and waters. Because of the quality, extent, and functionality of the habitat available for preservation, the hope is that full compensation for the project's impacts on aquatic resources can be achieved at the Property. If this is not considered acceptable, a 1:1 purchase of aquatic resources credits from an agency-approved source is proposed in addition to substantive preservation at the Property. As of this writing, no approved mitigation banks serving the project area are offering aquatic resources credits. It is therefore assumed that any needed credits would be purchased from the National Fish and Wildlife Foundation's (NFWF's) Sacramento District California In-Lieu Fee Program, which offers both vernal pool and generalized aquatic resources credits.

Final preservation acreages, and any credit purchases, will reflect input from the Regional Water Quality Control Board (RWQCB), Corps, U.S. Fish and Wildlife Service (USFWS), and CDFW. The extent and location of preserved lands within the Property will also be developed in consultation with the agencies, since the preserve will need to be configured to (1) maximize long-term habitat functionality to support affected species and (2) provide long-term protection for aquatic resources functions, values, and services.

Land Use Planning Context

Conservation Lands & Priorities in Jamison Ranch Area

Madera County has one of the lowest proportions of protected vernal pool habitat among California's Central Valley counties and is experiencing rapid growth. There is thus a strong need for additional vernal pool conservation within the County (Vollmar Natural Lands Consulting 2017).



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Figure 16. Potential Preservation Lands at Jamison Ranch Property
Vista Ranch Compensatory Mitigation Plan
Wilson Premier Homes

The Property's specific location is ideal to help meet this need. It lies within the Madera Core Recovery Area defined in USFWS's 2005 *Recovery Plan for Vernal Pool Ecosystems of California and Southern Oregon* and also within USFWS-designated Critical Habitat for VPFS, which is known to be present at the site.[8] It is also in close proximity to designated Critical Habitat for CTS. At the same time, located near the intersection of SR 145 and SR 41, it is central to Madera County's Four Corners area, which supports an approximately 33,000-acre block of contiguous vernal pool habitat but is under intensive development pressure from numerous proposed and approved projects. With only about 4,200 acres of the Four Corners vernal pool habitat conserved to date, conservation of the Property has the potential to make a significant contribution to vernal pool recovery in this area (Vollmar Natural Lands Consulting 2021).

The proposed mitigation will also add to a growing network of preserves in the Four Corners region. As Figure 17 shows, the 765-acre Fenston Ranch preserve adjoins the Property to the east, the 3,602-acre McKinney Ranch preserve is approximately 2 miles to the west, and the 198-acre Caltrans Mitigation Bank Madera Pools preserve is approximately 1.5 miles southeast. The Upper and Lower Jamison Ranch Preserves together form an additional 2,269-acre conservation area approximately 4.8 miles east of the Property, and the 403-acre HOG Hills conservation easement is situated approximately 4.9 miles west of the Property. Numerous public preserved lands are also present in the area (Figure 17). Additional lands adjacent to the east and west edges of the Property have been proposed as mitigation preserves, and may eventually be preserved, further enlarging the size of the preserved habitat block (U.S. Army Corps of Engineers 2023).

Although the proposed mitigation site is located in a different subwatershed from the Vista Ranch project site, it is hoped that the opportunity to preserve extensive and valuable aquatic resources in the context of a functional habitat mosaic will outweigh the mitigation site's out-of-watershed location. This is particularly the case as conservation of vernal pools and related habitat in Madera County is an identified priority, and these resources are considered at risk due to expanding development in the region, as noted above (e.g., U.S. Fish and Wildlife Service 2005, Vollmar Natural Lands Consulting 2021).

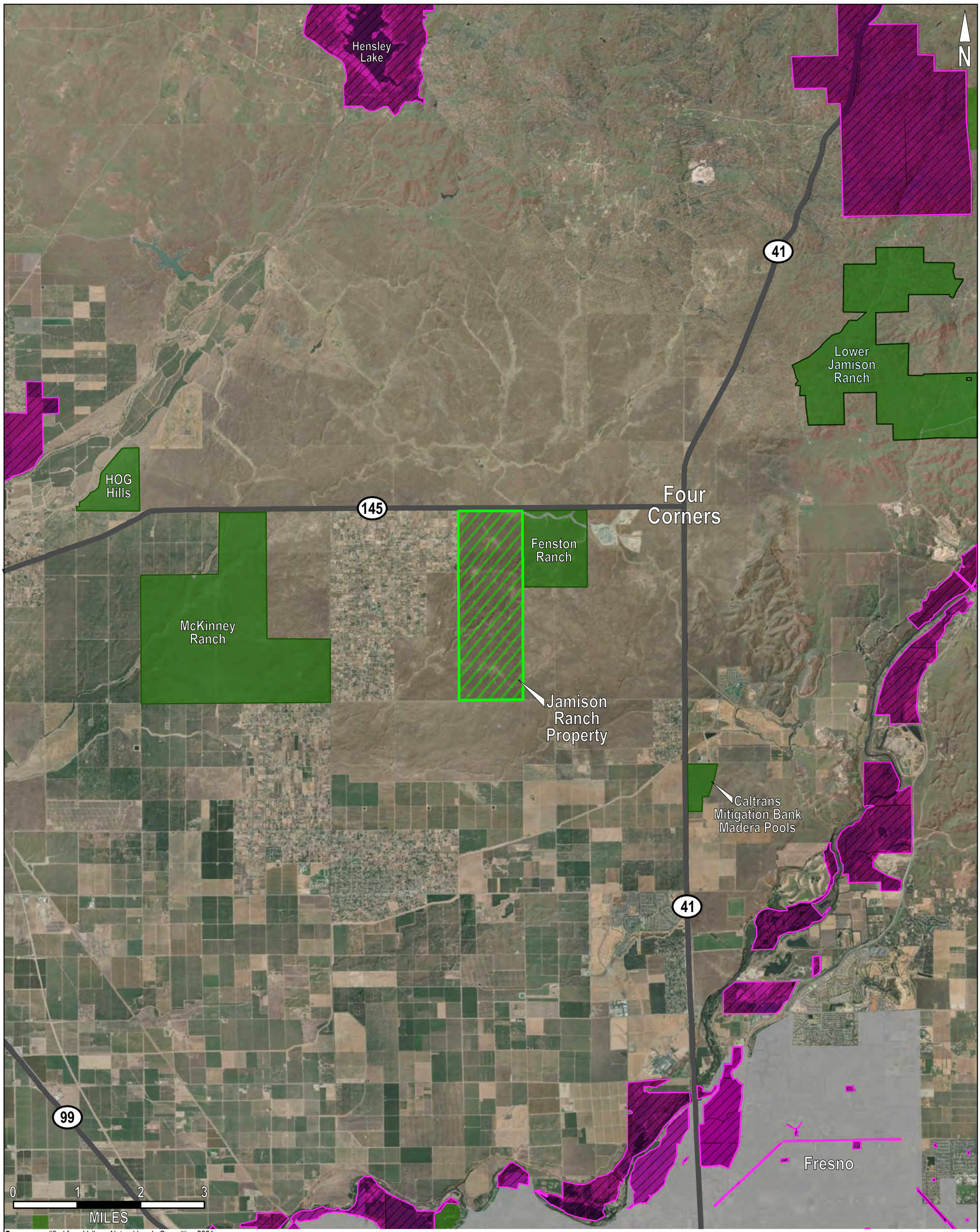
County of Madera Land Use Planning

The Property also appears to be reasonably well positioned for conservation from the perspective of local jurisdiction land use planning.

Jamison Ranch is located on unincorporated lands; the local land use planning authority is thus the County of Madera. The Property is within an area where County General Plan land use mapping designates the majority of land as *ARE-40 – Agricultural, Rural, Exclusive, 40 Acre*, reflecting a priority on agricultural/rural uses and a large minimum parcel size, although a mosaic of encroachment by other land uses is evident (Figure 18).

The County has a proactive land use planning process in place; over about the last two decades, a number of Area Plans have been adopted to guide expanding development, and several more are currently in progress. None of the adopted plans—which concentrate on areas with existing development in need of guidance and/or areas where new development has become a priority—covers the area around Jamison Ranch. An Area Plan was previously proposed for southeast Madera County; it would have included Jamison Ranch and vicinity, but has been put on indefinite hold and does not appear to be progessing, per conversations with County planning staff (Kephart pers. comm.). It seems likely that the area around Jamison Ranch will remain largely rural for the foreseeable future as development—and development planning—concentrate primarily at the edges of existing

[8] Much of the Vista Ranch site also lies within the Madera Core Recovery Area (Vollmar Natural Lands Consulting 2023b). However, as noted elsewhere, soils at the Vista Ranch site are generally less conductive to vernal pool formation and persistence than those at the Jamison Ranch Property.



Source: *modified from* Vollmar Natural Lands Consulting 2021

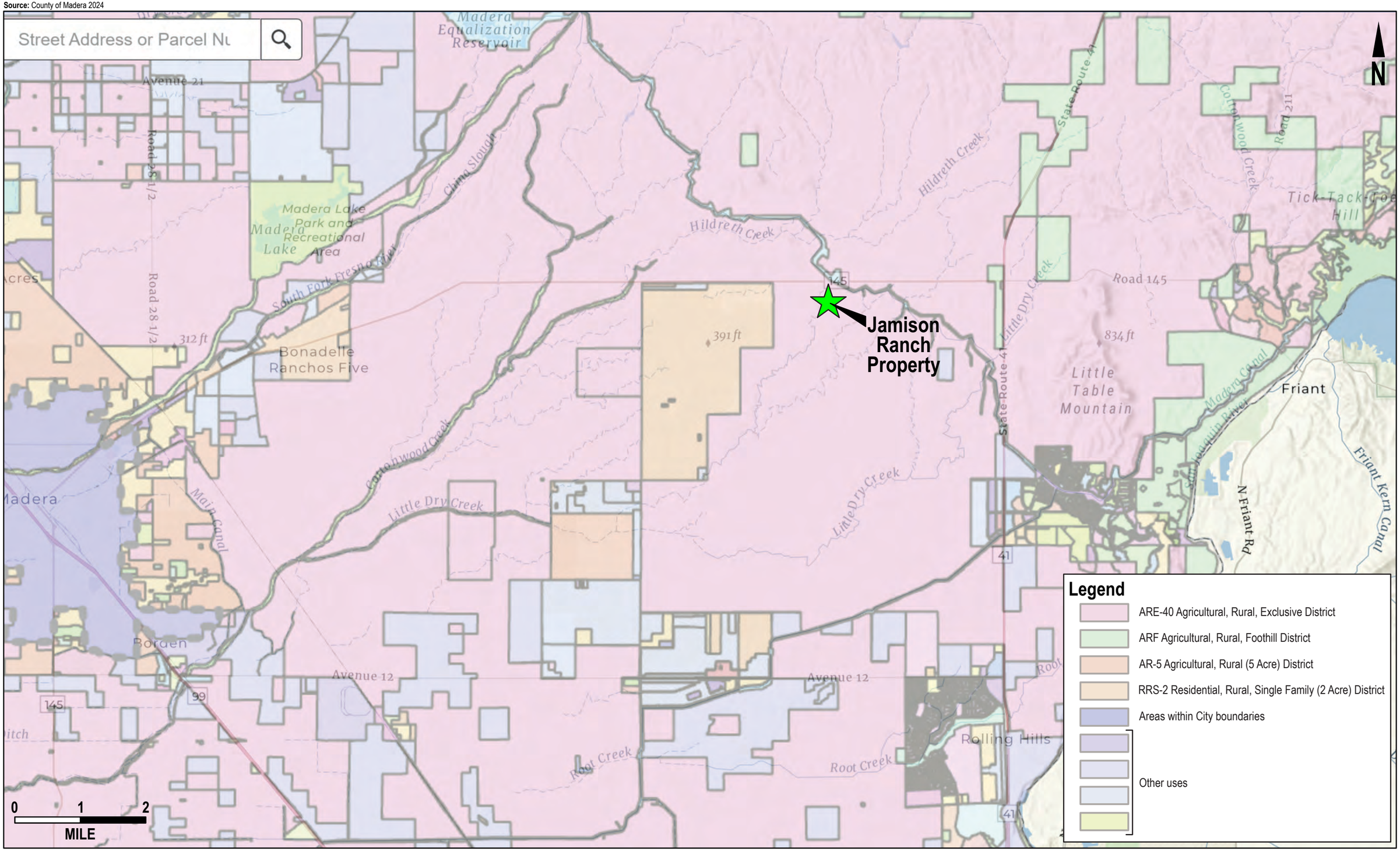
Legend

- Jamison Ranch Property
- Private and single-user preserved lands
- Public preserved lands
- Incorporated urban lands
- State highway

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Figure 17. Conservation Lands in Vicinity of Jamison Ranch Property
Vista Ranch Compensatory Mitigation Plan
Wilson Premier Homes

Source: County of Madera 2024



Redtail Consulting
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Figure 18. County General Plan Land Use Designations in Vicinity of Jamison Ranch
Vista Ranch Compensatory Mitigation Plan
Wilson Premier Homes

developed uses. Additionally, assuming conservation moves forward on the Property, even if the County re-initiates movement on the Southeast Madera County Area Plan or elects to develop another area plan including the Jamison Ranch vicinity, by that time, the Jamison Ranch preserve will have joined other preserves in the region as an existing land use that must be factored into County planning.

Habitat Conditions at Mitigation Site

Overview

The Property consists almost entirely of undeveloped rangeland; other than fences, the only existing development is a set of corrals in the northwest portion of the site. The few existing roads on the Property, currently used for site access and management, are ungraded and unimproved (dirt surface).

Overall, the Property provides a robust network of vernal pool/swale complexes and upland annual grassland habitat, crosscut by the southwest-flowing channel of North Fork Little Dry Creek (unrelated to the Dry Creek located on the project site). Aquatic resources include an estimated 130 acres of vernal pool and swale habitat as well as 2.7 acres (12,166 linear feet) of seasonal stream corridor; the remaining approximately 1,787 acres are upland grassland (Vollmar Natural Lands Consulting 2021, Smith pers. comm.[f]).[9] This represents about 6.8% cover. The remainder of the Property supports upland annual grassland. Within that context, natural topographic diversity supports a range of pool types. This is evidenced by the diversity of special-status plant and wildlife species known to be present, each of which typically has a unique niche (Vollmar Natural Lands Consulting 2021, Smith pers. comm.[c]).

Soils on the Property are predominantly loamy alluvium assigned to the Cometa soil series, and are generally underlain by a restrictive hardpan at a depth of 20 – 30 inches, contributing to a seasonally perched water table (Vollmar Natural Lands Consulting 2021). This is conducive to wetland formation and persistence, and contrasts with soils at the Vista Ranch site, which are unusually permeable for vernal pool settings in the region.

Mean annual precipitation at the Property is approximately 13.4 inches, with the majority falling as rain during the winter months (December – March). Pools generally begin to fill with the onset of heavy rains in the late fall and winter and dry down during the spring. The pools vary in size and depth; the larger and deeper pools typically have a longer hydroperiods while the smaller and shallower pools typically have shorter hydroperiods. There is also high degree of hydrologic connectivity between pools, either via surface swales or subsurface flow (Vollmar Natural Lands Consulting 2021).

Both aquatic and upland habitat at the Property is in good condition; together, the project's aquatic and upland resources provide a functional, interconnected habitat mosaic—and, unlike many vacant Central Valley lands, the Property has not been cultivated. Historically, it supported low- to moderate-intensity cattle grazing and except for the immediate corral area has not been developed or subjected to other ground disturbance. Past grazing use is not considered a deficit in this context; moderate cattle grazing is generally beneficial for the management of vernal pool grasslands, since it reduces thatch and controls invasive weeds, helping to maintain vernal pool hydrology and facilitating the establishment and persistence of native forbs—and vegetation observed within the vernal pools and other wetlands on the Property is indeed reflective of healthy conditions, featuring a moderate cover of predominantly native forbs and grasses. Like most San Joaquin Valley grassland

[9] Acreages are approximate, based on field and GIS review. The team plans to conduct a formal delineation of potential jurisdictional habitat per the Corps Arid West protocol in 2024.

habitats, the Property's uplands are dominated by introduced annual grasses, but invasive weeds were generally found to be absent (Vollmar Natural Lands Consulting 2021).

Individual habitat types are discussed in more detail in the sections that follow.

Grasslands

The grasslands on the Property occur on gently rolling topography, allowing the development of a mosaic of different vegetation reflecting minor, localized differences in soil moisture. Typical vegetation consists of Mediterranean barley, Italian ryegrass, soft chess brome (*Bromus hordeaceus*), and slender wild oats (*Avena barbata*), with a mix of associated grasses and forbs (Smith pers. comm.[c]).

The grasslands provide documented habitat for multiple special-status species, including CTS, WSF, Swainson's Hawk (*Buteo swainsoni*), Golden Eagle (*Aquila chrysaetos*), Ferruginous Hawk *(B. regalis*), BUOW, and American badger (*Taxidea taxus*). In addition, many more common wildlife species depend on the grassland. Predator species in particular—such as the raptors listed above, American badger, and coyote (*Canis latrans*)—are dependent on large uninterrupted grasslands like those on the Property and surrounding lands (Smith pers. comm.[c]).

The grasslands provide direct support to aquatic resources onsite at the Property and downstream. They are expected to contribute to carbon sequestration, their intact vegetation helps to control erosion, benefitting downstream water quality, and—as undeveloped permeable surfaces—they also permit infiltration contributing to groundwater recharge.

Aquatic Resources

Vernal Pools

Vernal pools are common throughout the Property, and are fairly evenly distributed within level to rolling topography. They are dominated by native vernal pool indicator plants such as coyote thistle, Fremont's goldfields (*Lasthenia fremontii*), common vernal pool allocarya, and annual hairgrass (*Deschampsia danthonioides*). The vernal pools also support generalist wetland species such as Mediterranean barley and Italian ryegrass (Vollmar Natural Lands Consulting 2021).

The vernal pools support multiple special-status vernal pool species including CTS, WSF, VPFS, midvalley fairy shrimp (*B. mesovallensis*), California linderiella (*Linderiella occidentalis*)[10], and succulent owl's-clover (*Castilleja campestris* var. *succulenta*). They also provide habitat for a suite of other more common invertebrates, amphibians, reptiles, birds, and mammals (Smith pers. comm.[c]).

As small ephemeral features with limited surface connectivity to other waters, individual vernal pools are not expected to provide regionally important water quality or carbon sequestration services (Smith pers. comm.[c]); their value in these areas lies in their extent and collective impact. They also contribute individually and collectively to groundwater infiltration, another value increased by their substantial extent on the Property.

Vernal Swales

Vernal swales are low-lying, topographically indistinct areas that can be differentiated from ephemeral drainages based on their lack of clearly defined bed and bank geomorphology and an associated OHWM. On the Property,

[10] Neither midvalley fairy shrimp nor California linderiella has formal federal or state status, but both are treated as special-status species by CDFW.

these features generally support at least 20% cover of vernal pool indicator species associated with shallow ponding, such as meadowfoam (*Limnanthes* spp.), with lesser percentages of generalist wetland species such as Mediterranean barley and Italian ryegrass. Vernal swales commonly provide a hydrologic connection between vernal pools and are thus fundamental to the overall ecological function of vernal pool complexes (Vollmar Natural Lands Consulting 2021).

Like the vernal pools, the vernal swales provide habitat for multiple common invertebrates, amphibians, reptiles, birds, and mammals. Some of the swales also offer low areas where ponding is extended; these are suitable to support various special-status vernal pool species, including WSF, VPFS, midvalley fairy shrimp, and California linderiella (Smith pers. comm.[c]).

As vegetated drainages with surface connectivity, the vernal swales provide important water quality services to downstream aquatic habitats (Smith pers. comm.[c]) as well as contributing to groundwater recharge.

Ephemeral Drainages

Ephemeral drainages are small channels with some bed and bank development that convey rain run-off for a short period following storm events and often retain isolated ponded areas throughout the rainy season. They typically support flow for only 1 – 2 weeks after heavy rains, and because of their relatively short active period, channel development is less marked than in seasonal streams, although they display characteristics of an OHWM. On the Property, these features typically support a mix of vernal pool indicator plants and generalist seasonal wetland plants (Vollmar Natural Lands Consulting 2021).

The ephemeral drainages provide habitat for both generalist and vernal pool–specialist species; their habitat value for special-status species in particular is likely similar to that of annual grasslands, described below (Smith pers. comm.[c]). Like the other aquatic resources on the Property, the ephemeral drainages contribute to groundwater recharge. Where they are vegetated, they also provide water quality services to downstream aquatic habitats (Smith pers. comm.[c]) and some carbon sequestration.

Seasonal Stream

North Fork Little Dry Creek is a tributary of Little Dry Creek. The downstream reaches of Little Dry Creek have been significantly channelized and are largely managed as agricultural ditches, but the Creek continues to function as a minor tributary of the San Joaquin River via the Chowchilla Canal, which flows northwest on the valley floor some 13 miles west of Madera (Smith pers. comm.[c]).

Within the Property, North Fork Little Dry Creek occupies a meandering channel incised tens of feet below the dominant land surface. Much of the stream channel is sandy-bottomed and lightly vegetated. Most of the stream dries relatively early in the spring, but relatively deep and long-lasting pools in many of the meanders hold water until early summer. These pools support significant aquatic vegetation such as white water crowfoot (*Ranunculus aquatilis*) (Smith pers. comm.[c]).

CTS is documented as breeding in the Creek, particularly in the deeper pools. The stream also provides habitat for small fish that may migrate in from downstream, and for other amphibians, birds, mammals, reptiles, and invertebrates. In addition, the steep sides of the incised channel provide vertical walls that are used by BUOW and other wildlife for nesting (Smith pers. comm.[c]).

Due to overall light vegetation cover, North Fork Little Dry Creek likely provides minor water quality services to downstream waters and limited carbon sequestration. However, the sandy bottom enables infiltration

contributing to groundwater recharge (Smith pers. comm.[c]). Longer pooling periods in the meander areas amplify this benefit.

CRAM Assessment Scores for Aquatic Features at Mitigation Site

CRAM scores for representative aquatic features on the Property are provided in Table 7; the locations of the evaluated features are shown on Figure 19. CRAM worksheets are provided in Appendix B.

Four assessment areas were chosen for vernal pool systems, in order to give a sense of the range of habitat values across the large site. Assessment Areas VPS-1 and VPS-2 are located in the northern half of the property while VPS-3 and VPS-4 are located within the proposed preserve (discussed in more detail below). Two reaches of North Fork Little Dry Creek were also evaluated. Assessment Area J-R1 is located near the eastern (upstream) end of the Property, beginning just below the confluence of an unnamed ephemeral tributary with North Fork Little Dry Creek and extending 100 meters downstream. This location is outside of the proposed preserve, but was selected per CRAM guidelines as representative of the stream on the Property. Assessment Area J-R2 is located within the proposed preserve, in an area typical of the relatively steep-banked meanders present along many reaches of North Fork Little Dry Creek on the Property.

Table 7. CRAM Assessment Scores for Jamison Ranch Property Aquatic Features

Feature	Score by Wetland Attribute				Index Score
	Buffer & Landscape	Hydrology	Physical Structure	Biotic Structure	
Vernal Pool					
VPS1	87.5	100	75	66.67	82
VPS2	87.5	100	83.33	54.17	81
VPS3	87.5	100	91.67	87.5	92
VPS4	87.5	100	75	70.83	83
Riverine					
J-R1	93.3	100	50	44.44	72
J-R2	93.3	83.33	37.5	44.44	65

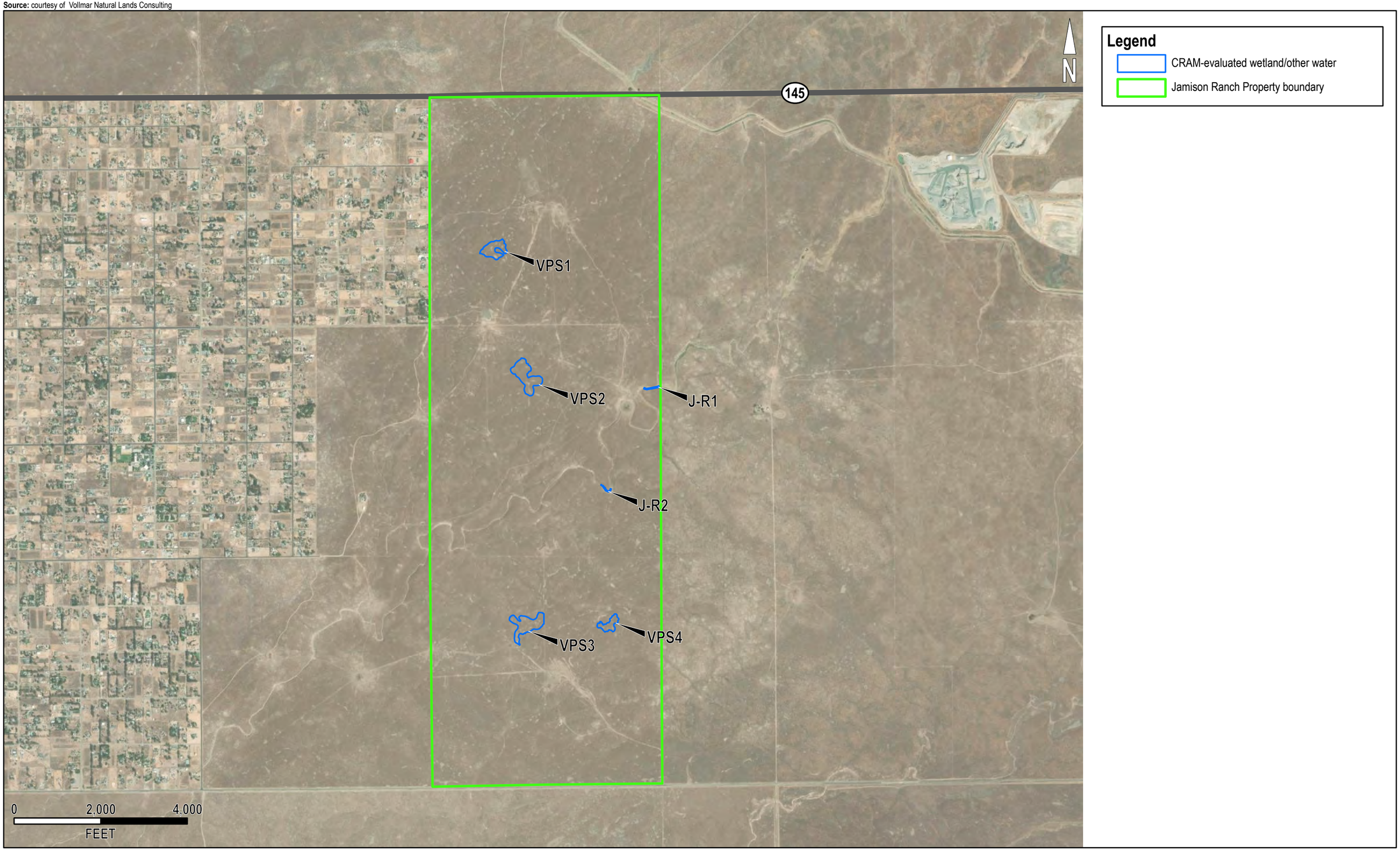
Source: Redtail Consulting 2023

Index scores for the four vernal pool assessment areas range from 81 to 92. Three out of four of these scores are significantly—i.e., $\geq$ 7 points—above the statewide median value for vernal pool systems (75), with the fourth being only one point away from being significantly above. All fall well within the range of Good condition. Riverine reaches J-R1 and J-R2 received index scores of 72 and 65 respectively. Although far from an ideal condition, these values are in the Fair condition range, and significantly above the scores of the impacted "riverine" reaches on the project site.

Comparative Aquatic Resources Function/Value at Project Site & Mitigation Site

Table 8 on the next page compares index CRAM scores for aquatic features at the project site and Jamison Ranch Property (see Tables 5 and 7 for detailed CRAM score breakdown by Assessment Area and Figures 15 and 19 for locations of Assessment Areas at both sites). CRAM scores clearly reflect a higher degree of functionality and better overall habitat quality in aquatic features at the Property.

Source: courtesy of Vollmar Natural Lands Consulting



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Figure 19. CRAM-Evaluated Features at Jamison Ranch Property
Vista Ranch Compensatory Mitigation Plan
Wilson Premier Homes

Table 8. Comparison of CRAM Index Scores at Project Site and Jamison Ranch

Feature Type	Project Site Assessment Areas		Jamison Ranch Assessment Areas	
Depressional Wetland *Statewide median index score = 60*	D1	56 (Fair)	—	—
	D2	53 (Fair)	—	—
Vernal Pool *Statewide median index score = 75*	—	—	VPS1	82 (Good)
	—	—	VPS2	81 (Good)
	—	—	VPS3	92 (Good)
	—	—	VPS4	83 (Good)
Riverine *Statewide median not identified*	R1	54 (Fair)	J-R1	72 (Fair)
	R2	40 (Poor)	J-R2	65 (Fair

Source: Redtail Consulting 2023

Special-Status Species Use

As mentioned above, the Property is located within designated Critical Habitat for VPFS and is in close proximity to Critical Habitat for CTS. Based on CNDDB records and surveys conducted onsite from 2017 through 2021, at least 13 special-status species are known to be present on the Property (Table 9).

Table 9. Special-Status Species Documented at Jamison Ranch

Species	State Status	Federal Status
Succulent owl's-clover *Castilleja campestris* var. *succulenta*	Endangered	Threatened
Hogwallow starfish *Hesperevax caulescens*	CRPR 4.2	—
Adobe navarretia *Navarretia nigelliformis* ssp. *nigelliformis*	CRPR 4.2	—
Vernal pool fairy shrimp *Branchinecta lynchi*	—	Threatened
Midvalley fairy shrimp *B. mesovallensis*	*Neither of these species has official state or federal status, but both are treated as qualifying for special status in California*	
California linderiella *Linderiella occidentalis*		
California tiger salamander *Ambystoma californiense* (breeding and upland)	Threatened, Watch List	Threatened
Western spadefoot *Spea hammondii* (breeding and upland)	Species of Special Concern	Candidate Threatened
Swainson's Hawk *Buteo swainsoni* (foraging)	Threatened	—
Western Burrowing Owl *Athene cunicularia* (wintering/nesting)	Species of Special Concern	Bird of Conservation Concern

Species	State Status	Federal Status
Golden Eagle *Aquila chrysaetos* (foraging)	Fully Protected, Watch List	No Take (Bald & Golden Eagle Protection Act)
Ferruginous Hawk *B. regalis* (wintering)	Watch List	—
American badger *Taxidea taxus*	Species of Special Concern	—

Sources: Vollmar Natural Lands Consulting 2021, Smith pers. comm.[c]

The Property also offers suitable movement and foraging habitat for SJKF and Crotch's bumble bee, although neither species has been documented on the site to date (Smith pers. comm.[c], pers. comm.[g]). The development of shallow hardpan in soils at the Property may reduce denning opportunities for SJKF in some areas, but extensive networks of ground squirrel burrows along with the presence of BUOW as well as American badger and other users of deep dens indicates that the Property offers ample denning opportunities.

Figure 20 shows documented special-status species use at the Property; for comparison, Figure 21 shows documented special-status species use at and adjacent to the proposed Vista Ranch site. Figures 22 and 23 show special-status species use in the regions around the two sites, for additional context.

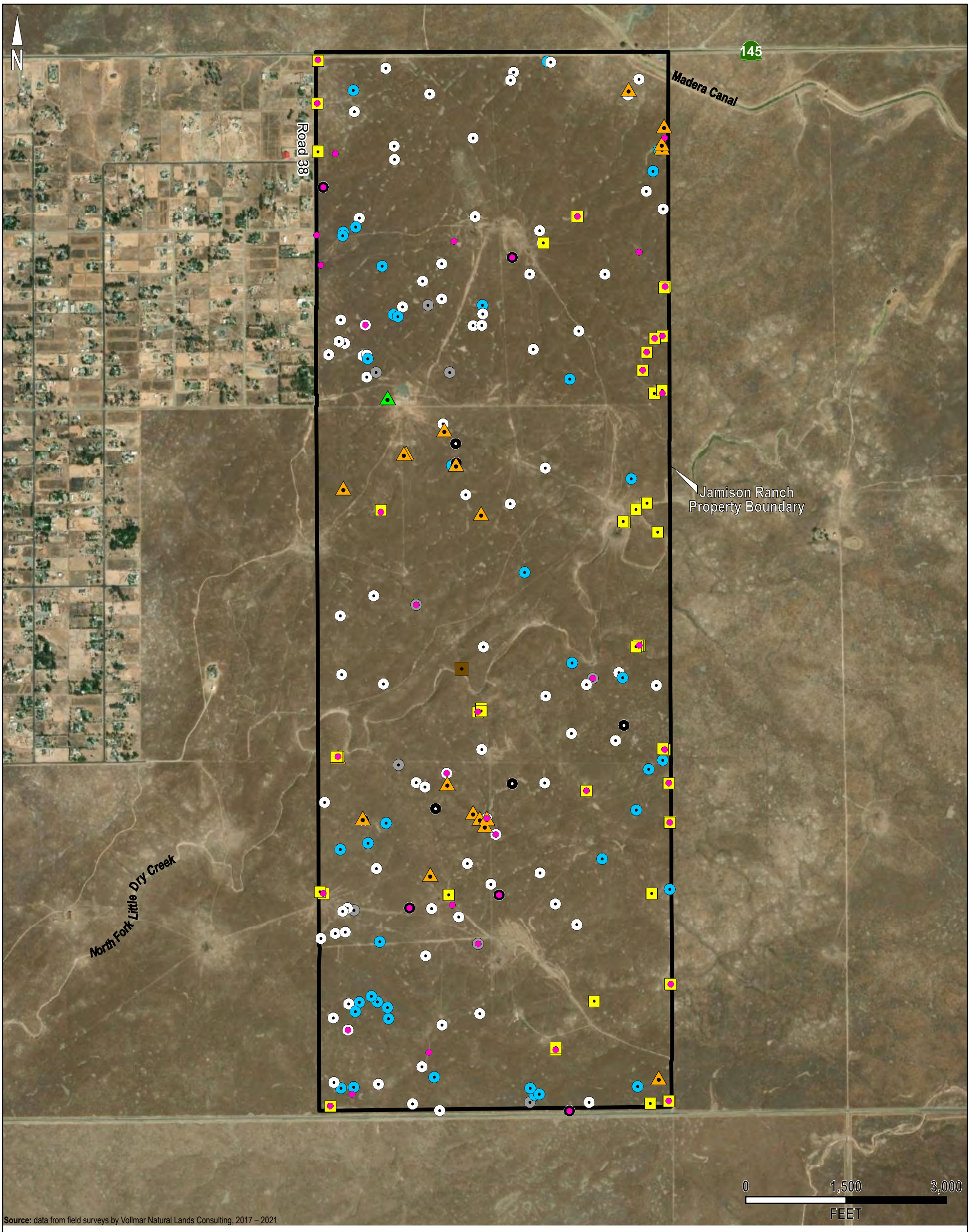
Mitigation Preserve Configuration & Potential Mitigation Ratios

Figure 24 shows the tentative boundary of the mitigation preserve proposed at the Jamison Ranch Property. The preserve configuration reflects the following objectives

- Providing compensation for losses of listed and candidate species habitat at ratios expected to be acceptable to USFWS and CDFW
- Maximizing overall benefit to the listed and candidate species and to wildlife in general by
  - providing a block of diverse, connective habitat offering a mosaic of differing opportunites
  - Maximizing the length of the North Fork Little Dry Creek stream corridor included in the preserve
- Ensuring that a meaningful block of habitat remains for potential future use by others, since the landowner would ultimately like to see the entire Property under conservation easement

Because the preserve is intended to benefit aquatic species, these objectives translate to a high priority on meaningful preservation of aquatic resources within a functional habitat mosaic.

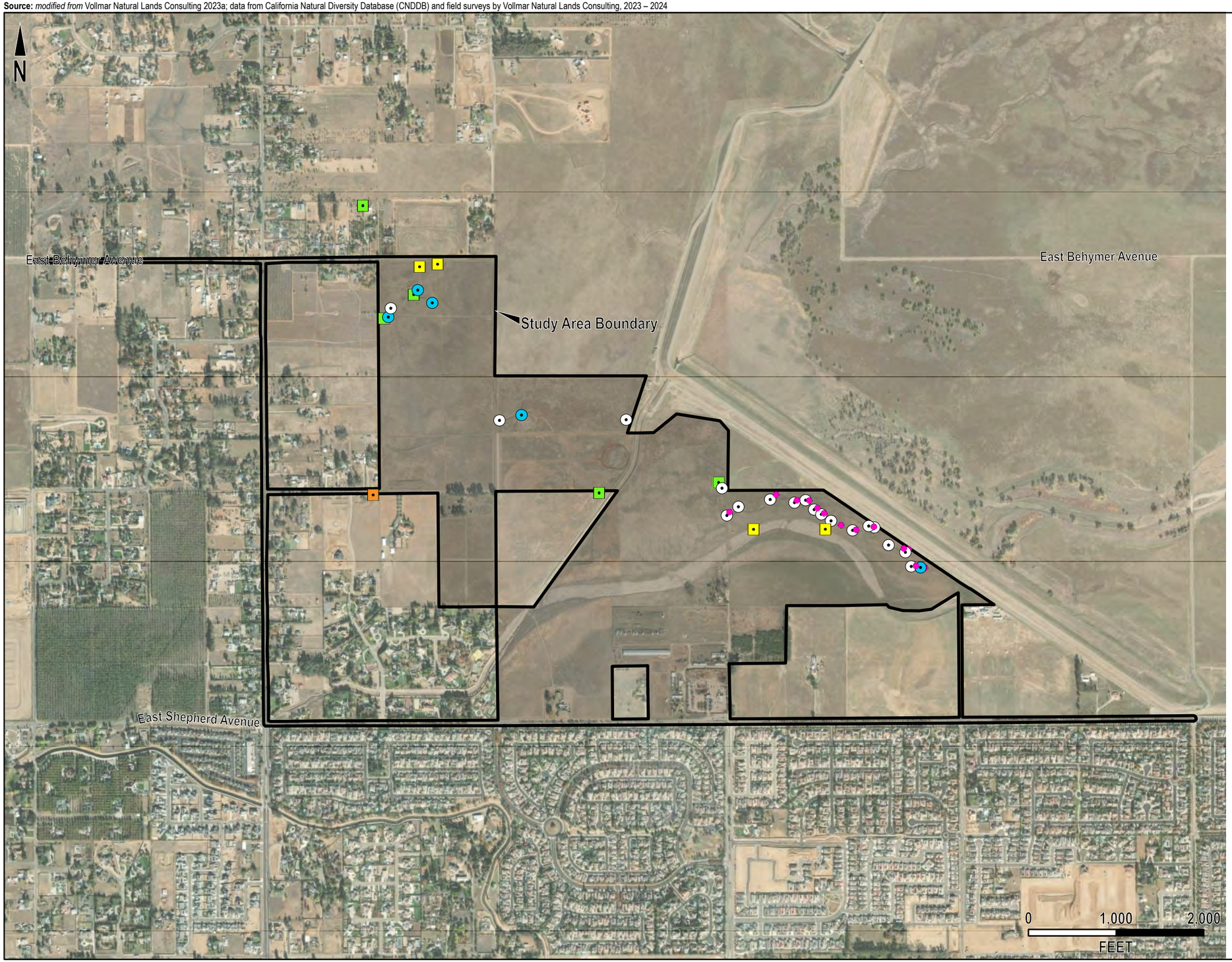
With these objectives in mind, the preserve is proposed to encompass approximately 857 acres, beginning at the south boundary of the Property and extending north to include most of the North Forth Little Dry Creek stream corridor. Table 10 on the following page itemizes habitat acreages within the preserve boundary shown on Figure 24.



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Figure 20. Special-Status Species Occurrences at Jamison Ranch Property
Vista Ranch Compensatory Mitigation Plan
Wilson Premier Homes

Source: *modified from* Vollmar Natural Lands Consulting 2023a; data from California Natural Diversity Database (CNDDB) and field surveys by Vollmar Natural Lands Consulting, 2023 – 2024



Legend

Special-Status Animal Occurrence

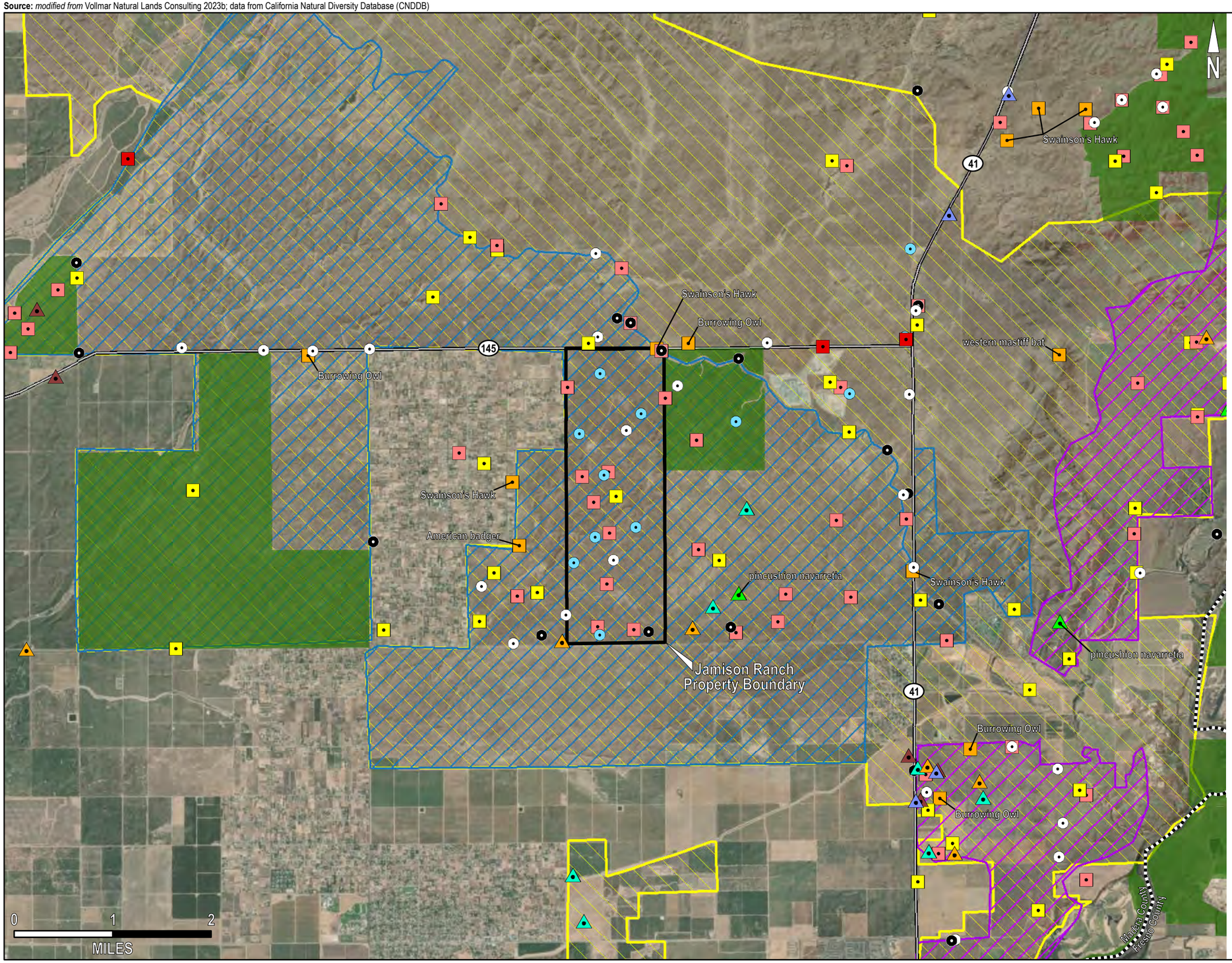
- Crotch's bumble bee
- Vernal pool fairy shrimp
- California linderiella
- California tiger salamander
- Western spadefoot
- Cooper's Hawk (location approximate)

Note: Study Area Boundary includes project site plus anticipated maximum extent off offsite roadway improvements.

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Figure 21. Special-Status Species Occurrences at Vista Ranch Site
Vista Ranch Compensatory Mitigation Plan
Wilson Premier Homes

Source: *modified from* Vollmar Natural Lands Consulting 2023b; data from California Natural Diversity Database (CNDDB)



Legend

USFWS-designated vernal pool Madera Core Recovery Area

Designated Critical Habitat
- California tiger salamander
- Vernal pool fairy shrimp

Special-Status Animal Occurrence
- California tiger salamander
- Tricolored Blackbird
- Western spadefoot
- Vernal pool fairy shrimp
- California fairy shrimp
- Midvalley fairy shrimp
- Other special-status animal

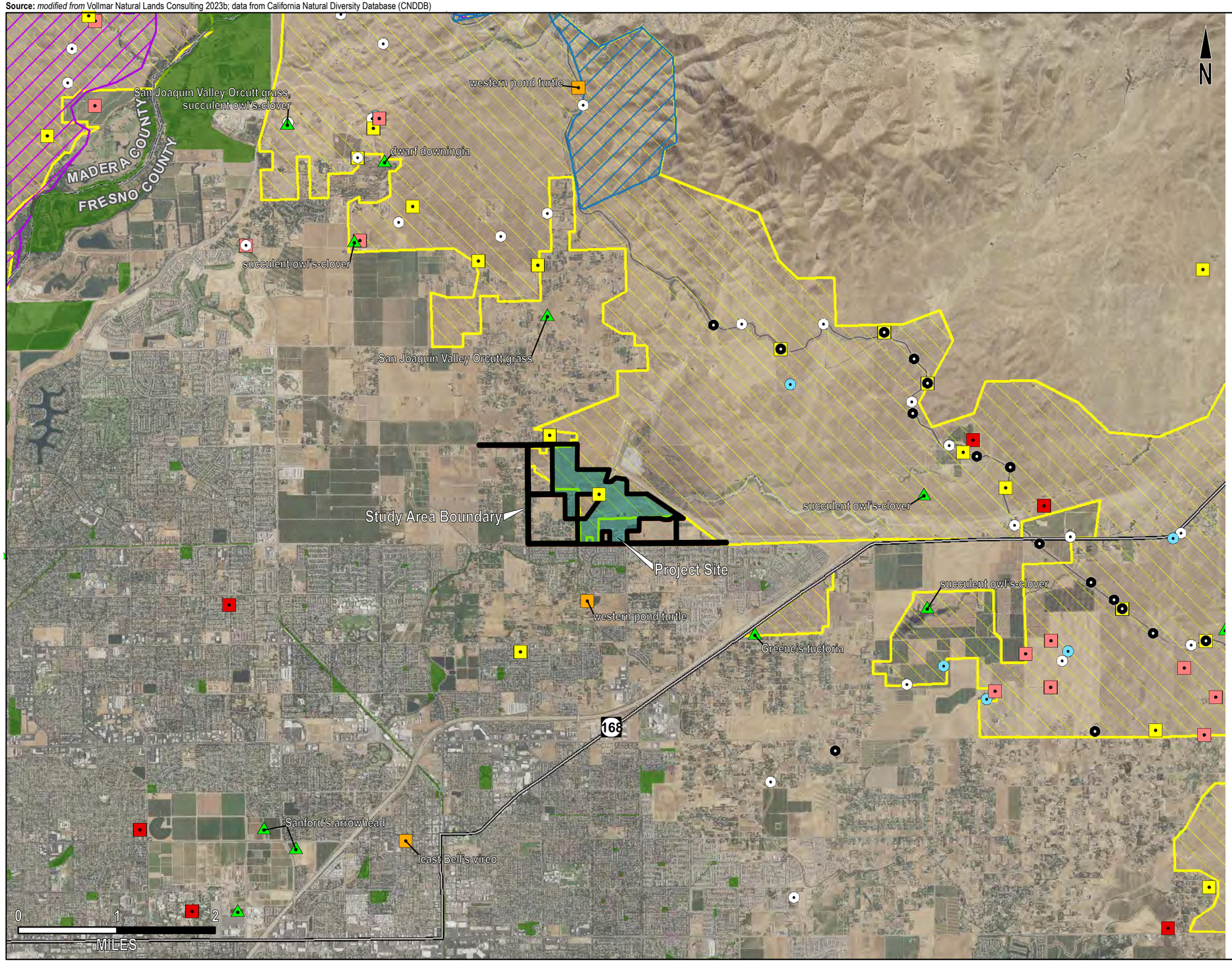
Special-Status Plant Occurrence
- Succulent owl's-clover
- San Joaquin Valley Orcutt grass
- Hairy Orcutt grass
- Spiny-sepaled button-celery
- Other special-status plant

Symbols
- County boundary
- Public or preserved land
- Highway

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Figure 22. Special-Status Species Occurrences in Jamison Ranch Property Region
Vista Ranch Compensatory Mitigation Plan
Wilson Premier Homes

Source: *modified from* Vollmar Natural Lands Consulting 2023b; data from California Natural Diversity Database (CNDDB)



Legend

- USFWS-designated vernal pool Madera Core Recovery Area

Designated Critical Habitat

- California tiger salamander
- Vernal pool fairy shrimp

Special-Status Species Occurrence

- California tiger salamander
- Tricolored Blackbird
- Western spadefoot
- Vernal pool fairy shrimp
- California fairy shrimp
- Midvalley fairy shrimp
- Other special-status animal
- Special-status plant

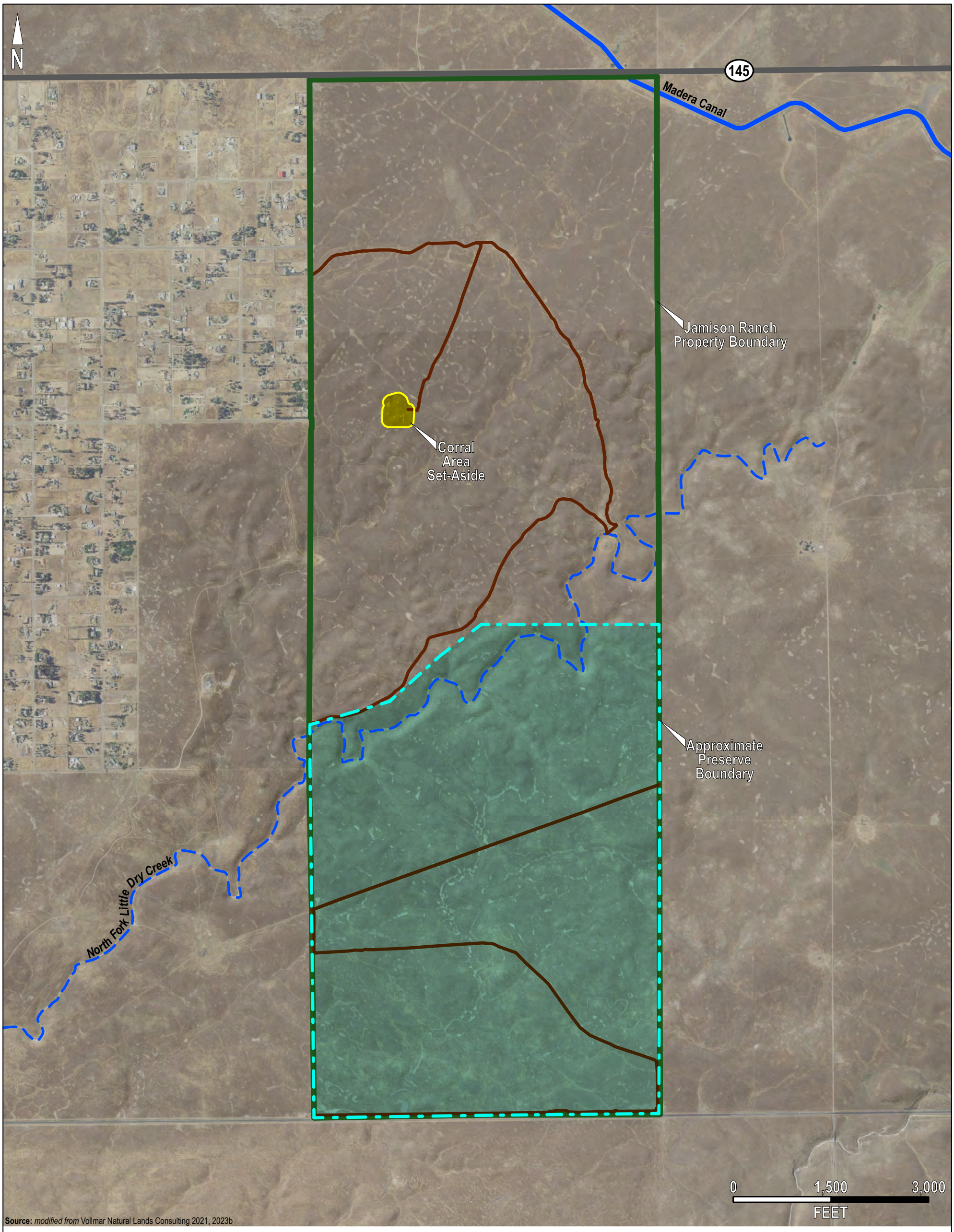
Symbols

- County boundary
- Public or preserved land
- Highway

Note: Study Area Boundary includes project site plus anticipated maximum extent off offsite roadway improvements.

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Figure 23. Special-Status Species Occurrences in Vista Ranch Project Region
Vista Ranch Compensatory Mitigation Plan
Wilson Premier Homes



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Figure 24. Jamison Ranch Property Proposed Preserve Boundary
Vista Ranch Compensatory Mitigation Plan
Wilson Premier Homes

Table 10. Approximate Areas Proposed for Preservation by Habitat Type

Habitat Type	Extent
Annual grassland	795.4 ac
Vernal pool and swale	59
North Fork Little Dry Creek	1.3 ac / 7,449 lf
Ephemeral drainage	1.3 ac
Total area preserved	857.0 ac

Source: Vollmar Natural Lands Consulting 2023b

As itemized in Table 6, the project is expected to result in the permanent loss of 0.495 acre of wetland habitat. The tentative preserve area shown on Figure 24 includes 59 acres of vernal pool/vernal swale habitat, translating to a ratio of 119:1 (preserved:impacted) for losses of wetland habitat at the Vista Ranch site. Additionally, as currently proposed, the Jamison Ranch preserve would include the two vernal pool complexes that received the highest overall CRAM scores—VPS3 with a score of 92 and VPS4 with a score of 83, both significantly higher than the mid-50's scored by the impacted wetlands. In view of the high ratio anticipated, the comparative value of the preserved habitat, its location within a functional, good-quality habitat mosaic, and the fact that it is situated in an area prioritized for aquatic resources preservation, it is hoped that preservation can be accepted as full compensation for project-related wetland losses.

As discussed in more detail above, any impacts not considered adequately compensated through preservation are proposed for compensation at a 1:1 ratio via credit purchase from an agency-approved source (anticipated to be NFWF's Sacramento District In-Lieu Fee Program). Credit purchase is proposed at a 1:1 ratio due to the added value that would be provided over the long term by preservation of extensive aquatic habitat at the Property.

The project would not impact other waters of the United States, represented on the Vista Ranch project site by non-wetland portions of the Outlet Channel. However, as Figure 24 shows, the majority of the North Fork Little Dry Creek seasonal stream corridor on the Property (estimated at 1.3 acres/7,449 linear feet; Vollmar Natural Lands Consulting 2023b) is assumed to be preserved, along with some 1.3 acres (18,990 linear feet; Vollmar Natural Lands Consulting 2023b) of ephemeral drainages, providing an additional substantive net benefit as a result of the project. As noted above, CRAM scores for North Fork Little Dry Creek are rated as Fair, but are significantly higher than CRAM scores for "riverine" featues at the Vista Ranch project site.

Mitigation Preserve Management & Monitoring

The portion of the Property dedicated for mitigation will be placed under a conservation easement to preclude future development and to control use and management of the preserved lands. The easement holder is tentatively expected to be the Sierra Foothill Conservancy or another approved entity.

The applicant is in the process of developing a *Long-Term Management Plan* for the Jamison Ranch preserve lands, which will

- define necessary management activities and the range of acceptable methods
- lay out a monitoring process and criteria for routine assessments of site health, and

- establish an adaptive management approach—including triggers for management intervention/corrective action—to ensure that habitat on the site remains in good condition and that aquatic resources and upland functions and values are preserved

A *Grazing Plan* will also be put in place as a step-down from the overall *Long-Term Management Plan*. All of the preserve documents are assumed to be subject to review and approval by CDFW, USFWS, the Corps, and the RWQCB. They will be provided for review as soon as they are available.

Funding & Financial Assurances

The applicant is aware of the potential cost of compensatory mitigation at the Jamison Ranch Property and is committed to providing the funding necessary to ensure long-term success of the proposed preserve. One option—the more traditional approach—would be to fund an endowment to pay for species habitat monitoring and management in perpetuity. Endowment calculations have not been completed as of September 2025, but if this approach is preferred, they will include an evaluation using the Center for Natural Lands Management's PAR approach (see https://www.cnlm.org/par/), which will be submitted for CDFW—and, if requested, RWQCB and/or Corps—review. An alternative would be to cover the costs of preserve monitoring and management through annual payments supported by Homeowners' Association (HOA) fees. If this approach is selected, similar calculations will be provided to demonstrate long-term financial feasibility and provide financial assurances.

Timetable for Mitigation Implementation

The applicant understands that mitigation will need to be in place before Water Quality Certification can be issued, and is committed to the following over the course of 2025.

- Finalizing mitigation planning in consultation with resource agency staff, including details of the preserve extent and boundaries
- Working with the landowner and easement holder to establish a conservation easement over the preserve lands
- Funding the endowment or establishing an HOA fee structure to support long-term management of the new preserve

Construction is planned to begin in 2026; the expectation is therefore that these activities will be complete no later than spring 2026, and in any case, before the start of construction.

Net Loss/Long-Term Net Gain Assessment

Background

California Executive Order (EO) W-59-93, signed by then-Governor Pete Wilson in August 1993, establishes a comprehensive statewide policy for wetlands protection and permitting, which includes among its objectives "ensur[ing] no overall net loss and long-term gain in the quantity, quality, and permanence of wetlands acreage and values in California in a manner that fosters creativity, stewardship, and respect for private property" (Executive Order W-59-93 II.1). In addition to reducing the complexity of administration of state and federal wetland conservation programs (presumably referencing the dovetail between state and federal permit authorities), EO W-59-93 also aims to "encourage partnerships to make … cooperative planning efforts [a] primary focus of wetlands conservation" (Executive Order W-59-93 II.3). All state agencies are charged with

conducting their activities in a manner consistent with these objectives, and the no net loss/long-term net gain policy in particular is explicitly invoked as a guiding principle in the SWRCB Procedures.

Evaluation of Wetland Loss & Gain

The project would result in grading or fill removing a total of 0.495 acre of degraded seasonal and depressional wetlands from the area planned for development (Table 6). In-perpetuity conservation of 59 acres of substantially higher-quality vernal pool/vernal swale habitat, 1.3 acres (18,990 linear feet) of functional seasonal stream habitat, and another 1.3 acres of functional ephemeral drainage habitat is proposed as compensation. As discussed elsewhere in this Plan, the aquatic resources proposed for conservation form part of an interconnected and highly functional habitat mosaic that includes buffering watershed uplands.

Technically, on balance, there would be a loss of aquatic resources under this proposal. This is particularly true as Procedures Section A[2][b][iii] requires that the balance between loss and compensation be evaluated on a watershed-by-watershed basis when the impact and mitigation sites are located in different watersheds, as is the case for the project site and the Jamison Ranch Property. However, the applicant's mitigation proposal is consistent with EO-W-59-93's emphases on *creativity*, *stewardship*, and *cooperative planning efforts*, cited above. We note also that the goal of EO W-59-93's California Wetlands Conservation Policy "is not meant to be achieved on a permit by permit basis" (Executive Order W-59-93 Section III). In this context, we suggest that the mitigation proposal is consistent with both the letter and the spirit of the no net loss policy invoked by the Procedures, when it is read in its entirety.

Climate Change Effects

The SWRCB Procedures (Section A[2][b][viii]) allow the RWQCB to request that a compensatory mitigation plan assess reasonable foreseeable impacts of climate change on proposed mitigation, and a discussion of any CDFW has also requested this assessment as a part of the project's state ITP application. The following paragraphs provide the requested analysis. For perspective, they also compare the effects of climate change on the proposed mitigation preserve with reasonably foreseeable climate change outcomes under a no-project condition at the project site.

Background

A key focus of climate change research over the past decade-plus has been evaluating climate change effects and projecting future trends in a manner that is useful to planners and decision makers at the regional to local scale. The most widely used approach uses temperature and precipitation projections from global-scale, long-term General Circulation Models (GCMs), bias-corrected and downscaled for use as input to regional hydrologic models; outcomes of the hydrologic models can then be applied, albeit with some uncertainty, to local systems. Downscaling may rely on "dynamical techiques" based on the physical relationship between larger- and smaller-scale climate manifestations, or on statistical techniques based on the empirical relationship between large-scale atmospheric variables and weather variables observed over the short term on a local scale (see discussion in Kundzewicz et al. 2007). Both of these techniques can be characterized as "top-down".

Decision scaling, a modified approach specifically aimed at local risk assessment and decision making in the water sector—and also relevant to conservation of wetlands and other habitat due to the overlap in concerns about the quantity, timing, and reliability of water supply—necessarily takes global-scale modeling into account but first considers the problem from a bottom-up perspective (Brown et al. 2012, 2019). The decision is framed by identifying "mission" (or project) specifics, relevant metrics, uncertainties affecting decision making, models or functional relationships needed to represent the system being evaluated, and potential adaptation

alternatives. A "climate stress test" sensitivity analysis assessing the vulnerability of the system to climate change effects factors is conducted (Brown et al. 2019), essentially asking the question "what would break the system?" (Barsugli pers. comm.). This enables decision makers to focus on the climate factors that are most relevant to a specific system and/or decision. Climate information, such as downscaled projections, can then be considered, either quantitatively, based on probabilistic or other modeling, or qualitatively, based on "weight of evidence" (Brown et al. 2019) to evaluate risk—the potential that the system will in fact break—and choose a course of action.

Approach

Assessment of climate change resiliency at the Jamison Ranch Property and the project site was informed by both the top down perspective and the bottom up decision scaling approach described by Brown et al. (2012, 2019). Evaluation attempted to answer the following questions.

- What are the projected effects of climate change in the project region?
- Can these be downscaled to distinguish any differences between foreseeable changes at the project site and changes at the Property?
- Which reasonably foreseeable climate change effects—at either the regional or local scale—would be expected to have a negative effect on habitat viability, function, and value, and particularly on aquatic resources?
- Will those effects play out differently at the two sites, and if so, how?
- Is one site expected to be more climate-resilient than the other, and if so, how and why?

Projected climate trends for the San Joaquin Valley region, the project site, and the Four Corners area were identified based on the published literature. Effects of these changes on habitats at the two sites, and the resiliency of the two sites to those conditions, were evaluated qualitatively based on the habitats present and expectations for future site management and land uses surrounding each site.

Climate Projections for San Joaquin Valley

As part of the ongoing push by multiple state agencies to address climate change as it applies to their individual remits, statewide Climate Change Assessments have been prepared every 3 years since 2006 as a collaborative venture of the Governor's Office of Planning and Research, the California Natural Resources Agency, and the California Energy Commission. These are intended to provide a scientific foundation for state policymaking, planning, and programs, and to contribute to understanding of climate change vulnerability at the local scale and inform local resilience actions. Reporting includes statewide assessments as well as assessments focused by region.

The most recent projections, issued under the state's Fourth Climate Change Assessment, identify the following general trends for the San Joaquin Valley region (Fernandez-Bou et al. 2021).

- Annual average maximum temperatures in the San Joaquin Valley increased by 1° F between 1950 and 2020, and are projected to rise by another 4° – 5° F by mid-century and as much as 5° – 8° F by the end of the century

- Precipitation is expected to become more intense, with the percentage that falls between November and March increasing from the current 75% to 80% by the end of the century; on the Valley floor, this translates to a slighly longer dry season and heavier rainfall during the wet months
- Sierran snowpack, a critical source of dry-season water supply, has been gradually decreasing at higher elevations and is projected to become scarce at lower elevations by the end of the century
- As temperature continues to increase, earlier snowmelt will shift peak flows by 2 to 4 months by the end of the century
- Multi-year climate extremes such as the 2012 – 2016 drought are becoming more frequent

The California Landscape Conservation and Adaptation Partnership (2018) provides a similar perspective, forecasting

- warming air temperatures
- decreasing snowfall and increasing incidence of precipitation as rain
- more intense droughts and extreme heat
- changes in streamflow; increased flooding
- increase in arid landscapes
- increased stream temperatures
- increased frequency and intensity of wildfire

San Joaquin Valley habitats and ecosystems, identified as particularly at risk due to already-extensive habitat loss resulting from agricultural and urban development, are subject to disturbing projections (Fernandez-Bou et al. 2021).

- Decreasing primary productivity due to more frequent extreme temperatures, flooding, and drought, in combination with changes in land use; corollary effects on the transfer and distribution of energy across trophic levels
- Changes in flow regimes and water conditions due to earlier and more rapid snowmelt, potentially impacting spawning times, reproductive success, and habitat suitability for native fishes
- Effects on wetlands due to both prolonged periods of drought and increased incidence of flooding; increased water temperatures and evaporation rates as a result of increased ambient temperatures

Downscaled Projections for Project Site & Jamison Ranch Property

For a number of years, the USGS has been engaged in climate change modeling at the HUC-4 watershed scale. The most recent iteration creates look-ahead temperature and precipitation summaries by spatially averaging the CMIP6-LOCA2 (Climate Model Intercomparison Project, Version 6 – Localized Constructed Analogs) dataset of Pierce et al. (2023). Water balance variables (snow water equivalent, runoff, soil water storage, and evaporative deficit) are simulated using temperature and precipitation values from CMIP6-LOCA2 as inputs to a simple water-balance model that accounts for water partitioning across various components of the surface hydrologic system but does not factor in groundwater, diversions, or flow regulation by impoundments

(Alder and Hostetler 2013, Alder 2023a). Results are accessible in full via the National Climate Change Viewer online application, available at https://www.usgs.gov/tools/national-climate-change-viewer-nccv.

As discussed in more detail above, the project site is located within USGS HUC 18030009 (Upper Dry), a subwatershed of USGS HUC 1803 (Tulare – Buena Vista Lakes). The Jamison Ranch Property is within USGS HUC 18040001 (Middle San Joaquin River – Lower Chowchilla River), a subwatershed of USGS HUC 1804 (San Joaquin). Figures 25 through 27 compare projected monthly mean temperature, precipitation, and soil moisture storage values for HUC 1803 and 1804 to the historical (1981 – 2020) baseline for each HUC-4 watershed. Each figure shows modeling results for three different time periods: 2025 – 2049, 2050 – 2074, and 2075 – 2099. For each time period, three scenarios—referred to as Shared Socioeconomic Pathways, or SSPs—are considered, reflecting different global greenhouse gas (GHG) emissions levels (Alder and Hostetler 2013). Developed for the Intergovernmental Panel on Climate Change's (IPCC's) most recent assessment report, the three future scenarios are referred to on the figures as SSP245 (intermediate GHG emissions), SSP370 (high GHG emissions), and SSP585 (very high GHG emissions) (Intergovernmental Panel on Climate Change 2023).

Climate Risk Factors

For purposes of this evaluation, key factors that could compromise aquatic resources and overall habitat quality ("break the system") were identified as the following.

- Increases in ambient temperature, potentially affecting wetland ponding times, vegetation success, and vegetative composition

- Changes in precipitation quantity and timing, which have the potential to compromise water supply to stream systems and wetlands, or to deliver excess supply; these include but are not limited to

  - more frequent occurrence of extreme precipitation events, potentially leading to flooding and adverse effects on system function, and in some cases potentially resulting in geomorphic modification reflecting a new runoff regime

  - more frequent or prolonged occurrence of drought, potentially resulting in water supply at least intermittently inadequate to maintain streamflow and/or wetland conditions

  Altered quantity and timing of precipitation also have the potential to affect vegetation productivity and vegetative composition

Evaluation also considered the potential for changes in frequency and severity of wildfire and fire at the urban-wildland interface.

Climate Change Effects at Project Site & Jamison Ranch

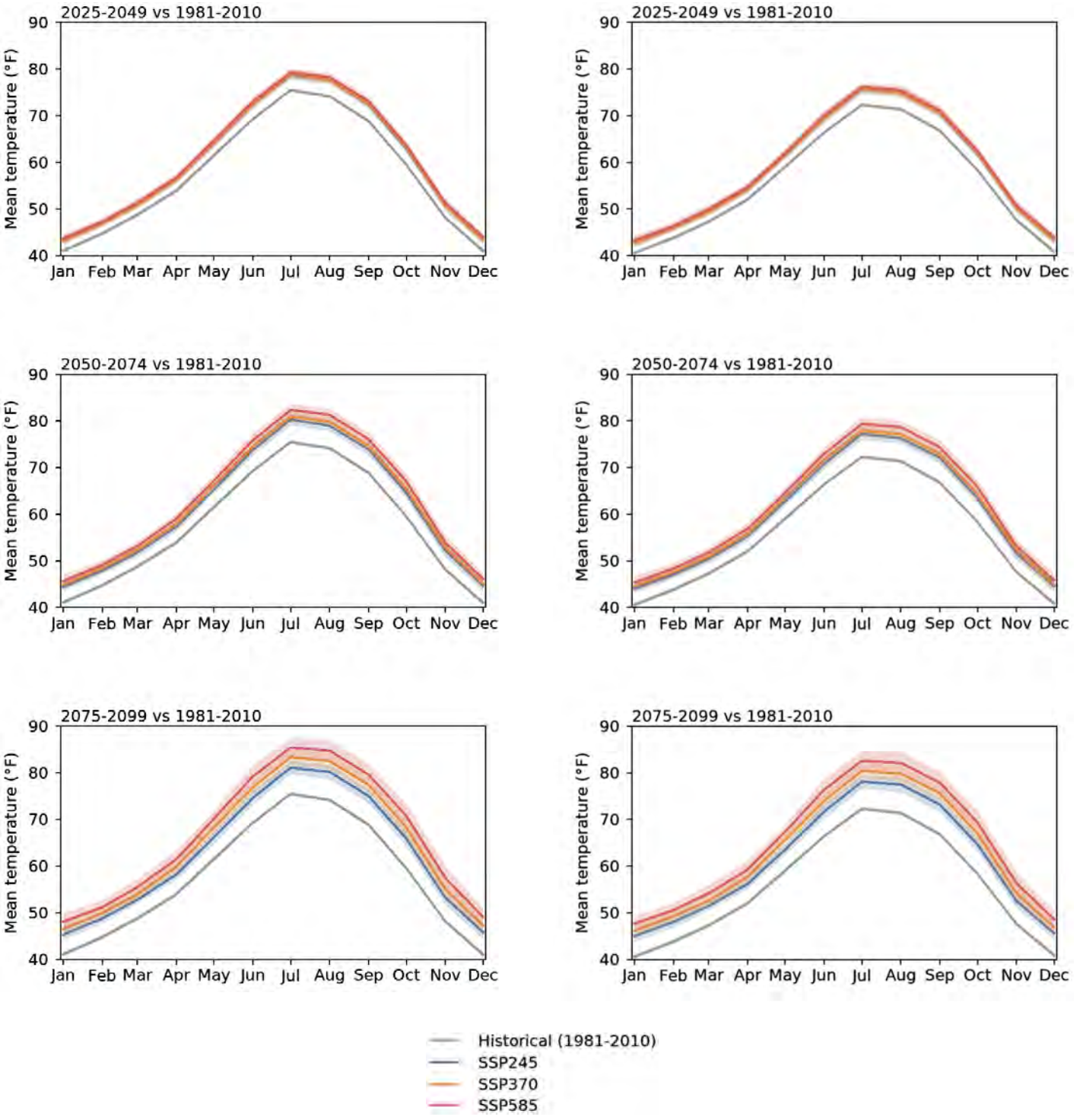
Temperature Trends

As Figure 25 shows, monthly mean temperatures at the project site and Jamison Ranch have historically been within a few degrees of each other on a month-by-month basis, and this general consistency projects into the future timeframes under all three SSP scenarios, with the project site consistently a few degrees warmer than the Property year-round. Not surprisingly, overall month by month temperature increases at both sites are least marked under the SSP245 scenario and greatest under the high-GHG SSP585 scenario, and divergence between the three scenarios increases over time. The current pattern of winter (December – January) minima and summer (July – August) maxima is projected to persist through the end of the century at both sites.

Source: *modified from* Alder 2023b, 2023c

HUC 1803: Tulare – Buena Vista Lakes (Vista Ranch Project Site)

HUC 1804: San Joaquin (Jamison Ranch Property)



Note: Median of all CMIP6 models is indicated by solid lines; 10th – 90th percentile range of models is indicated by shaded envelopes.

Precipitation Trends

The pattern of change in projected month-by-month precipitation is broadly similar (Figure 26). Both sites show historic precipitation maxima in the cooler months—values rising through October, November, and December to a January – February peak, and trailing off through March and April. Historic winter peaks are several inches per month higher at the Property, but both sites historically show a near-zero minimum through the summer months (in this case, June – August).

At the project site, winter precipitation maxima increase by about 0.5 inch per month by mid-century, and almost 1 inch per month by the end of the century. Increases are most marked in January – February, almost nil through the summer months, and fairly negligible through the fall and early winter. Trends are similar at the Property, but the increases are slightly greater: almost 1 inch per month by mid-century and as much as slightly over an inch per month (interestingly, under the mid-range SSP370 scenario) by the end of the century. As at the project site, increases are greatest in January – February and minimal through the rest of the year. At both sites, this suggests a continued pattern of wet winter, drying spring, and long dry summer/fall, coupled with notably increased precipitation over a fairly short duration during the months that have historically been the wettest.

Soil Moisture Trends

Despite the difference in incident precipitation, soil moisture storage patterns have historically been quite similar at the project site and the Property (Figure 27): rising steeply from late fall through January to a February maximum, then decreasing through the spring and early summer to a near-zero minimum in August – September. At both sites, the general shape of the soil moisture storage curve is projected to remain roughly the same through the end of the century, and storage maxima remain close to their current values. However, as early as 2025 – 2049 the drop-off in soil moisture following the winter precipitation high is steeper (presumably reflecting increased ambient temperature). By mid-century—and even more so by the end of the century—the disparity in soil dry-out is more notable, and soils are markedly dryer through the spring and early summer months. Note, however, that potential long-term changes in soil moisture storage at both sites are expected to be similar.

Thus, the remaining question is whether the Jamison Ranch Property would offer long-term sustainable compensation for losses of both aquatic resources and listed species habitat. This is addressed in the next section.

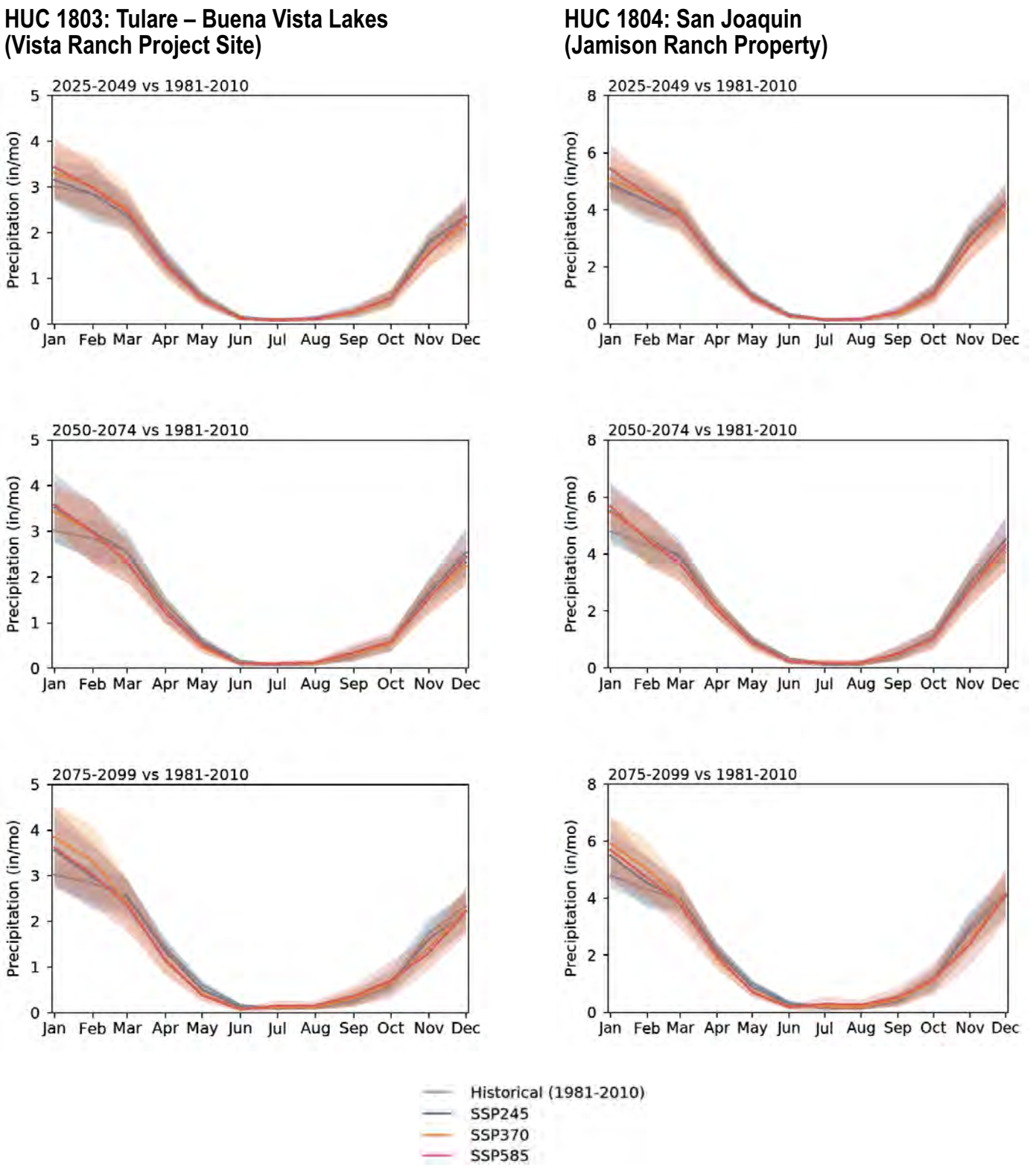
Long-Term Resiliency & Sustainability

Potential Outcomes at Jamison Ranch Property

Assessment of resiliency to effects of climate change and the long-term sustainability of conserved habitats at the Jamison Ranch Property considered the key regional-scale “break the system” parameters called out above, as well as related trends at the HUC-4 watershed scale identified based on USGS modeling. Evaluation focused on

- wetland habitat and stream function
- opportunities for special-status amphibian breeding
- upland conditions
- the interconnected mosaic of wetlands, streams, and uplands presumed to represent a healthy, functional site condition

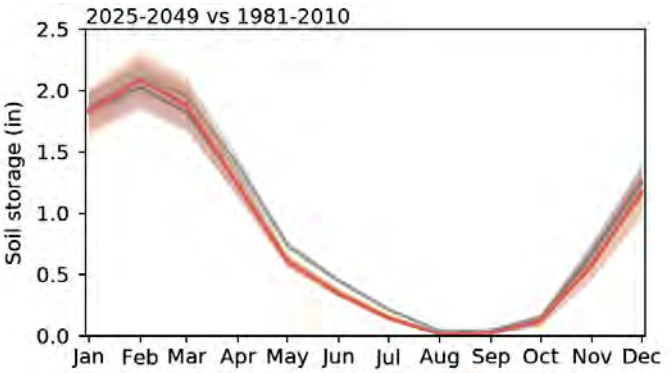
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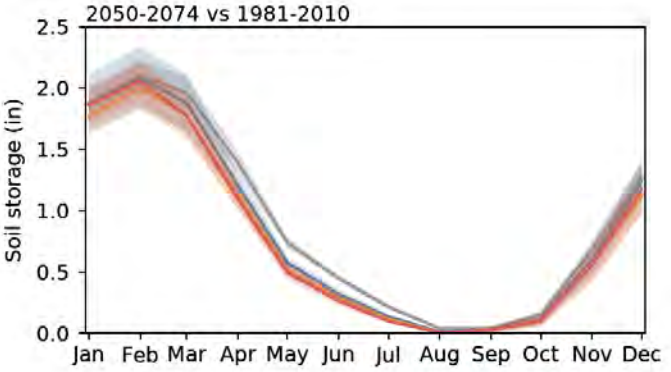


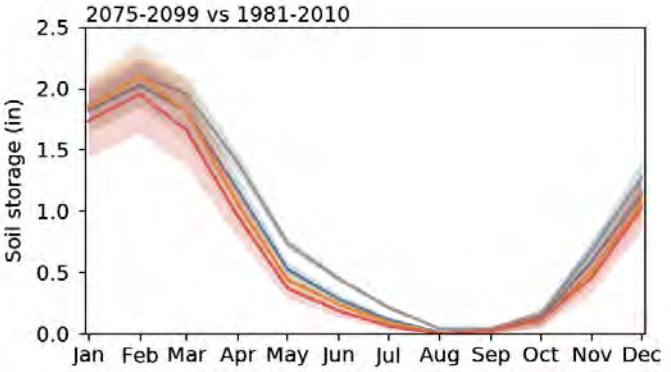
Note: Median of all CMIP6 models is indicated by solid lines; 10th – 90th percentile range of models is indicated by shaded envelopes.

Source: *modified from* Alder 2023b, 2023c

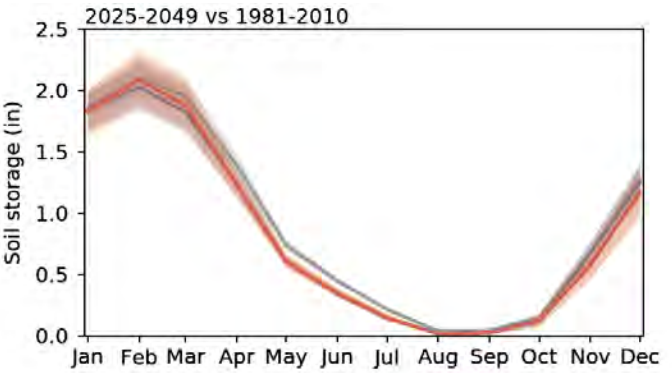
HUC 1803: Tulare – Buena Vista Lakes (Vista Ranch Project Site)

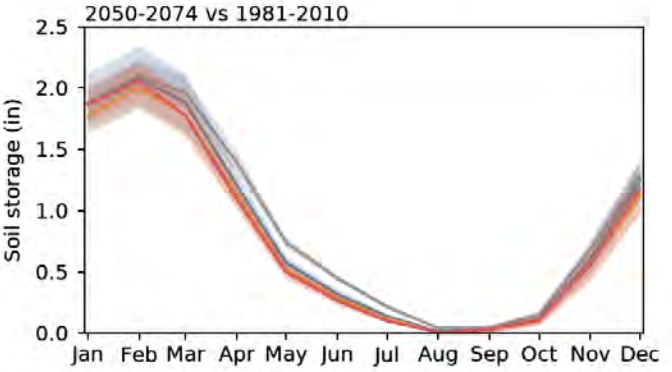


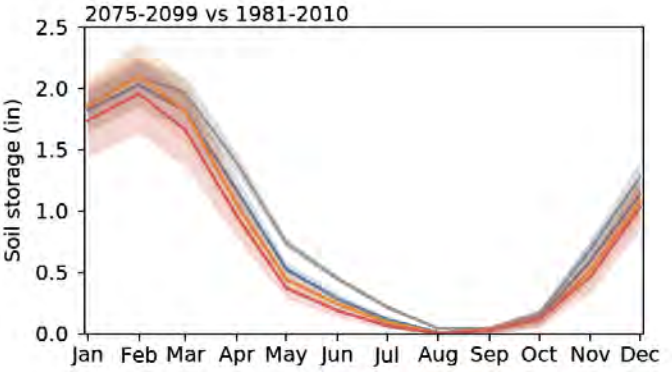


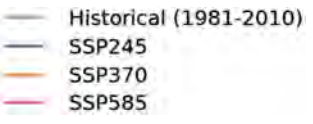


HUC 1804: San Joaquin (Jamison Ranch Property)









Note: Median of all CMIP6 models is indicated by solid lines; 10th – 90th percentile range of models is indicated by shaded envelopes.

Summarizing the trends apparent in watershed-scale modeling (Alder 2023a, 2023b; see above), over the remainder of the century, the Jamison Ranch Property is expected to experience increased ambient temperatures, with a continued pattern of December – January minima/July – August maxima and a winter wet season/summer dry season cycle.

Despite notably increased precipitation in January and February, soils would dry more rapidly in the spring as the century progresses, potentially shortening the growing window for cool-season native vegetation. This could reduce total primary productivity, and could also affect the occurrence and relative abundance of individual plant species, although shifts in the occurrence and relative abundance of individual plant species are very challenging to predict at a fine scale—species occurrence is subject to multivariate influences, including complex interactions between climatic variables as well as soil conditions and interactions with other species. Climate change may yield entirely novel combinations of environmental variables, making it nearly impossible to predict the results with precision. Rather than attempting to predict and control effects on every species at the outset, the preserve management documents will take an adaptive management approach, allowing future managers to use the best available science to adapt preserve management to changing conditions.

In this context, continued low- to moderate intensity grazing, managed adaptively over the long term, is expected to support native forbs by reducing thatch cover and helping to control invasive species. RDM minima included as thresholds in the preserve management plan provide a tool to match grazing pressure to primary productivity. The preserve management plan will also include funding and requirements for weed management, which can be used to mitigate the effects of individual problematic plant species. Taken together, these offer tools to mitigate changes in both overall productivity and in species composition, helping to counteract the vegetative effects of warmer temperatures and earlier soil drying, and contributing to long-term grassland health.

Effects on wetlands are similarly difficult to predict. Clearly, increased precipitation would result in increased direct supply that could presumably be captured and retained by the Property's well-developed hardpan; this could lead to increased wetland extent, as the Property preserves essentially unmodified gently rolling topography conducive to vernal pool/swale and seasonal wetland development. However, increased precipitation intensity and increased occurrence of extreme rain events could cause a higher percentage of incident rainfall to run off rather than being retained. Additionally, increased temperatures would increase evaporation, and potentially also plant productivity and evapotranspiration, which could shorten ponding times. To the extent this occurs, there would be potential to decrease wetland utility for CTS and WSF breeding. Bearing in mind that optimal CTS breeding pools retain water at least through April, the key question is whether wetlands would expand sufficiently to offset the effects of increased evaporation/evapotranspiration and retain water through the CTS breeding season.

At present, the breeding pools on the Property with the highest rates of successful CTS recruitment are enhanced ponds or "dirt tanks" created by the rancher to provide stock water. The water source for the dirt tanks is primarily from direct runoff, so they are well situated to capture brief, intense pulses of input yielded by high-intensity precipitation events. The dirt tanks are also much deeper and more turbid than natural vernal pools on the Property. Their depth and turbidity lead to very low vegetation cover. The same conditions are conducive to low water temperatures because of thermal buffering, and because of the turbid waters' high albedo. As a result, evapotranspiration rates in the dirt tanks are very low by comparison with natural vernal pools. The dirt tanks' increased ability to capture storm flow and lower temperatures and evapotranspiration rates are expected to protect their viability and their ability to support the CTS lifecycle in the face of climate change effects.

Increased precipitation would also increase supply to ephemeral drainages on the Property, and to the seasonal North Fork Little Dry Creek drainage. Ephemeral drainages would like remain fairly "flashy", but overall increases in discharge could increase the potential for pool retention in deeper reaches, particularly in North Fork Little Dry Creek but possibly also in ephemeral drainages. This would help to offset the potential for shorter overall wetland ponding times (particularly in unmodified pools) by increasing available ponded acreage, and could help to further safeguard CTS breeding opportunities—especially as CTS are known to breed in North Fork Little Dry Creek at present.

Coupled with more frequent occurrence of extreme storm events, overall increases in precipitation could also lead to geomorphic adjustment within the Property's drainage network. There is potential for increasing drainage integration, and, on a more localized scale, for increasing erosivity and incision over the long term. Attentive and adaptive management of grazing should help to control local effects by ensuring maintenance of healthy vegetative cover, and natural adjustment to unnatural increases in discharge should not be viewed as an inherently negative outcome. Rather, it would reflect continued functionality—and it could benefit listed/candidate species in at least some ways.

Superposed on the pattern of increased temperature, late-winter precipitation, and spring soil dry-down is the potential for increased drought occurrence. As a regional phenomenon, this is discussed comparatively in the section that follows, along with increased frequency and severity of wildfire.

Potential Outcomes at Project Site vs. Jamison Ranch Property

Since dedication of conservation lands at the Property is specifically proposed as compensation for loss of aquatic resources and listed/candidate species habitat at the project site, it is worth considering the long-term prognosis for habitat quality at the project site under changing climate conditions: if the Vista Ranch project were not to move forward, which site would offer greater aquatic resources function/value/services and better opportunities for listed and candidate species over the long term?

As discussed above, the Property currently preserves an integrated, functional mosaic of uplands, wetlands, and stream drainages, all of which are in a largely natural condition with comparatively minor impacts due to historic and current low- to moderate-intensity grazing use. The Property is also surrounded by largely undeveloped lands and fairly sparse rural/semi-rural development, with no immediate plans for extensive development. The Property's natural topography is intact, North Fork Little Dry Creek and the smaller drainages that cross the Property remain connected to their headwaters, and soils on the Property retain an effective hardpan layer. This offers the advantage of a functional system with the capability to adjust dynamically to applied stressors.

By contrast, topography and soils at the project site have been significantly modified by leveling and cultivation, and the Property itself is bounded by developed lands and lands likely subject to development in coming decades. Drainage at the site has also been beheaded by establishment of the Big Dry Creek Dam and Reservoir—while portions of the project site retain natural floodplain topography and the Big Dry Creek channel remains a conspicuous feature, natural drainage to and through the site is interrupted. The site's capacity for dynamic geomorphic adjustment to changes in precipitation is thus significantly altered. Additionally, as noted elsewhere, the project site appears to lack a well-developed hardpan. These factors are expected to affect the site's response to changing precipitation and soil moisture regimes in several ways.

First, although increased winter precipitation has the potential to increase wetland extent during and immediately following the wet season (similar to the Property), the lack of hardpan at the project site facilitates infiltration, and the expanded wetlands are not expected to persist as successfully as at the Property. The

project site also lacks both a functional ephemeral drainage network and a through-going seasonal drainage, and thus, unlike the Property, would not offer opportunities for increased pooling of discharge delivered from upstream, a deficit compounded by the lack of hardpan.

As are result, the accelerated spring decrease in soil moisture storage forecast for both HUC 1803 (Tulare – Buena Vista Lakes) and HUC 1804 (San Joaquin) (Alder 2023a, 2023b) is expected to be felt more acutely at the project site than at the Property. Effects on wetland stability and the corollary detriment to CTS and WSF breeding opportunities are thus expected to be more marked at the project site than at the Property. Additionally, if it were to remain undeveloped, the project site would not be subject to long-term monitoring and adaptive management—unlike the Property, where managed grazing and weed control appear to offer options to buffer the effects of changing climate parameters. This would be particularly marked in upland areas, where nonnative herbaceous species, already abundant, would likely be favored by overall increased temperatures and accelerated loss of soil moisture during the cooler spring months.

Additionally, to the extent that climate change pressures tend to suppress native cool-season vegetation and by extension favor exotic species, the project site is expected to be more vulnerable, since its proximity to development would likely increase the potential for introduction and spread of nonnative species—a trend expected to intensify in the future as planned development proceeds around the site. By contrast, assuming the area around the Property remains primarily rural and semirural, introduction of nonnative species is expected to be less intensive, while surrounding open lands would offer opportunities for recolonization by native species in the event of localized stochastic extirpations.

Both the project site and the Property are projected to experience increased occurrence and persistence of drought in coming decades (e.g., California Landscape Conservation and Adaptation Partnership 2018, Fernandez-Bou et al. 2021). Both sites are expected to suffer adverse effects as a result, with reduced wetland quality, and—at the Property—reduced pooling and pool retention in drainages by comparison with future-normal water years. This would have corollary adverse effects on amphibian breeding opportunities, and would also reduce the quality of uplands, where it could be particularly detrimental to the availability of forage plants for species such as Crotch's bumble bee. However, the same factors that are expected to support wetland persistence and increased pooling and pool retention on the Property are expected to provide improved buffering for drought effects at the Property by comparison with an undeveloped project site, which lacks both intact hardpan and throughgoing drainages receiving input from areas upstream to the east.

The only area where the project site may have a slight advantage over the Property over the long term is in terms of resistance to increased frequency and severity of wildfire. Both the project site and the Property are currently within Local Responsibility Areas (LRAs) (California Board of Forestry and Fire Protection 2024), where the responsibility for preventing and suppressing wildland fires rests primarily with the local jurisdiction—at the Property, with Madera County, and at the project site, with Fresno County, with the potential to transition to the City of Clovis in the future. Proximity to urban/suburban development may translate to shorter response times and better wildfire outcomes at the project site; as planned development proceeds in the vicinity, this is expected to become increasingly the case in the foreseeable future.

In view of these considerations, while the Property will almost certainly evolve in response to temperature and precipitation effects of climate change, it is anticipated that the Property will be less adversely affected over the long term than the project site. Conservation at the Property, while subject to undoubted risks related to climate change, nonetheless appears to offer better potential for both the long-term extent, diversity, and function of aquatic resources and benefit to listed and candidate species than an undeveloped project site.

Alternate Mitigation Planning

If the preferred mitigation site, the Jamison Ranch Property, should become unavailable for any reason, other alternatives would need to be evaluated for their potential to provide an appropriate offset for project-related habitat losses, including take-related losses as well as loss of aquatic resources. Evaluation will consider the following.

- Documented presence of state- and federally listed species for which take authorization is sought ("key species")
- Nature and quality of habitat onsite, including
  - Opportunities for key species
  - Habitat extent and on- and offsite connectivity
  - Extent and quality of aquatic resources present

Like the preferred approach described above, alternate planning would be fundamentally driven by the need to compensate for loss of state- and federally listed species habitat, but because of the species involved, this will require provision of compensatory aquatic features offering high quality and functionality. Evaluation of alternate sites would seek to provide compensation at the ratios shown in Table 11, consistent with discussion in prior documents.[11]

Table 11. Mitigation Ratios for Evaluation of Alternate Mitigation Sites

Species	Status on Project Site	Proposed Mitigation Ratio
Species Covered in Federal ESA Section 7 Consultation		
California tiger salamander (CTS) (*Ambystoma californiense*)	Documented as present and breeding on site	Minimum of 3:1 for occupied and suitable habitat (breeding and upland); minimum of 2:1 for low-suitability breeding and upland habitat
Vernal pool fairy shrimp (VPFS) (*Branchinecta lynchi*)	Present on site	Minimum of 3:1 for suitable habitat
Western spadefoot (WSF) (*Spea hammondii*)	Documented as present and breeding on site	Direct Impacts[a] Minimum of 3:1 for all occupied and suitable habitat; minimum of 2:1 for all low-suitability habitat Indirect Impacts Minimum of 1:1 for all occupied and suitable habitat; minimum of 0.67:1 for all low-suitability habitat
Northwestern pond turtle (WPT) (*Actinemys marmorata*)	Not documented on site to date	Minimum of 2:1 for all potentially suitable habitat
Additional Species Included in Request for State Take Authorization		
Crotch's bumble bee (*Bombus crotchii*)	Documented as present on site	Minimum of 3:1 for suitable habitat

[11] All of these ratios would be exceeded by the preferred mitigation preserve proposed for the Jamison Ranch Property.

Species	Status on Project Site	Proposed Mitigation Ratio
San Joaquin kit fox (SJKF) (*Vulpes macrotis mutica*)	Not documented on site to date	Minimum of 2:1 for all potentially suitable habitat
Western Burrowing Owl (BUOW) (*Athene cunicularia hypugaea*)	Not documented on site to date	Minimum of 2:1 for all potentially suitable habitat

Notes:
[a] Mitigation ratios are parsed differently for CTS and WSF because CTS is both state- and federally listed, while WSF is a federal candidate species only; CDFW has typically required separate calculations for upland and aquatic habitat, whereas USFWS has not.

Based on the ratios shown in Table 11, Table 12 itemizes specific criteria that will be used for evaluation of alternate mitigation properties if this becomes necessary.

Table 12. Mitigation Site Rubric

Covered Species	Habitat Impact[a]	Mitigation Ratio	Acreage Required
SJKF	Potentially suitable habitat: 348.606 acres	2:1	697.212
BUOW	Potentially suitable habitat: 348.606 acres	2:1	697.212
CTS	Suitable upland habitat (direct impact): 189.683 acres[b]	3:1	569.049
	Low-suitability upland habitat (direct impact): 140.257 acres	2:1	280.514
	Occupied + suitable breeding habitat: 0.864 acre	3:1	2.592
	Low-suitability breeding habitat (agricultural tailwater pond) (indirect impact only): 1.129 acres	2:1	2.258
WSF	Suitable habitat (upland + breeding; direct impact): 188.999 acres	3:1	566.997
	Low-suitability habitat (upland + breeding; direct impact): 135.027 acres	2:1	270.054
	Suitable habitat (upland + breeding; indirect impact): 18.395 acres	1:1	18.395
	Low-suitability habitat (upland + breeding; indirect impact): 2.256 acres	0.67:1	1.512
Crotch's bumble bee	Suitable habitat (direct impact only): estimated at a maximum of 50 acres	3:1	150.000
VPFS	Suitable habitat: 0.806 acres	3:1	2.418

Notes:
[a] Impact acreages include both direct and indirect impacts unless indicated otherwise; see Table 5 for detailed breakdown of impacts on CTS habitat.

[b] No compensation is proposed for indirect impacts on upland CTS habitat since the project would effectively push the existing urban development boundary outward but would not result in further substantive disconnection of remaining habitat.

In summary, based on the calculations shown in Table 6, an acceptable alternate mitigation site would need to provide

- a minimum total of about 857 acres suitable for WSF, including uplands and breeding habitat
- a minimum of about 850 acres of upland habitat suitable for CTS, of which at least 697 acres is suitable for SJKF and BUOW, and 150 acres is suitable for Crotch's bumble bee; since CTS and WSF have similar upland requirements, this would presumably overlap in large part if not entirely with the acreage requirement for WSF

- a minimum of about 4.85 acres of aquatic habitat suitable for CTS
- a minimum of about 2.4 acres of aquatic habitat suitable for VPFS
- aquatic resources with CRAM scores that match or exceed the average CRAM score for impacted resources at the project site (preferably the latter)

Any alternate site would also need to be documented as supporting CTS, WSF, and VPFS[12], and, if possible, would be located south of the Fresno River, which represents a key boundary from the species perspective. Ideally, the site would also be documented as supporting Crotch's bumble bee, although this may be more problematic since this is such a cryptic species.

In the event the applicant is forced to seek an alternate site, only sites satisfying these criteria will be considered.

Additionally, in discussions prior to submittal of the project's state *Application for Incidental Take Authorization*, CDFW requested that the application include consideration of the sustainability of the proposed mitigation under reasonably foreseeable climate change scenarios. The RWQCB is also requiring an analysis of climate change effects as part of the project application for Clean Water Act Section 401 Water Quality Certification, which is provided above for the Jamison Ranch Property. If it becomes necessary to select an alternate mitigation site, an analysis similar to the one above will be provided for the selected site.

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[12] Based on the locations and general characteristics of potential alternate sites identified to date, vernal pool fairy shrimp habitat may be the hardest to provide on a site other than Jamison Ranch. If the Jamison Ranch property becomes unavailable and a site that meets all other selection criteria except ability to compensate for losses of vernal pool fairy shrimp habitat is identified, the applicant proposes to satisfy requirements for vernal pool fairy shrimp mitigation through the purchase of credits at a USFWS-approved bank serving the project area.

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Acronyms & Abbreviations

BUOW	Western Burrowing Owl
CDFW	California Department of Fish and Wildlife
City	City of Clovis
CMIP6-LOCA2	Climate Model Intercomparison Project, Version 6 – Localized Constructed Analogs
Corps	U.S. Army Corps of Engineers
CRAM	California Rapid Assessment Method
CTS	California tiger salamander
EO	Executive Order
FEMA	Federal Emergency Management Agency
FMFCD	Fresno Metropolitan Flood Control District
GCM	General Circulation Model
GHG	greenhouse gas
HOA	Homeowners' Association
HUC	U.S. Geological Survey hydrologic unit code
IPCC	Intergovernmental Panel on Climate Change
ITP	state Incidental Take Permit
LID	low-impact development
LRA	Local Responsibility Area
NFWF	National Fish and Wildlife Foundation
OHWM	ordinary high water mark
Outlet Channel	Big Dry Creek Reservoir Outlet Works Channel
PAR	Property Analysis Record
PCBs	polychlorinated biphenyls
Procedures	SWRCB 2021 *State Wetland Definition and Procedures for Discharges of Dredged or Fill Material to Waters of the State*
Property	Jamison Ranch Property
project	Vista Ranch project
RDM	residual dry matter
RWQCB	Regional Water Quality Control Board
SJKF	San Joaquin kit fox
SOI	Sphere of Influence
SR	State Route
SSP	Shared Socioeconomic Pathway
SSP245	Shared Socioeconomic Pathway 2 – 4.5 (intermediate greenhouse gas emissions)
SSP370	Shared Socioeconomic Pathway 3 – 7.0 (high greenhouse gas emissions)
SSP585	Shared Socioeconomic Pathway 5 – 8.5 (very high greenhouse emissions)
SWRCB Procedures	SWRCB 2021 *State Wetland Definition and Procedures for Discharges of Dredged or Fill Material to Waters of the State*
TMDL	total maximum daily load
USBR	U.S. Bureau of Reclamation
USFWS	U.S. Fish and Wildlife Service
USGS	U.S. Geological Survey
VPFS	vernal pool fairy shrimp
WSF	Western spadefoot
WPT	western pond turtle

Appendix A

CRAM Assessment Worksheets, Vista Ranch Site

Basic Information Sheet: Depressional Wetlands

Assessment Area Name: Vista D-1

Project Name: Vista Ranch Project

Assessment Area ID #: D-1

Project ID #: 361 **Date:** 9/27/23

Assessment Team Members for This AA

A. Merrill, E. Smith

AA Category:

☐Pre-Restoration ☐Post-Restoration ☐Pre-Mitigation ☐Post-Mitigation

☒Pre-Impact ☐ Post-Impact ☐ Training ☐ Ambient

☐Reference ☐ Other:

Origin of Wetland (if known):

☒ Natural system ☐ Artificial system

Type of Management (if known):

☐waterfowl/birds ☐ amphibians ☐ general wildlife ☐ sediment ☐ water quality ☐ stormwater ☐water supply (agriculture) ☐water supply (livestock) ☒ not managed ☐ other:

Which best describes the type of depressional wetland?

☐freshwater marsh ☐alkaline marsh ☐brackish marsh

☒other (specify): Herbaceous seasonal wetland, not characterized by vernal pool plants

AA Encompasses:

☒entire wetland ☐portion of the wetland

Which best describes the hydrologic state of the wetland at the time of assessment?

☐ponded/inundated ☐saturated soil, but no surface water ☒dry

What is the apparent hydrologic regime of the wetland?

Perennially flooded systems contain surface water year-round, *seasonally flooded* depressional wetlands are defined as supporting surface water for 4-11 months of the year (in > 5 out of 10 years.) *Temporarily flooded* depressional wetlands possess surface water between 2 weeks and 4 months of the year.

☐perennially flooded ☐ seasonally flooded ☒ temporarily flooded

Does your wetland connect with the floodplain of a nearby stream? ☐ yes ☒ no

(system subject to overbank flow, a dammed stream does not count)

Does the wetland have a defined or undefined <u>outlet</u>? ☒ defined ☐ undefined

Does the wetland have a defined or undefined <u>inlet</u>? ☒ defined ☐ undefined

Are the inlet and outlet at the same location? ☐ yes ☒ no

Is the topographic basin of the wetland ☒ distinct **or** ☐ indistinct **?**

An *indistinct* topographic basin is one that lacks obvious boundaries between wetland and upland. Examples of such features are seasonal, depressional wetlands in very low-gradient landscapes.

Site Location Description and Land Use:
The AA consists of feature S-2 in the wetland delineation for Vista Ranch, prepared by VNLC, August 2023. The feature is located near the northwestern tip of the site. It is a semi-natural depression, which receives and contributes some flow to a swale flowing from the northeast to the southwest. The feature presently has no land use—it shows signs of prior modification, likely to provide stock water, but no stock currently graze the site. The site is planned for a mixed-use development.

Comments:
The AA and its surroundings are relatively ruderal due to lack of management.

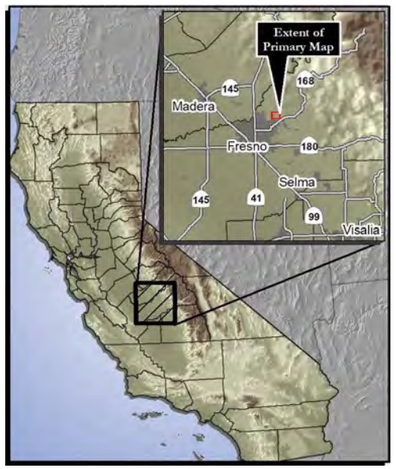
CRAM AA
Locations Map

Vista Ranch Development
Fresno County, California

D1
D2
R1
R2

Legend

Project Site (368 ac.)



Vollmar
NATURAL LANDS CONSULTING

Data Sources: VNLC, 2023 | USDA-WSS, 2023
ESRI/Maxar, 2023 | USGS, various | GAP, 2023
GIS/Cartography by: E. Smith, Sep. 2023
Map File: 361_Vista_AP_B-L_2023-0914.mxd

N
W E
S

1:7,200
(1 in. = 600 feet. at Tabloid Layout)

0 50 100 200 Meters
0 300 600 1,200 Feet

Photos with Descriptions



Looking east from west end of AA, 36.879890, -119.678636



Looking south from north end of AA, 36.880104, -119.678061



Looking north from south end of AA, 36.879751, -119.678262



Looking west from east end of AA, 36.879933, -119.677953

Scoring Sheet: Depressional Wetlands

AA Name: Vista D1				**Date:** 9/27/23	
Attribute 1: Buffer and Landscape Context (pp. 8-15)				**Comments**	
Aquatic Area Abundance Score (D)		Alpha. D	Numeric 3		
Buffer:					
Buffer submetric A: Percent of AA with Buffer	Alpha. A	Numeric 12			
Buffer submetric B: Average Buffer Width	A	12			
Buffer submetric C: Buffer Condition	C	6			
Raw Attribute Score = D+[C x (A x B)^{½}]^{½}			11.49	**Final Attribute Score = (Raw Score/24) x 100**	47.88
Attribute 2: Hydrology (pp. 16-21)					
Water Source		Alpha. B	Numeric 9	Upstream homes have potential groundwater/surface link along swale	
Hydroperiod		A	12		
Hydrologic Connectivity		B	9	Soil has been mounded along 10% of edge creating steep bank.	
Raw Attribute Score = sum of numeric scores			30	**Final Attribute Score = (Raw Score/36) x 100**	83.33
Attribute 3: Physical Structure (pp. 22-28)					
Structural Patch Richness		Alpha. C	Numeric 6		
Topographic Complexity		C	6		
Raw Attribute Score = sum of numeric scores			12	**Final Attribute Score = (Raw Score/24) x 100**	50
Attribute 4: Biotic Structure (pp. 29-39)					
Plant Community Composition (based on submetrics A-C)					
Plant Community submetric A: Number of plant layers	Alpha. D	Numeric 3			
Plant Community submetric B: Number of Co-dominant species	D	3			
Plant Community submetric C: Percent Invasion	D	3			
Plant Community Composition Metric *(numeric average of submetrics A-C)*			3		
Horizontal Interspersion		B	9		
Vertical Biotic Structure		D	3		
Raw Attribute Score = sum of numeric scores			15	**Final Attribute Score = (Raw Score/36) x 100**	41.67
Overall AA Score (average of four final Attribute Scores)				**56**	



361_CRAM_Vista_A-P_2023-0927.xd

Worksheet for Aquatic Area Abundance Metric (Method 1)

Percentage of Transect Lines that Contains Aquatic Area of Any Kind	
Segment Direction	Percentage of Transect Length That is an Aquatic Feature
North	0
South	0
East	0
West	0
Average Percentage of Transect Length That Is an Aquatic Feature	0

Percent of AA with Buffer: 100 **%**

Worksheet for calculating average buffer width of AA

Line	**Buffer Width (m)**
A	113
B	126
C	250
D	250
E	250
F	250
G	250
H	121
Average Buffer Width ***Round to the nearest whole number (integer)***	201



361_CRAM_Vista_A-P_2023-0927.xd

Structural Patch Type Worksheet for Depressional Wetlands

Check each type of patch that is observed in the AA and use the total number of observed patches in Table 15.

STRUCTURAL PATCH TYPE (circle for presence)	**Depressional**
Minimum Patch Size	**3 m^2**
Abundant wrack or organic debris in channel, on floodplain, or across depressional wetland plain	**1**
Animal mounds and burrows	**1**
Bank slumps or undercut banks in channels or along shoreline	**1**
Cobbles and Boulders	**1**
Concentric or parallel high water marks	**1**
Filamentous macroalgae or algal mats	**(1)**
Islands (mostly above high-water)	**1**
Large woody debris	**1**
Non-vegetated flats or bare ground (sandflats, mudflats, gravel flats, etc.)	**1**
Open water	**1**
Plant hummocks and/or sediment mounds	**1**
Soil cracks	**(1)**
Standing snag(s) (1 or more at least 3 m tall)	**1**
Submerged vegetation	**1**
Swales on floodplain or along shoreline	**(1)**
Variegated, convoluted, or crenulated foreshore (instead of broadly arcuate or mostly straight)	**(1)**
Woody vegetation in water	**1**
Total Possible	**17**
No. Observed Patch Types (enter here and use in Table 15 below)	**4**

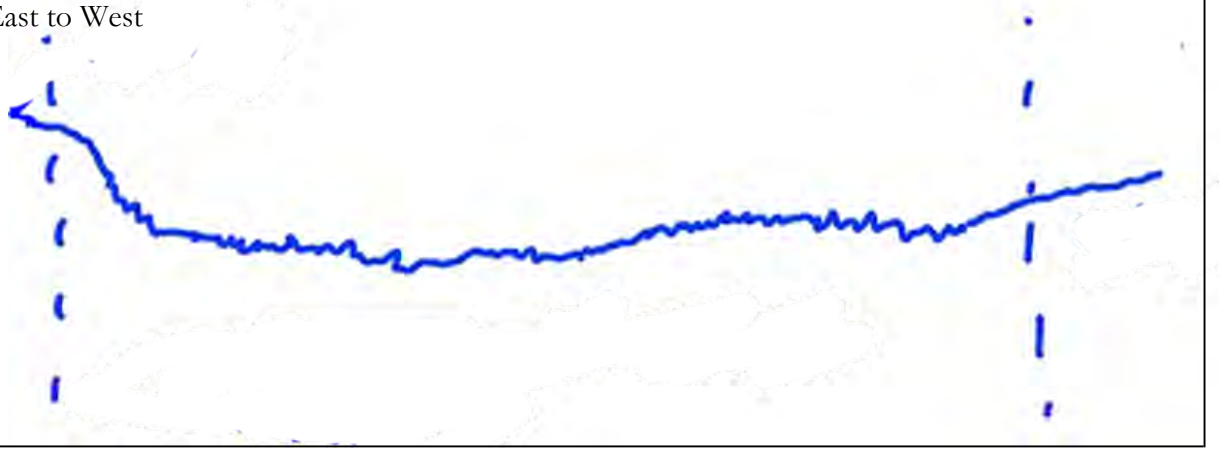
Worksheet for AA Topographic Complexity

At two locations in the AA, make a sketch of the profile from the AA boundary to AA boundary. Try to capture the major topographic features, slopes and intervening micro-topographic relief. Based on these sketches and the profiles in Figure 7, choose a description in Table 17 that best describes the overall topographic complexity of the AA.

North to South



East to West



Plant Community Metric Worksheet 2 of 8: Co-dominant species richness
(A dominant species represents ≥10% *relative* cover)

** Combine the counts of co-dominant species from all layers to identify the total species count. Each plant species is only counted once when calculating the Number of Co-dominant Species and Percent Invasion submetric scores, regardless of the numbers of layers in which it occurs.*

Floating or Canopy-forming	Invasive?	Short (<0.5 m)	Invasive?
		Crypsis schoenoides	
		Hordeum marinum ssp. *gussoneanum*	✓
		Epilobium brachycarpum	
Medium (0.5 – 1.5 m)	**Invasive?**	**Tall (1.5 – 3.0 m)**	**Invasive?**
Very Tall (>3.0 m)	**Invasive?**		
		Total number of co-dominant species for all layers combined (enter here and use in Table 19)	3
		Percent Invasion *Round to the nearest whole number (integer)* (enter here and use in Table 19)	33

Horizontal Interspersion Worksheet

Use the spaces below to make a sketch of the AA in plan view, outlining the major plant zones (this should take no longer than 10 minutes). Assign names to the zones and record them on the right. Based on the sketch, choose a single profile from Figure 8 that best represents the AA overall.



Assigned zones:

1) HORMAR

2) EPIBRA

3) CRYSCH

4) POGDOV

5)

6)

Wetland disturbances and conversions Worksheet

Has a major disturbance occurred at this wetland?	Yes	No		
If yes, was it a flood, fire, landslide, or other?	flood	fire	landslide	other
If yes, then how severe is the disturbance?	likely to affect site next 5 or more years	likely to affect site next 3-5 years	likely to affect site next 1-2 years	
Has this wetland been converted from another type? If yes, then what was the previous type?	depressional	vernal pool	vernal pool system	
	non-confined riverine	confined riverine	bar-built estuarine	
	perennial saline estuarine	perennial non-saline estuarine	wet meadow	
	lacustrine	seep or spring	playa	

Stressor Checklist Worksheet

HYDROLOGY ATTRIBUTE (WITHIN 50 M OF AA)	Present	Significant negative effect on AA
Point Source (PS) discharges (POTW, other non-stormwater discharge)		
Non-point Source (Non-PS) discharges (urban runoff, farm drainage)		
Flow diversions or unnatural inflows		
Dams (reservoirs, detention basins, recharge basins)		
Flow obstructions (culverts, paved stream crossings)		
Weir/drop structure, tide gates		
Dredged inlet/channel		
Engineered channel (riprap, armored channel bank, bed)		
Dike/levees		
Groundwater extraction		
Ditches (borrow, agricultural drainage, mosquito control, etc.)		
Actively managed hydrology		
Comments		

PHYSICAL STRUCTURE ATTRIBUTE (WITHIN 50 M OF AA)	Present	Significant negative effect on AA
Filling or dumping of sediment or soils **(N/A for restoration areas)**		
Grading/ compaction **(N/A for restoration areas)**	✓	✓
Plowing/Discing **(N/A for restoration areas)**	✓	✓
Resource extraction (sediment, gravel, oil and/or gas)		
Vegetation management		
Excessive sediment or organic debris from watershed		
Excessive runoff from watershed		
Nutrient impaired (PS or Non-PS pollution)		
Heavy metal impaired (PS or Non-PS pollution)		
Pesticides or trace organics impaired (PS or Non-PS pollution)		
Bacteria and pathogens impaired (PS or Non-PS pollution)		
Trash or refuse		
Comments		
Soil piled up along edges, steepening banks		
Plow marks lightly affecting plant species		

BIOTIC STRUCTURE ATTRIBUTE (WITHIN 50 M OF AA)	Present	Significant negative effect on AA
Mowing, grazing, excessive herbivory (within AA)		
Excessive human visitation		
Predation and habitat destruction by non-native vertebrates (e.g., *Virginia opossum* and domestic predators, such as feral pets)		
Tree cutting/sapling removal		
Removal of woody debris		
Treatment of non-native and nuisance plant species		
Pesticide application or vector control		
Biological resource extraction or stocking (fisheries, aquaculture)		
Excessive organic debris in matrix (for vernal pools)		
Lack of vegetation management to conserve natural resources	✓	✓
Lack of treatment of invasive plants adjacent to AA or buffer	✓	✓
Comments		
No vegetation management leaves invasives covering high percent of wetland and surrounding area		

BUFFER AND LANDSCAPE CONTEXT ATTRIBUTE (WITHIN 500 M OF AA)	Present	Significant negative effect on AA
Urban residential	✓	✓
Industrial/commercial		
Military training/Air traffic		
Dams (or other major flow regulation or disruption)		
Dryland farming		
Intensive row-crop agriculture		
Orchards/nurseries	✓	
Commercial feedlots		
Dairies		
Ranching (enclosed livestock grazing or horse paddock or feedlot)		
Transportation corridor	✓	
Rangeland (livestock rangeland also managed for native vegetation)	✓	
Sports fields and urban parklands (golf courses, soccer fields, etc.)		
Passive recreation (bird-watching, hiking, etc.)		
Active recreation (off-road vehicles, mountain biking, hunting, fishing)		
Physical resource extraction (rock, sediment, oil/gas)		
Biological resource extraction (aquaculture, commercial fisheries)		
Comments		

Basic Information Sheet: Depressional Wetlands

Assessment Area Name: Vista D-2

Project Name: Vista Ranch Project

Assessment Area ID #: D-2

Project ID #: 361 **Date:** 9/27/23

Assessment Team Members for This AA

A. Merrill, E. Smith

AA Category:

☐Pre-Restoration ☐Post-Restoration ☐Pre-Mitigation ☐Post-Mitigation

☒Pre-Impact ☐ Post-Impact ☐ Training ☐ Ambient

☐Reference ☐ Other:

Origin of Wetland (if known):

☒ Natural system ☐ Artificial system

Type of Management (if known):

☐waterfowl/birds ☐ amphibians ☐ general wildlife ☐ sediment ☐ water quality ☐ stormwater ☐water supply (agriculture) ☐water supply (livestock) ☒ not managed ☐ other:

Which best describes the type of depressional wetland?

☐freshwater marsh ☐alkaline marsh ☐brackish marsh

☒other (specify): Herbaceous seasonal wetland, not characterized by vernal pool plants

AA Encompasses:

☒entire wetland ☐portion of the wetland

Which best describes the hydrologic state of the wetland at the time of assessment?

☐ponded/inundated ☐saturated soil, but no surface water ☒dry

What is the apparent hydrologic regime of the wetland?

Perennially flooded systems contain surface water year-round, *seasonally flooded* depressional wetlands are defined as supporting surface water for 4-11 months of the year (in > 5 out of 10 years.) *Temporarily flooded* depressional wetlands possess surface water between 2 weeks and 4 months of the year.

☐perennially flooded ☐ seasonally flooded ☒ temporarily flooded

Does your wetland connect with the floodplain of a nearby stream? ☐ yes ☒ no

(system subject to overbank flow, a dammed stream does not count)

Does the wetland have a defined or undefined <u>outlet</u>? ☒ defined ☐ undefined

Does the wetland have a defined or undefined <u>inlet</u>? ☒ defined ☐ undefined

Are the inlet and outlet at the same location? ☐ yes ☒ no

Is the topographic basin of the wetland ☒ distinct **or** ☐ indistinct **?**

An *indistinct* topographic basin is one that lacks obvious boundaries between wetland and upland. Examples of such features are seasonal, depressional wetlands in very low-gradient landscapes.

Site Location Description and Land Use:
The AA consists of feature DWB-22 in the wetland delineation for Vista Ranch, prepared by VNLC, August 2023. The feature is located near the center of the northwestern portion of the site. It is a semi-natural depression. The feature is a deep pool in a shallow swale, which has been hydrologically enhanced by tire ruts running the length of the swale. The feature presently has no land use. The site is planned for a mixed-use development.

Comments:
The tire ruts provide additional depth, but also "depth zones", giving this relatively small, ruderal, unmanaged feature a surprisingly high topographic complexity score.

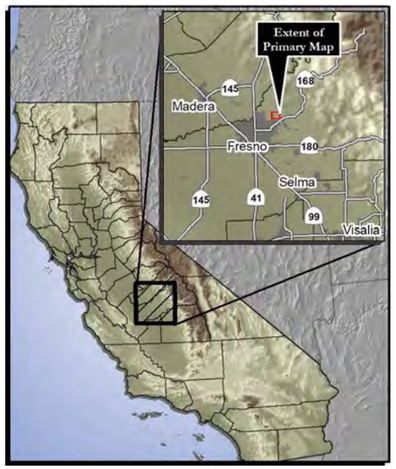
CRAM AA
Locations Map

Vista Ranch Development
Fresno County, California

D1
D2
R1
R2

Legend

Project Site (368 ac.)



Vollmar
NATURAL LANDS CONSULTING

Data Sources: VNLC, 2023 | USDA-WSS, 2023
ESRI/Maxar, 2023 | USGS, various | GAP, 2023
GIS/Cartography by: E. Smith, Sep. 2023
Map File: 361_Vista_AP_B-L_2023-0914.mxd

N
W E
S

1:7,200
(1 in. = 600 feet. at Tabloid Layout)

0 50 100 200 Meters
0 300 600 1,200 Feet

Photos with Descriptions



Looking north from south edge of AA, 36.876114, -119.673886



Looking east from west end of AA, 36.876084 -119.674118



Looking south from north edge of AA, 36.876201 -119.673782



Looking west from east end of AA, 36.876235 -119.673630

Scoring Sheet: Depressional Wetlands

AA Name: Vista D2			**Date:** 9/27/23	
Attribute 1: Buffer and Landscape Context (pp. 8-15)				**Comments**
Aquatic Area Abundance Score (D)		Alpha. D	Numeric 3	
Buffer:				
Buffer submetric A: Percent of AA with Buffer	Alpha. A	Numeric 12		
Buffer submetric B: Average Buffer Width	A	12		
Buffer submetric C: Buffer Condition	C	6		
Raw Attribute Score = $D+[C \times (A \times B)^{1/2}]^{1/2}$			13.39	**Final Attribute Score = (Raw Score/24) x 100** 47.88
Attribute 2: Hydrology (pp. 16-21)				
Water Source		Alpha. C	Numeric 6	Dam upslope and one flow channel to S.E. affects site haydrology
Hydroperiod		B	9	Dam releases affect rate and timing
Hydrologic Connectivity		C	6	Steep banks from ruts decrease hydro connectivity
Raw Attribute Score = sum of numeric scores			21	**Final Attribute Score = (Raw Score/36) x 100** 58.33
Attribute 3: Physical Structure (pp. 22-28)				
Structural Patch Richness		Alpha. D	Numeric 3	None present
Topographic Complexity		A	12	
Raw Attribute Score = sum of numeric scores			15	**Final Attribute Score = (Raw Score/24) x 100** 62.50
Attribute 4: Biotic Structure (pp. 29-39)				
Plant Community Composition (based on submetrics A-C)				
Plant Community submetric A: Number of plant layers	Alpha. D	Numeric 3		
Plant Community submetric B: Number of Co-dominant species	D	3		
Plant Community submetric C: Percent Invasion	A	12		
Plant Community Composition Metric *(numeric average of submetrics A-C)*			6	
Horizontal Interspersion		C	6	
Vertical Biotic Structure		D	3	
Raw Attribute Score = sum of numeric scores			15	**Final Attribute Score = (Raw Score/36) x 100** 41.67
Overall AA Score (average of four final Attribute Scores)				**53**



361_CRAM_Vista_A-P_2023-0927.xd

Worksheet for Aquatic Area Abundance Metric (Method 1)

Percentage of Transect Lines that Contains Aquatic Area of Any Kind	
Segment Direction	Percentage of Transect Length That is an Aquatic Feature
North	0
South	4.32
East	0
West	0
Average Percentage of Transect Length That Is an Aquatic Feature	1.08

Percent of AA with Buffer: 100 **%**

Worksheet for calculating average buffer width of AA

Line	**Buffer Width (m)**
A	250
B	250
C	250
D	250
E	250
F	250
G	250
H	250
Average Buffer Width ***Round to the nearest whole number (integer)***	250

CRAM AA D2
Buffer Map

Vista Ranch
Fresno County, California



361_CRAM_Vista_A-P_2023-0927.xd

Structural Patch Type Worksheet for Depressional Wetlands

Check each type of patch that is observed in the AA and use the total number of observed patches in Table 15.

STRUCTURAL PATCH TYPE (circle for presence)	**Depressional**
Minimum Patch Size	**3 m^2**
Abundant wrack or organic debris in channel, on floodplain, or across depressional wetland plain	**1**
Animal mounds and burrows	**1**
Bank slumps or undercut banks in channels or along shoreline	**1**
Cobbles and Boulders	**1**
Concentric or parallel high water marks	**1**
Filamentous macroalgae or algal mats	**1**
Islands (mostly above high-water)	**1**
Large woody debris	**1**
Non-vegetated flats or bare ground (sandflats, mudflats, gravel flats, etc.)	**1**
Open water	**1**
Plant hummocks and/or sediment mounds	**1**
Soil cracks	**1**
Standing snag(s) (1 or more at least 3 m tall)	**1**
Submerged vegetation	**1**
Swales on floodplain or along shoreline	**1**
Variegated, convoluted, or crenulated foreshore (instead of broadly arcuate or mostly straight)	**1**
Woody vegetation in water	**1**
Total Possible	**17**
No. Observed Patch Types (enter here and use in Table 15 below)	0

Worksheet for AA Topographic Complexity

At two locations in the AA, make a sketch of the profile from the AA boundary to AA boundary. Try to capture the major topographic features, slopes and intervening micro-topographic relief. Based on these sketches and the profiles in Figure 7, choose a description in Table 17 that best describes the overall topographic complexity of the AA.

North to South



East to West



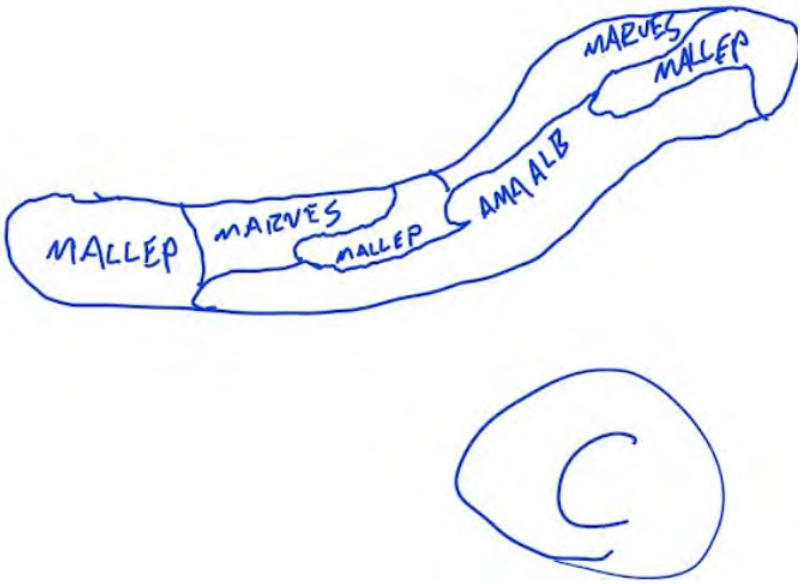
Plant Community Metric Worksheet 2 of 8: Co-dominant species richness
(A dominant species represents ≥10% *relative* cover)

** Combine the counts of co-dominant species from all layers to identify the total species count. Each plant species is only counted once when calculating the Number of Co-dominant Species and Percent Invasion submetric scores, regardless of the numbers of layers in which it occurs.*

Floating or Canopy-forming	Invasive?	Short (<0.5 m)	Invasive?
		Malvella leprosa	
		Amaranthus albus	
		Marsilea vestita	
Medium (0.5 – 1.5 m)	**Invasive?**	**Tall (1.5 – 3.0 m)**	**Invasive?**
Very Tall (>3.0 m)	**Invasive?**		
		Total number of co-dominant species for all layers combined (enter here and use in Table 19)	3
		Percent Invasion *Round to the nearest whole number (integer)* (enter here and use in Table 19)	0

Horizontal Interspersion Worksheet

Use the spaces below to make a sketch of the AA in plan view, outlining the major plant zones (this should take no longer than 10 minutes). Assign names to the zones and record them on the right. Based on the sketch, choose a single profile from Figure 8 that best represents the AA overall.



Assigned zones:

1) AMAALB

2) MARVES

3) MALLEP

4)

5)

6)

Wetland disturbances and conversions Worksheet

Has a major disturbance occurred at this wetland?	Yes	No		
If yes, was it a flood, fire, landslide, or other?	flood	fire	landslide	other
If yes, then how severe is the disturbance?	likely to affect site next 5 or more years	likely to affect site next 3-5 years	likely to affect site next 1-2 years	
Has this wetland been converted from another type? If yes, then what was the previous type?	depressional	vernal pool	vernal pool system	
	non-confined riverine	confined riverine	bar-built estuarine	
	perennial saline estuarine	perennial non-saline estuarine	wet meadow	
	lacustrine	seep or spring	playa	

Stressor Checklist Worksheet

HYDROLOGY ATTRIBUTE (WITHIN 50 M OF AA)	Present	Significant negative effect on AA
Point Source (PS) discharges (POTW, other non-stormwater discharge)		
Non-point Source (Non-PS) discharges (urban runoff, farm drainage)		
Flow diversions or unnatural inflows		
Dams (reservoirs, detention basins, recharge basins)		
Flow obstructions (culverts, paved stream crossings)		
Weir/drop structure, tide gates		
Dredged inlet/channel		
Engineered channel (riprap, armored channel bank, bed)		
Dike/levees		
Groundwater extraction		
Ditches (borrow, agricultural drainage, mosquito control, etc.)		
Actively managed hydrology		
Comments		

PHYSICAL STRUCTURE ATTRIBUTE (WITHIN 50 M OF AA)	Present	Significant negative effect on AA
Filling or dumping of sediment or soils **(N/A for restoration areas)**		
Grading/ compaction **(N/A for restoration areas)**	✓	✓
Plowing/Discing **(N/A for restoration areas)**		
Resource extraction (sediment, gravel, oil and/or gas)		
Vegetation management		
Excessive sediment or organic debris from watershed		
Excessive runoff from watershed		
Nutrient impaired (PS or Non-PS pollution)		
Heavy metal impaired (PS or Non-PS pollution)		
Pesticides or trace organics impaired (PS or Non-PS pollution)		
Bacteria and pathogens impaired (PS or Non-PS pollution)		
Trash or refuse		
Comments		

BIOTIC STRUCTURE ATTRIBUTE (WITHIN 50 M OF AA)	Present	Significant negative effect on AA
Mowing, grazing, excessive herbivory (within AA)		
Excessive human visitation		
Predation and habitat destruction by non-native vertebrates (e.g., *Virginia opossum* and domestic predators, such as feral pets)		
Tree cutting/sapling removal		
Removal of woody debris		
Treatment of non-native and nuisance plant species		
Pesticide application or vector control		
Biological resource extraction or stocking (fisheries, aquaculture)		
Excessive organic debris in matrix (for vernal pools)		
Lack of vegetation management to conserve natural resources	✓	✓
Lack of treatment of invasive plants adjacent to AA or buffer	✓	✓
Comments		

BUFFER AND LANDSCAPE CONTEXT ATTRIBUTE (WITHIN 500 M OF AA)	Present	Significant negative effect on AA
Urban residential	✓	
Industrial/commercial		
Military training/Air traffic		
Dams (or other major flow regulation or disruption)	✓	✓
Dryland farming		
Intensive row-crop agriculture		
Orchards/nurseries		
Commercial feedlots		
Dairies		
Ranching (enclosed livestock grazing or horse paddock or feedlot)		
Transportation corridor		
Rangeland (livestock rangeland also managed for native vegetation)		
Sports fields and urban parklands (golf courses, soccer fields, etc.)		
Passive recreation (bird-watching, hiking, etc.)		
Active recreation (off-road vehicles, mountain biking, hunting, fishing)		
Physical resource extraction (rock, sediment, oil/gas)		
Biological resource extraction (aquaculture, commercial fisheries)		
Comments		

Basic Information Sheet: Riverine Wetlands

Assessment Area Name: Vista R-1	
Project Name: Jamison	
Assessment Area ID #: R1	
Project ID #: 361	**Date:** 9/27/2023
Assessment Team Members for This AA:	
A. Merrill, E. Smith	
Average Bankfull Width: 5.63 m	
Approximate Length of AA (10 times bankfull width, min 100 m, max 200 m)**:** 100 m	
Upstream Point Latitude: 36.874643	**Longitude:** -119.669492
Downstream Point Latitude: 36.873870	**Longitude:** -119.670075
Wetland Sub-type: ☒ Confined ☐ Non-confined	
AA Category: ☐ Restoration ☐ Mitigation ☐ Impacted ☐ Ambient ☐ Reference ☐ Training ☒ Other: Pre-impact	
Did the river/stream have flowing water at the time of the assessment? ☒ yes (very minimal flow) ☐ no	
What is the apparent hydrologic flow regime of the reach you are assessing? The hydrologic flow regime of a stream describes the frequency with which the channel conducts water. *Perennial* streams conduct water all year long, whereas *ephemeral* streams conduct water only during and immediately following precipitation events. *Intermittent* streams are dry for part of the year, but conduct water for periods longer than ephemeral streams, as a function of watershed size and water source. ☒ perennial ☐ intermittent ☐ ephemeral Hydrology is entirely controlled by dam releases	

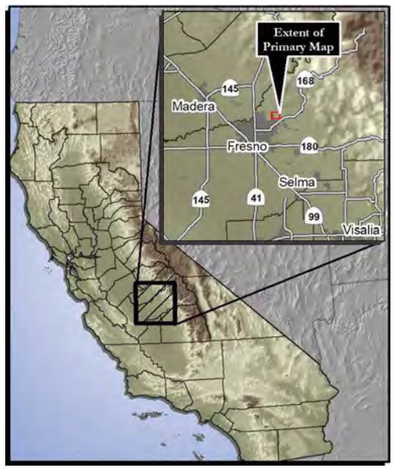
CRAM AA
Locations Map

Vista Ranch Development
Fresno County, California

D1
D2
R1
R2

Legend

Project Site (368 ac.)



Vollmar
NATURAL LANDS CONSULTING

Data Sources: VNLC, 2023 | USDA-WSS, 2023
ESRI/Maxar, 2023 | USGS, various | GAP, 2023
GIS/Cartography by: E. Smith, Sep. 2023
Map File: 361_Vista_AP_B-L_2023-0914.mxd

N
W E
S

1:7,200
(1 in. = 600 feet. at Tabloid Layout)

0 50 100 200 Meters
0 300 600 1,200 Feet

Photos and Descriptions:



Looking downstream from top of AA, 36.874609, -119.669421



Looking upstream from bottom of AA, 36.873838, -119.670025



Looking west from east-center edge of AA, 36.874205, -119.669662



Looking east from west-center edge of AA, 36.874256, -119.669803

Site Location Description:

The AA is located along the ditch which receives releases from the Big Dry Creek Dam spillway. This ditch eventually empties back into the Big Dry Creek channel, making this feature the de facto channel of Big Dry Creek. The top of the AA is located at the upstream edge of the location of a planned clear-span bridge to serve the planned project. The ditch is confined by artificial levees. To the east of the ditch lies a former irrigated pasture, which is still leveled and heavily grazed.

Comments:

While Big Dry Creek above the dam has a relatively large channel with significant fluvial geomorphology and a moderate cover of willows and cottonwoods the AA lacks any natural fluvial geomorphology or woody riparian vegetation. This is apparently due to management, either by the grazing operators or the dam operator. The ditch is moderately to heavily vegetated with large perennial marsh vegetation, giving it a relatively high biotic structure score.

Scoring Sheet: Riverine Wetlands

AA Name: Vista R1				**Date:** 9/27/2023	
Attribute 1: Buffer and Landscape Context (pp. 11-19)				**Comments**	
Stream Corridor Continuity (D)		Alpha. D	Numeric 3	Dam interrupts corridor	
Buffer:					
Buffer submetric A: Percent of AA with Buffer	Alpha. B	Numeric 9		Irrigated pasture to east	
Buffer submetric B: Average Buffer Width	A	12			
Buffer submetric C: Buffer Condition	C	6		Heavy firebreask disking, ruderal veg	
Raw Attribute Score = $D+[C \times (A \times B)^{1/2}]^{1/2}$			10.90	**Final Attribute Score = (Raw Score/24) x 100**	45.4
Attribute 2: Hydrology (pp. 20-26)					
Water Source		Alpha. C	Numeric 6	Dam controls flow	
Channel Stability		A	12		
Hydrologic Connectivity		C	6		
Raw Attribute Score = sum of numeric scores			24	**Final Attribute Score = (Raw Score/36) x 100**	66.67
Attribute 3: Physical Structure (pp. 27-33)					
Structural Patch Richness		Alpha. D	Numeric 3		
Topographic Complexity		C	6		
Raw Attribute Score = sum of numeric scores			9	**Final Attribute Score = (Raw Score/24) x 100**	37.50
Attribute 4: Biotic Structure (pp. 34-41)					
Plant Community Composition (based on sub-metrics A-C)					
Plant Community submetric A: Number of plant layers	Alpha. B	Numeric 9			
Plant Community submetric B: Number of Co-dominant species	B	9			
Plant Community submetric C: Percent Invasion	B	9		Wild oats, Bermuda grass	
Plant Community Composition Metric *(numeric average of submetrics A-C)*			9		
Horizontal Interspersion		C	6		
Vertical Biotic Structure		B	9		
Raw Attribute Score = sum of numeric scores			24	**Final Attribute Score = (Raw Score/36) x 100**	66.67
Overall AA Score (average of four final Attribute Scores)				**54**	



361_CRAM_Vista_A-P_2023-0927.xd

Worksheet for Stream Corridor Continuity Metric for Riverine Wetlands

Lengths of Non-buffer Segments For Distance of 500 m Upstream of AA		**Lengths of Non-buffer Segments For Distance of 500 m Downstream of AA**	
Segment No.	Length (m)	Segment No.	Length (m)
1	153.3	1	187.6
2	133.7	2	117.1
3	132.3	3	
4		4	
5		5	
Upstream Total Length	419.3	Downstream Total Length	304.7

Percent of AA with Buffer Worksheet

In the space provided below make a quick sketch of the AA, or perform the assessment directly on the aerial imagery; indicate where buffer is present, estimate the percentage of the AA perimeter providing buffer functions, and record the estimate amount in the space provided.

Percent of AA with Buffer: 65 **%**

Worksheet for calculating average buffer width of AA

Line	**Buffer Width (m)**
A	35
B	14
C	250
D	250
E	250
F	250
G	250
H	250
Average Buffer Width ***Round to the nearest integer***	194



361_CRAM_Vista_A-P_2023-1004b.xd

Worksheet for Assessing Channel Stability for Riverine Wetlands

Condition	Field Indicators (check all existing conditions)
Indicators of Channel Equilibrium	☒The channel (or multiple channels in braided systems) has a well-defined bankfull contour that clearly demarcates an obvious active floodplain in the cross-sectional profile of the channel throughout most of the AA. ☐Perennial riparian vegetation is abundant and well established along the bankfull contour, but not below it. ☐There is leaf litter, thatch, or wrack in most pools (if pools are present). ☐The channel contains embedded woody debris of the size and amount consistent with what is naturally available in the riparian area. ☒There is little or no active undercutting or burial of riparian vegetation. ☐If mid-channel bars and/or point bars are present, they are not densely vegetated with perennial vegetation. ☐Channel bars consist of well-sorted bed material (smaller grain size on the top and downstream end of the bar, larger grain size along the margins and upstream end of the bar). ☐There are channel pools, the spacing between pools tends to be regular and the bed is not planar throughout the AA ☐The larger bed material supports abundant mosses or periphyton.
Indicators of Active Degradation	☐The channel is characterized by deeply undercut banks with exposed living roots of trees or shrubs. ☐There are abundant bank slides or slumps. ☐The lower banks are uniformly scoured and not vegetated. ☐Riparian vegetation is declining in stature or vigor, or many riparian trees and shrubs along the banks are leaning or falling into the channel. ☐An obvious historical floodplain has recently been abandoned, as indicated by the age structure of its riparian vegetation. ☐The channel bed appears scoured to bedrock or dense clay. ☐Recently active flow pathways appear to have coalesced into one channel (i.e. a previously braided system is no longer braided). ☐The channel has one or more knickpoints indicating headward erosion of the bed.
Indicators of Active Aggradation	☐There is an active floodplain with fresh splays of coarse sediment (sand and larger that is not vegetated) deposited in the current or previous year. ☐There are partially buried living tree trunks or shrubs along the banks. ☐The bed is planar (flat or uniform gradient) overall; it lacks well-defined channel pools, or they are uncommon and irregularly spaced. ☐There are partially buried, or sediment-choked, culverts. ☐Perennial terrestrial or riparian vegetation is encroaching into the channel or onto channel bars below the bankfull contour. ☐There are avulsion channels on the floodplain or adjacent valley floor.
Overall	**☒ Equilibrium** **☐ Degradation** **☐ Aggradation**

Riverine Wetland Entrenchment Ratio Calculation Worksheet

The following 5 steps should be conducted for each of 3 cross-sections located in the AA at the approximate midpoints along straight riffles or glides, away from deep pools or meander bends. An attempt should be made to place them at the top, middle, and bottom of the AA.				
Steps	**Replicate Cross-sections** ⟶	**TOP**	**MID**	**BOT**
1 Estimate bankfull width.	This is a critical step requiring familiarity with field indicators of the bankfull contour. Estimate or measure the distance between the right and left bankfull contours.	6.01	5.70	5.18
2: Estimate max. bankfull depth.	Imagine a level line between the right and left bankfull contours; estimate or measure the height of the line above the thalweg (the deepest part of the channel).	0.71	0.46	0.62
3: Estimate flood prone depth.	Double the estimate of maximum bankfull depth from Step 2.	1.42	.92	1.24
4: Estimate flood prone width.	Imagine a level line having a height equal to the flood prone depth from Step 3; note where the line intercepts the right and left banks; estimate or measure the length of this line.	7.22	7.74	7.22
5: Calculate entrenchment ratio.	Divide the flood prone width (Step 4) by the bankfull width (Step 1).	1.20	1.36	1.39
6: Calculate average entrenchment ratio.	Calculate the average results for Step 5 for all 3 replicate cross-sections. Enter the average result here and use it in Table 13a or 13b.			1.32

Structural Patch Type Worksheet for Riverine wetlands

Circle each type of patch that is observed in the AA and enter the total number of observed patches in Table below. In the case of riverine wetlands, their status as confined or non-confined must first be determined (see page 6) to determine with patches are expected in the system (indicated by a "1" in the table below). Any feature onsite should only be counted once as a patch type. If a feature appears to meet the definition of more than one patch type (i.e. swale and secondary channel) the practitioner should choose which patch type best illustrates the feature. Not all features at a site will be patch types.

**Please refer to the CRAM Photo Dictionary at www.cramwetlands.org for photos of each of the following patch types.*

STRUCTURAL PATCH TYPE (circle for presence)	**Riverine (Non-confined)**	**Riverine (Confined)**
Minimum Patch Size	**3 m^2**	**3 m^2**
Abundant wrackline or organic debris in channel, on floodplain	**1**	**1**
Bank slumps or undercut banks in channels or along shoreline	**1**	**1**
Cobbles and/or Boulders	**1**	**1**
Debris jams	**1**	**1**
Filamentous macroalgae or algal mats	**1**	**1**
Large woody debris	**1**	**1**
Pannes or pools on floodplain	**1**	**N/A**
Plant hummocks and/or sediment mounds	**1**	**1**
Point bars and in-channel bars	**1**	**1**
Pools or depressions in channels (wet or dry channels)	**1**	**1**
Riffles or rapids (wet or dry channels)	**1**	**1**
Secondary channels on floodplains or along shorelines	**1**	**N/A**
Standing snags (at least 3 m tall)	**1**	**1**
Submerged vegetation	**1**	**N/A**
Swales on floodplain or along shoreline	**1**	**N/A**
Variegated, convoluted, or crenulated foreshore (instead of broadly arcuate or mostly straight)	**1**	**1**
Vegetated islands (mostly above high-water)	**1**	**N/A**
Total Possible	**17**	**12**
No. Observed Patch Types (enter here and use in Table 14 below)		**0**

Worksheet for AA Topographic Complexity

At three locations along the AA, make a sketch of the profile of the stream from the AA boundary down to its deepest area then back out to the other AA boundary. Try to capture the benches and the intervening micro-topographic relief. To maintain consistency, make drawings at each of the stream hydrologic connectivity measurements, always facing downstream. Include the water level, an arrow at the bankfull contour, and label the benches. Based on these sketches and the profiles in Figure 10, choose a description in Table 16 that best describes the overall topographic complexity of the AA.

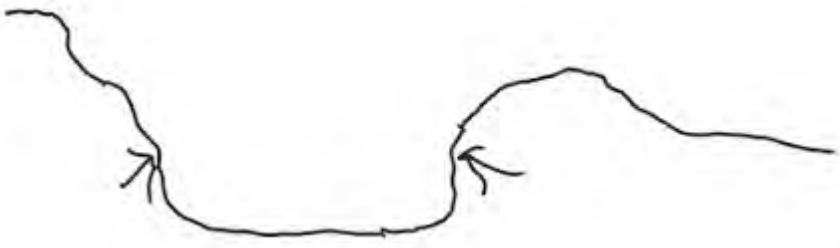
Profile 1



Profile 2



Profile 3



Plant Community Metric Worksheet: Co-dominant species richness for Riverine wetlands
(A dominant species represents ≥10% *relative* cover)

Special Note:

* *Combine the counts of co-dominant species from all layers to identify the total species count. Each plant species is only counted once when calculating the Number of Co-dominant Species and Percent Invasion submetric scores, regardless of the numbers of layers in which it occurs.*

Floating or Canopy-forming (non-confined only)	**Invasive?**	**Short (<0.5 m)**	**Invasive?**
Lemna sp., but not counted because		*Eleocharis macrostachya*	
Stream is confined		*Cynodon dactylon*	✓
		Phylla nodiflora	
		Croton setiger	
Medium (0.5-1.5 m)	**Invasive?**	**Tall (1.5-3.0 m)**	**Invasive?**
Xanthium strumarium		*Typha latifolia*	
Avena fatua	✓	*Xanthium strumarium*	
Echinodorus berteroi			
Very Tall (>3.0 m)	**Invasive?**	**Total number of co-dominant species for all layers combined (enter here and use in Table 18)**	8
		Percent Invasion *Round to the nearest integer* (enter here and use in Table 18)	25

Horizontal Interspersion Worksheet.

Use the spaces below to make a quick sketch of the AA in plan view, outlining the major plant zones (this should take no longer than 10 minutes). Assign the zones names and record them on the right. Based on the sketch, choose a single profile from Figure 12 that best represents the AA overall.



Assigned zones:

1) XANSTR

2) AVEFAT

3) TYPLAT

4) ECHBER

5) HELANN

6) Lemna sp.

Worksheet for Wetland disturbances and conversions

Has a major disturbance occurred at this wetland?	Yes	(No)		
If yes, was it a flood, fire, landslide, or other?	flood	fire	landslide	other
If yes, then how severe is the disturbance?	likely to affect site next 5 or more years	likely to affect site next 3-5 years	likely to affect site next 1-2 years	
Has this wetland been converted from another type? If yes, then what was the previous type? **No, N/A**	depressional	vernal pool	vernal pool system	
	non-confined riverine	confined riverine	seasonal estuarine	
	perennial saline estuarine	perennial non-saline estuarine	wet meadow	
	lacustrine	seep or spring	playa	

Stressor Checklist Worksheet

HYDROLOGY ATTRIBUTE (WITHIN 50 M OF AA)	Present	Significant negative effect on AA
Point Source (PS) discharges (POTW, other non-stormwater discharge)		
Non-point Source (Non-PS) discharges (urban runoff, farm drainage)		
Flow diversions or unnatural inflows		
Dams (reservoirs, detention basins, recharge basins)		
Flow obstructions (culverts, paved stream crossings)		
Weir/drop structure, tide gates		
Dredged inlet/channel	✓	✓
Engineered channel (riprap, armored channel bank, bed)	✓	✓
Dike/levees	✓	✓
Groundwater extraction		
Ditches (borrow, agricultural drainage, mosquito control, etc.)		
Actively managed hydrology	✓	✓
Comments		
Managed, engineered spillway ditch		

PHYSICAL STRUCTURE ATTRIBUTE (WITHIN 50 M OF AA)	Present	Significant negative effect on AA
Filling or dumping of sediment or soils **(N/A for restoration areas)**	✓	
Grading/ compaction **(N/A for restoration areas)**	✓	✓
Plowing/Discing **(N/A for restoration areas)**	✓	✓
Resource extraction (sediment, gravel, oil and/or gas)		
Vegetation management		
Excessive sediment or organic debris from watershed		
Excessive runoff from watershed		
Nutrient impaired (PS or Non-PS pollution)		
Heavy metal impaired (PS or Non-PS pollution)		
Pesticides or trace organics impaired (PS or Non-PS pollution)		
Bacteria and pathogens impaired (PS or Non-PS pollution)		
Trash or refuse		
Comments		
Irrigated pasture levelling		

BIOTIC STRUCTURE ATTRIBUTE (WITHIN 50 M OF AA)	Present	Significant negative effect on AA
Mowing, grazing, excessive herbivory (within AA)		
Excessive human visitation		
Predation and habitat destruction by non-native vertebrates (e.g., *Virginia opossum* and domestic predators, such as feral pets)		
Tree cutting/sapling removal		
Removal of woody debris		
Treatment of non-native and nuisance plant species	✓	
Pesticide application or vector control	✓	
Biological resource extraction or stocking (fisheries, aquaculture)		
Excessive organic debris in matrix (for vernal pools)		
Lack of vegetation management to conserve natural resources	✓	✓
Lack of treatment of invasive plants adjacent to AA or buffer	✓	✓
Comments		

BUFFER AND LANDSCAPE CONTEXT ATTRIBUTE (WITHIN 500 M OF AA)	Present	Significant negative effect on AA
Urban residential		
Industrial/commercial		
Military training/Air traffic		
Dams (or other major flow regulation or disruption)	✓	✓
Dryland farming	✓	✓
Intensive row-crop agriculture		
Orchards/nurseries		
Commercial feedlots		
Dairies		
Ranching (enclosed livestock grazing or horse paddock or feedlot)	✓	✓
Transportation corridor		
Rangeland (livestock rangeland also managed for native vegetation)	✓	
Sports fields and urban parklands (golf courses, soccer fields, etc.)		
Passive recreation (bird-watching, hiking, etc.)		
Active recreation (off-road vehicles, mountain biking, hunting, fishing)		
Physical resource extraction (rock, sediment, oil/gas)		
Biological resource extraction (aquaculture, commercial fisheries)		
Comments		

Basic Information Sheet: Riverine Wetlands

Assessment Area Name: Vista R2	
Project Name: Jamison	
Assessment Area ID #: R2	
Project ID #: 361	**Date:** 9/27/2023

Assessment Team Members for This AA:

A. Merrill, E. Smith

Average Bankfull Width: 57 m

Approximate Length of AA (10 times bankfull width, min 100 m, max 200 m)**:** 200m

Upstream Point Latitude: 36.871774 **Longitude:** -119.666087

Downstream Point Latitude: 36.870868 **Longitude:** -119.667979

Wetland Sub-type:

☐ Confined ☒ Non-confined

AA Category:

☐ Restoration ☐ Mitigation ☐ Impacted ☐ Ambient ☐ Reference

☐ Training ☒ Other: Pre-impact

Did the river/stream have flowing water at the time of the assessment?

☐ yes ☒ no

What is the apparent hydrologic flow regime of the reach you are assessing?

The hydrologic flow regime of a stream describes the frequency with which the channel conducts water. *Perennial* streams conduct water all year long, whereas *ephemeral* streams conduct water only during and immediately following precipitation events. *Intermittent* streams are dry for part of the year, but conduct water for periods longer than ephemeral streams, as a function of watershed size and water source.

☐ perennial ☐ intermittent ☒ ephemeral:

Dry. Stream lacks all hydrology due to upstream diversion.

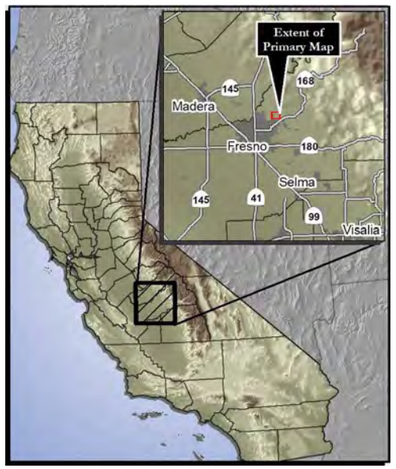
CRAM AA
Locations Map

Vista Ranch Development
Fresno County, California

D1
D2
R1
R2

Legend

Project Site (368 ac.)



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Data Sources: VNLC, 2023 | USDA-WSS, 2023
ESRI/Maxar, 2023 | USGS, various | GAP, 2023
GIS/Cartography by: E. Smith, Sep. 2023
Map File: 361_Vista_AP_B-L_2023-0914.mxd

N
W E
S

1:7,200
(1 in. = 600 feet. at Tabloid Layout)

0 50 100 200 Meters
0 300 600 1,200 Feet

Photos and Descriptions:



Looking upstream from bottom of AA, 36.870965, -119.668040



Looking downstream from top of AA, 36.871755, -119.666076



Looking south from north-center edge of AA, 36.871573, -119.667084



Looking north from south-center edge of AA, 36.871036, -119.666877

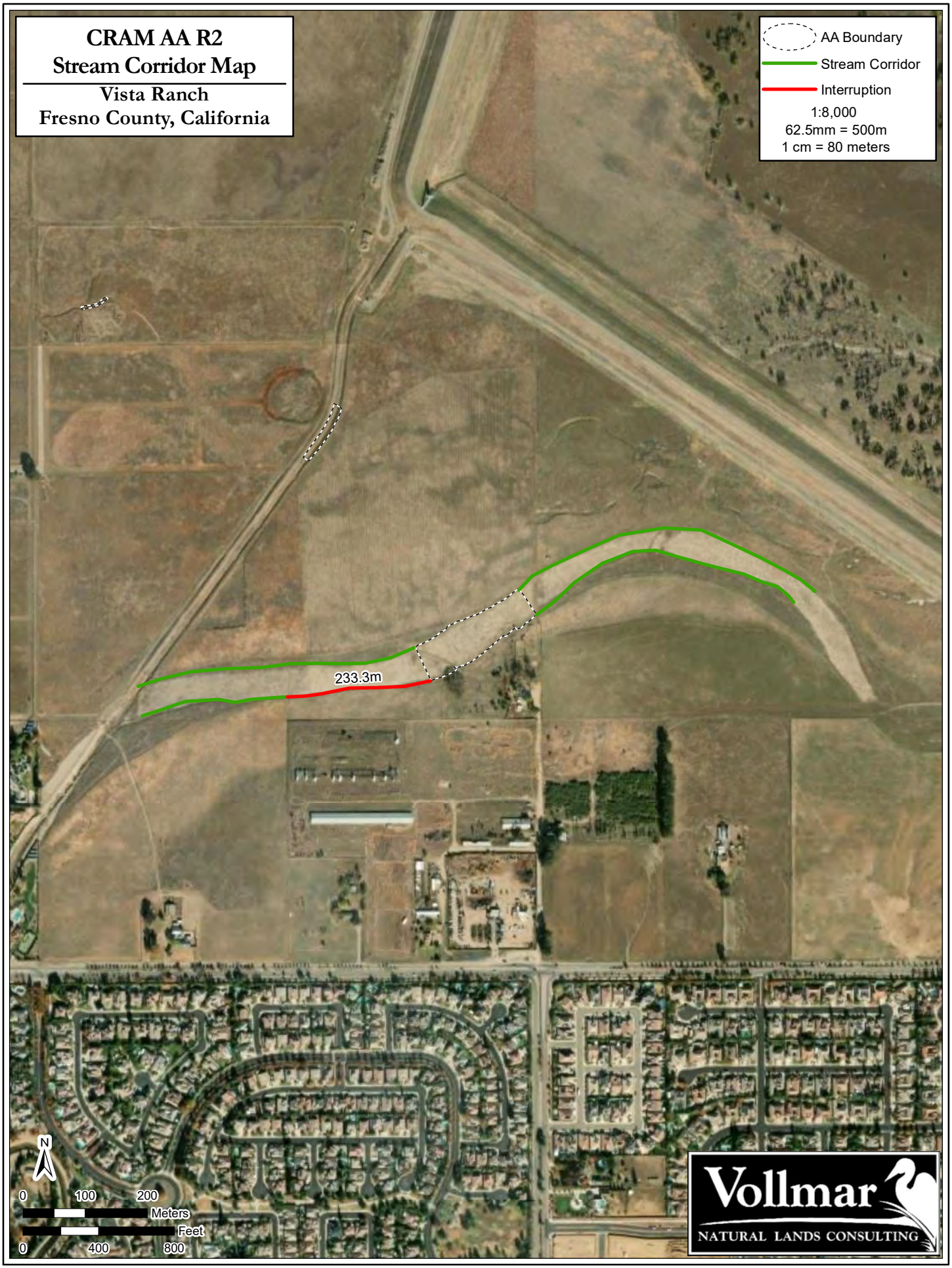
Site Location Description:
The AA is located along the dry former channel of Big Dry Creek. The creek was diverted from this channel when the dam was constructed. The location of the AA is near the center of the project site, north of an existing residence.

Comments:
This feature has not carried water in approximately 80 years. It has remnant fluvial geomorphology, but lacks any current stream processes. It lacks wetland hydrology, hydric soils, and hydrophytic vegetation. It is characterized by extremely sandy soils with a very low cover of plants tolerant of very dry conditions. It does not have woody riparian vegetation, or any riparian vegetation at all.

This feature is arguably inappropriate for CRAM evaluation, as it does not represent a wetland or stream. This inappropriateness is chiefly marked by the fact that the AA receives a score of 75 on the hydrology metric, despite having *no hydrology*. Nonetheless, the riverine wetlands module has been used here to help evaluate the statement that the AA completely lacks riparian or wetland habitat values.

Scoring Sheet: Riverine Wetlands

AA Name: Vista R2					**Date:** 9/27/2023	
Attribute 1: Buffer and Landscape Context (pp. 11-19)					**Comments**	
Stream Corridor Continuity (D)			Alpha. D	Numeric 3		
Buffer:						
Buffer submetric A: Percent of AA with Buffer	Alpha. B	Numeric 9				
Buffer submetric B: Average Buffer Width	D	3				
Buffer submetric C: Buffer Condition	C	6			Ruderal, heavy use by livestock Moderate human visitation	
Raw Attribute Score = D+[C x (A x B)^{½}]^{½}				8.58	**Final Attribute Score = (Raw Score/24) x 100**	36
Attribute 2: Hydrology (pp. 20-26)						
Water Source			Alpha. D	Numeric 3	Dammed above site.	
Channel Stability			A	12	No fluvial action	
Hydrologic Connectivity			A	12	Almost without banks	
Raw Attribute Score = sum of numeric scores				27	**Final Attribute Score = (Raw Score/36) x 100**	75
Attribute 3: Physical Structure (pp. 27-33)						
Structural Patch Richness			Alpha. D	Numeric 3	Score of C would be expected in wet season due to algae and submergent plants.	
Topographic Complexity			D	3	B2, 1 bench and bumpy	
Raw Attribute Score = sum of numeric scores				6	**Final Attribute Score = (Raw Score/24) x 100**	25
Attribute 4: Biotic Structure (pp. 34-41)						
Plant Community Composition (based on sub-metrics A-C)						
Plant Community submetric A: Number of plant layers	Alpha. D	Numeric 3				
Plant Community submetric B: Number of Co-dominant species	D	3				
Plant Community submetric C: Percent Invasion	D	3				
Plant Community Composition Metric *(numeric average of submetrics A-C)*				3		
Horizontal Interspersion			D	3		
Vertical Biotic Structure			D	3		
Raw Attribute Score = sum of numeric scores				9	**Final Attribute Score = (Raw Score/36) x 100**	25
Overall AA Score (average of four final Attribute Scores)					**40**	



361_CRAM_Vista_A-P_2023-0927.xd

Worksheet for Stream Corridor Continuity Metric for Riverine Wetlands

Lengths of Non-buffer Segments For Distance of 500 m Upstream of AA		**Lengths of Non-buffer Segments For Distance of 500 m Downstream of AA**	
Segment No.	Length (m)	Segment No.	Length (m)
1		1	233.3
2		2	
3		3	
4		4	
5		5	
Upstream Total Length	0	Downstream Total Length	233.3

Percent of AA with Buffer Worksheet

In the space provided below make a quick sketch of the AA, or perform the assessment directly on the aerial imagery; indicate where buffer is present, estimate the percentage of the AA perimeter providing buffer functions, and record the estimate amount in the space provided.

Percent of AA with Buffer: 70 **%**

Worksheet for calculating average buffer width of AA

Line	**Buffer Width (m)**
A	72
B	206
C	31
D	17
E	17
F	22
G	6
H	6
Average Buffer Width ***Round to the nearest integer***	47



361_CRAM_Vista_A-P_2023-1004b.xd

Worksheet for Assessing Channel Stability for Riverine Wetlands

Condition	Field Indicators (check all existing conditions)
Indicators of Channel Equilibrium	☐The channel (or multiple channels in braided systems) has a well-defined bankfull contour that clearly demarcates an obvious active floodplain in the cross-sectional profile of the channel throughout most of the AA. ☐Perennial riparian vegetation is abundant and well established along the bankfull contour, but not below it. ☐There is leaf litter, thatch, or wrack in most pools (if pools are present). ☐The channel contains embedded woody debris of the size and amount consistent with what is naturally available in the riparian area. ☐There is little or no active undercutting or burial of riparian vegetation. ☐If mid-channel bars and/or point bars are present, they are not densely vegetated with perennial vegetation. ☐Channel bars consist of well-sorted bed material (smaller grain size on the top and downstream end of the bar, larger grain size along the margins and upstream end of the bar). ☐There are channel pools, the spacing between pools tends to be regular and the bed is not planar throughout the AA ☐The larger bed material supports abundant mosses or periphyton.
Indicators of Active Degradation	☐The channel is characterized by deeply undercut banks with exposed living roots of trees or shrubs. ☐There are abundant bank slides or slumps. ☐The lower banks are uniformly scoured and not vegetated. ☐Riparian vegetation is declining in stature or vigor, or many riparian trees and shrubs along the banks are leaning or falling into the channel. ☐An obvious historical floodplain has recently been abandoned, as indicated by the age structure of its riparian vegetation. ☐The channel bed appears scoured to bedrock or dense clay. ☐Recently active flow pathways appear to have coalesced into one channel (i.e. a previously braided system is no longer braided). ☐The channel has one or more knickpoints indicating headward erosion of the bed.
Indicators of Active Aggradation	☐There is an active floodplain with fresh splays of coarse sediment (sand and larger that is not vegetated) deposited in the current or previous year. ☐There are partially buried living tree trunks or shrubs along the banks. ☐The bed is planar (flat or uniform gradient) overall; it lacks well-defined channel pools, or they are uncommon and irregularly spaced. ☐There are partially buried, or sediment-choked, culverts. ☐Perennial terrestrial or riparian vegetation is encroaching into the channel or onto channel bars below the bankfull contour. ☐There are avulsion channels on the floodplain or adjacent valley floor.
Overall	**☐ Equilibrium ☐ Degradation ☐ Aggradation**

Riverine Wetland Entrenchment Ratio Calculation Worksheet

The following 5 steps should be conducted for each of 3 cross-sections located in the AA at the approximate midpoints along straight riffles or glides, away from deep pools or meander bends. An attempt should be made to place them at the top, middle, and bottom of the AA.				
Steps	**Replicate Cross-sections** ⟶	**TOP**	**MID**	**BOT**
1 Estimate bankfull width.	This is a critical step requiring familiarity with field indicators of the bankfull contour. Estimate or measure the distance between the right and left bankfull contours.	50	60	60
2: Estimate max. bankfull depth.	Imagine a level line between the right and left bankfull contours; estimate or measure the height of the line above the thalweg (the deepest part of the channel).	0.6	0.5	0.7
3: Estimate flood prone depth.	Double the estimate of maximum bankfull depth from Step 2.	1.2	1.0	1.4
4: Estimate flood prone width.	Imagine a level line having a height equal to the flood prone depth from Step 3; note where the line intercepts the right and left banks; estimate or measure the length of this line.	>500	>500	>500
5: Calculate entrenchment ratio.	Divide the flood prone width (Step 4) by the bankfull width (Step 1).	>8.9	>8.33	>8.33
6: Calculate average entrenchment ratio.	Calculate the average results for Step 5 for all 3 replicate cross-sections. Enter the average result here and use it in Table 13a or 13b.			>8.52

Structural Patch Type Worksheet for Riverine wetlands

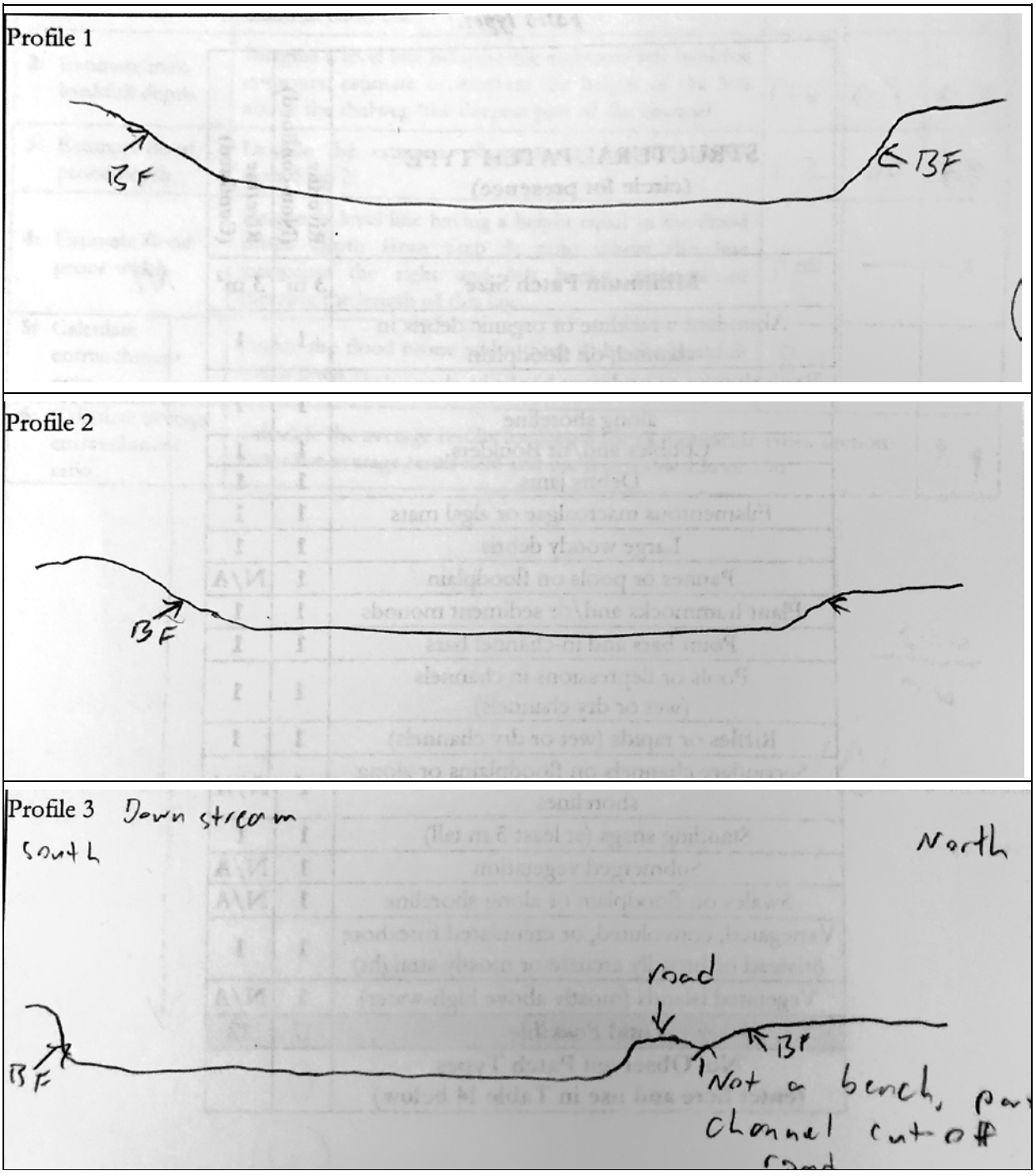
Circle each type of patch that is observed in the AA and enter the total number of observed patches in Table below. In the case of riverine wetlands, their status as confined or non-confined must first be determined (see page 6) to determine with patches are expected in the system (indicated by a "1" in the table below). Any feature onsite should only be counted once as a patch type. If a feature appears to meet the definition of more than one patch type (i.e. swale and secondary channel) the practitioner should choose which patch type best illustrates the feature. Not all features at a site will be patch types.

**Please refer to the CRAM Photo Dictionary at www.cramwetlands.org for photos of each of the following patch types.*

STRUCTURAL PATCH TYPE (circle for presence)	**Riverine (Non-confined)**	**Riverine (Confined)**
Minimum Patch Size	**3 m^2**	**3 m^2**
Abundant wrackline or organic debris in channel, on floodplain	**1**	**1**
Bank slumps or undercut banks in channels or along shoreline	**1**	**1**
Cobbles and/or Boulders	**1**	**1**
Debris jams	**1**	**1**
Filamentous macroalgae or algal mats	**1**	**1**
Large woody debris	**1**	**1**
Pannes or pools on floodplain	**1**	**N/A**
Plant hummocks and/or sediment mounds	**1**	**1**
Point bars and in-channel bars	**1**	**1**
Pools or depressions in channels (wet or dry channels)	**1**	**1**
Riffles or rapids (wet or dry channels)	**1**	**1**
Secondary channels on floodplains or along shorelines	**1**	**N/A**
Standing snags (at least 3 m tall)	**1**	**1**
Submerged vegetation	**1**	**N/A**
Swales on floodplain or along shoreline	**1**	**N/A**
Variegated, convoluted, or crenulated foreshore (instead of broadly arcuate or mostly straight)	**1**	**1**
Vegetated islands (mostly above high-water)	**1**	**N/A**
Total Possible	**17**	**12**
No. Observed Patch Types (enter here and use in Table 14 below)	0	

Worksheet for AA Topographic Complexity

At three locations along the AA, make a sketch of the profile of the stream from the AA boundary down to its deepest area then back out to the other AA boundary. Try to capture the benches and the intervening micro-topographic relief. To maintain consistency, make drawings at each of the stream hydrologic connectivity measurements, always facing downstream. Include the water level, an arrow at the bankfull contour, and label the benches. Based on these sketches and the profiles in Figure 10, choose a description in Table 16 that best describes the overall topographic complexity of the AA.



Plant Community Metric Worksheet: Co-dominant species richness for Riverine wetlands
(A dominant species represents ≥10% *relative* cover)

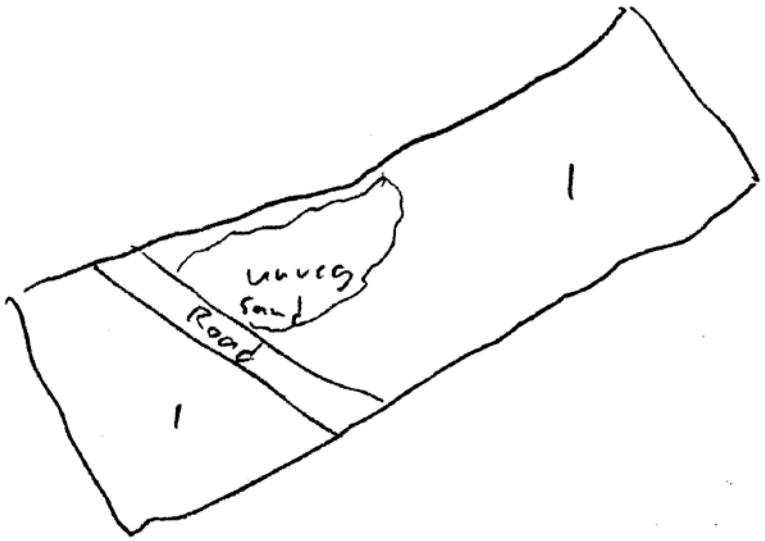
Special Note:

** Combine the counts of co-dominant species from all layers to identify the total species count. Each plant species is only counted once when calculating the Number of Co-dominant Species and Percent Invasion submetric scores, regardless of the numbers of layers in which it occurs.*

Floating or Canopy-forming (non-confined only)	**Invasive?**	**Short (<0.5 m)**	**Invasive?**
		Eriogonum gracile	
		Distichli spicata	
		Festuca myuros	✓
		Bromus hordeaceus	✓
Medium (0.5-1.5 m)	**Invasive?**	**Tall (1.5-3.0 m)**	**Invasive?**
Very Tall (>3.0 m)	**Invasive?**	**Total number of co-dominant species for all layers combined (enter here and use in Table 18)**	4
		Percent Invasion *Round to the nearest integer* (enter here and use in Table 18)	50

Horizontal Interspersion Worksheet.

Use the spaces below to make a quick sketch of the AA in plan view, outlining the major plant zones (this should take no longer than 10 minutes). Assign the zones names and record them on the right. Based on the sketch, choose a single profile from Figure 12 that best represents the AA overall.



Assigned zones:

1) Low-cover grasses & buckwheat

2) Unvegetated sand

3)

4)

5)

6)

Worksheet for Wetland disturbances and conversions

Has a major disturbance occurred at this wetland?	Yes	(No)		
If yes, was it a flood, fire, landslide, or other?	flood	fire	landslide	other
If yes, then how severe is the disturbance?	likely to affect site next 5 or more years	likely to affect site next 3-5 years	likely to affect site next 1-2 years	
Has this wetland been converted from another type? If yes, then what was the previous type? **No, N/A**	depressional	vernal pool	vernal pool system	
	non-confined riverine	confined riverine	seasonal estuarine	
	perennial saline estuarine	perennial non-saline estuarine	wet meadow	
	lacustrine	seep or spring	playa	

Stressor Checklist Worksheet

HYDROLOGY ATTRIBUTE (WITHIN 50 M OF AA)	Present	Significant negative effect on AA
Point Source (PS) discharges (POTW, other non-stormwater discharge)		
Non-point Source (Non-PS) discharges (urban runoff, farm drainage)	✓	
Flow diversions or unnatural inflows		
Dams (reservoirs, detention basins, recharge basins)		
Flow obstructions (culverts, paved stream crossings)		
Weir/drop structure, tide gates		
Dredged inlet/channel		
Engineered channel (riprap, armored channel bank, bed)		
Dike/levees		
Groundwater extraction		
Ditches (borrow, agricultural drainage, mosquito control, etc.)		
Actively managed hydrology	✓	✓
Comments		

PHYSICAL STRUCTURE ATTRIBUTE (WITHIN 50 M OF AA)	Present	Significant negative effect on AA
Filling or dumping of sediment or soils **(N/A for restoration areas)**		
Grading/ compaction **(N/A for restoration areas)**	✓	
Plowing/Discing **(N/A for restoration areas)**		
Resource extraction (sediment, gravel, oil and/or gas)		
Vegetation management		
Excessive sediment or organic debris from watershed		
Excessive runoff from watershed		
Nutrient impaired (PS or Non-PS pollution)		
Heavy metal impaired (PS or Non-PS pollution)		
Pesticides or trace organics impaired (PS or Non-PS pollution)		
Bacteria and pathogens impaired (PS or Non-PS pollution)		
Trash or refuse	✓	✓
Comments		
Assumed minor compaction and bacterial input from cattle; no direct evidence.		

BIOTIC STRUCTURE ATTRIBUTE (WITHIN 50 M OF AA)	Present	Significant negative effect on AA
Mowing, grazing, excessive herbivory (within AA)	✓	✓
Excessive human visitation	✓	✓
Predation and habitat destruction by non-native vertebrates (e.g., *Virginia opossum* and domestic predators, such as feral pets)	✓	✓
Tree cutting/sapling removal		
Removal of woody debris		
Treatment of non-native and nuisance plant species		
Pesticide application or vector control		
Biological resource extraction or stocking (fisheries, aquaculture)		
Excessive organic debris in matrix (for vernal pools)		
Lack of vegetation management to conserve natural resources	✓	✓
Lack of treatment of invasive plants adjacent to AA or buffer		
Comments		

BUFFER AND LANDSCAPE CONTEXT ATTRIBUTE (WITHIN 500 M OF AA)	Present	Significant negative effect on AA
Urban residential	✓	✓
Industrial/commercial		
Military training/Air traffic		
Dams (or other major flow regulation or disruption)	✓	✓
Dryland farming	✓	✓
Intensive row-crop agriculture		
Orchards/nurseries	✓	
Commercial feedlots		
Dairies		
Ranching (enclosed livestock grazing or horse paddock or feedlot)	✓	✓
Transportation corridor	✓	✓
Rangeland (livestock rangeland also managed for native vegetation)		
Sports fields and urban parklands (golf courses, soccer fields, etc.)		
Passive recreation (bird-watching, hiking, etc.)		
Active recreation (off-road vehicles, mountain biking, hunting, fishing)		
Physical resource extraction (rock, sediment, oil/gas)		
Biological resource extraction (aquaculture, commercial fisheries)		
Comments		

Appendix B

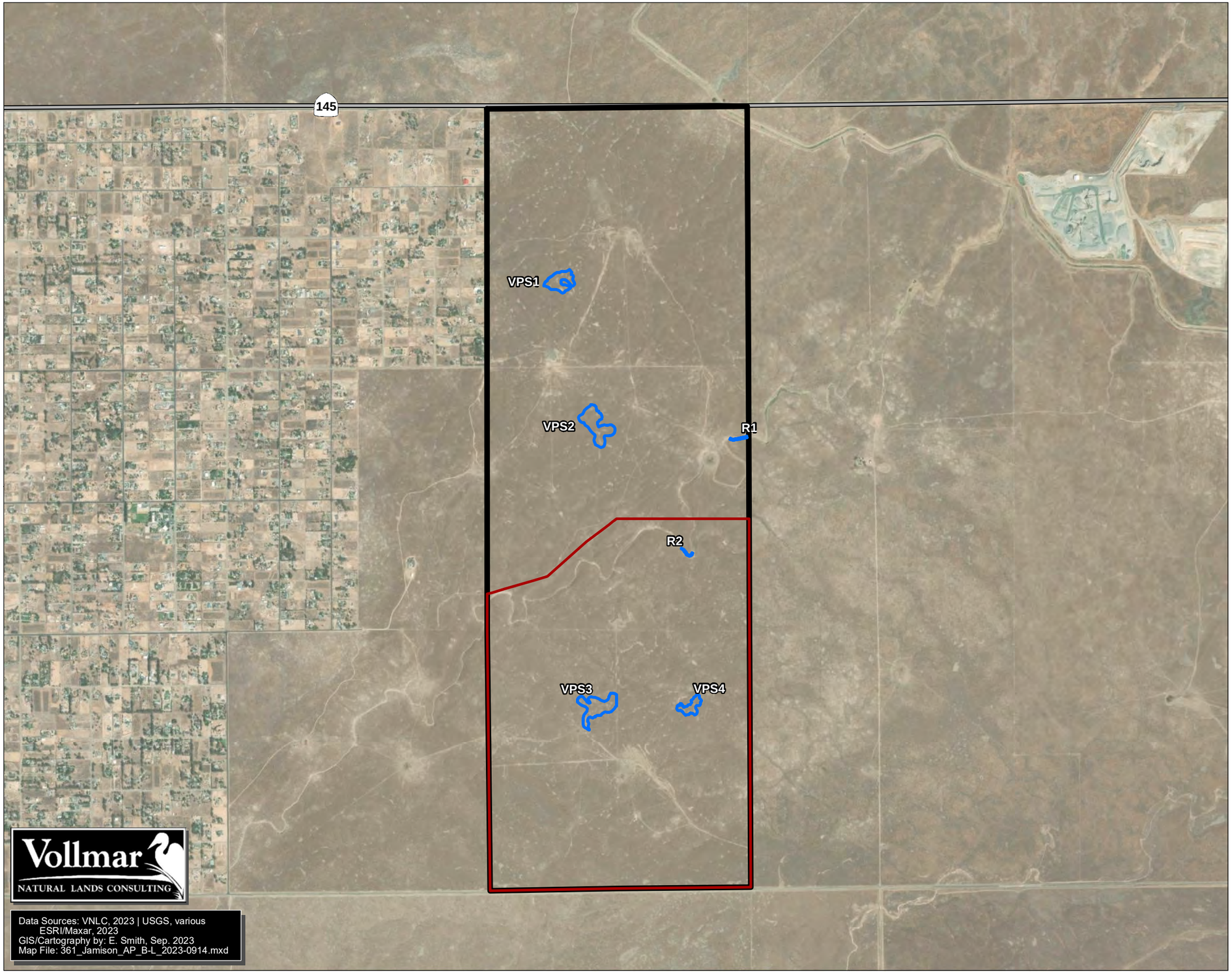
CRAM Assessment Worksheets, Jamison Ranch Property

Basic Information: Vernal Pool Systems

Assessment Area Name: VPS 1	
Project Name: Jamison Ranch/Madera Terrace Preserve	
Assessment Area ID #: VPS 1	
Project ID #: 361	**Date:** 9/28/23
Assessment Team Members for This AA	
M. Yonashiro, A. Merril, E. Smith, T. Hurd	
AA Location: **Latitude**: 37.000409 **Longitude:** -119.852535 **Datum:** NAD83	
Wetland Category: ☒ Natural ☐ Constructed ☐ Restoration (Rehabilitation OR Enhancement)	
If Created or Restored, does the action encompass: ☐ entire wetland ☐ portion of the wetland ☒N/A	
What best describes the hydrologic state of the wetland at the time of assessment? ☐ ponded/inundated ☐ saturated soil, but no surface water ☒ dry	
Does the vernal pool system connect with the floodplain of a nearby stream? ☐ yes ☒ no	
Comments: The AA falls within the north pasture of the approximately 1920-acre Jamison Ranch. This area is outside of the proposed preserve for the Vista Ranch project, but representative of overall conditions in the vernal pool grasslands of the ranch.	

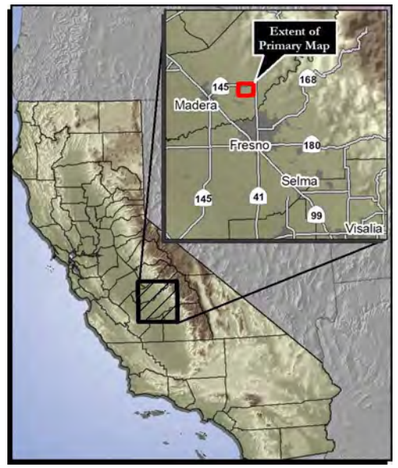
CRAM AA
Locations Map

Jamison Ranch
Madera County, California



Legend

- AA Boundary
- Proposed Preserve (857 ac.)
- Jamison Ranch (1,920 ac.)



Vollmar NATURAL LANDS CONSULTING

Data Sources: VNLC, 2023 | USGS, various ESRI/Maxar, 2023
GIS/Cartography by: E. Smith, Sep. 2023
Map File: 361_Jamison_AP_B-L_2023-0914.mxd

N
W E
S

1:24,000
(1 in. = 2,000 feet. at Tabloid Layout)

0 200 400 800 Meters
0 1,000 2,000 4,000 Feet

Photos and Descriptions:



AA VPS 1, from center / September 29, 2023 (N, 37.000586, - 119.852403)



AA VPS 1, from center / September 29, 2023 (E, 37.000586, - 119.852403)



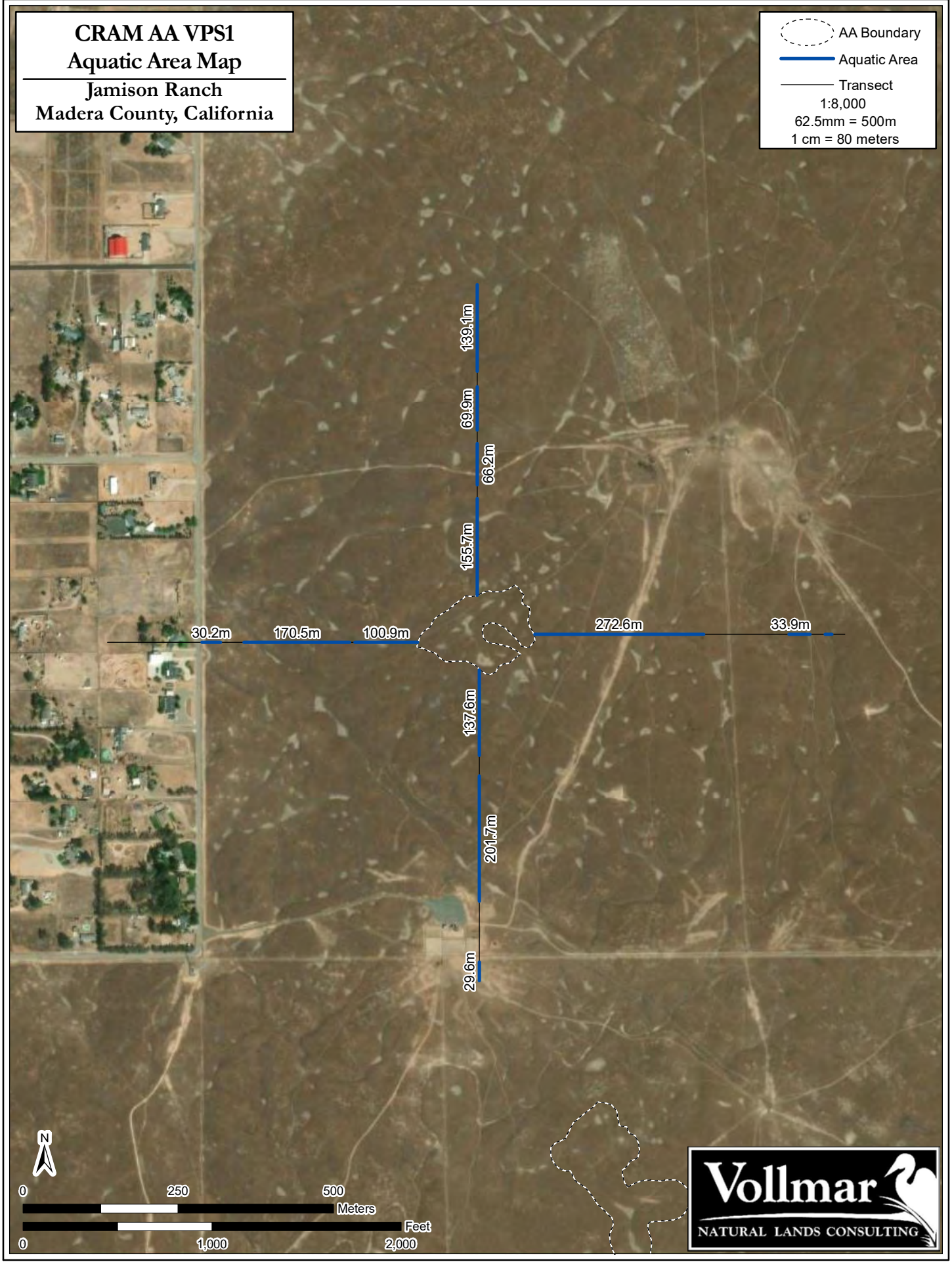
AA VPS 1, from center / September 29, 2023 (S, 37.000586, - 119.852403)



AA VPS 1, from center / September 29, 2023 (W, 37.000586, - 119.852403)

Scoring Sheet: Vernal Pool Systems

AA Name: VPS 1					**Date:** 9/28/ 23	
Attributes and Metrics			Alpha.	Numeric	**Comments/Scores**	
Attribute 1: Buffer and Landscape Context (pp. 8-15)						
(A) Aquatic Area Abundance			A	12		
(B): *Percent of AA with Buffer*	Alpha.	Numeric				
	A	12				
(C): *Average Buffer Width*	A	12				
(D): *Buffer Condition*	B	9				
Initial Attribute Score = A + [D x (B x C)^{½}] ^{½}				21	**Final Attribute Score = (Initial Score/24) x 100**	87.5
Attribute 2: Hydrology (pp. 16-18)						
Water Source			A	12		
Hydroperiod			A	12		
Hydrologic Connectivity			A	12		
Initial Attribute Score= sum of metric scores			36		**Final Attribute Score = (Initial Score/36) x 100**	100
Attribute 3: Physical Structure (pp. 19-28)						
Structural Patch Richness			B	9		
Pool and Swale Density			B	9		
Topographic Complexity			B	9		
Initial Attribute Score= sum of metric scores			27		**Final Attribute Score = (Initial Score/36) x 100**	75
Attribute 4: Biotic Structure (pp. 29-34)						
Horizontal Interspersion and Zonation			B	9		
Plant Community submetric A: Number of Co-dominant species	Alpha.	Numeric				
	C	6				
Plant Community submetric B: Percent Non Native	B	9				
Plant Community submetric C: Endemic Species Richness	C	6				
Plant Community Composition Metric *(numeric average of submetrics A-C)*				7		
Initial Attribute Score= sum of metric scores			16		**Final Attribute Score = (Initial Score/24) x 100**	66.67
Overall AA Score (Average of four Final Attribute Scores)					**82**	



361_CRAM_Vista_A-P_2023-0927.xd

Worksheet 1: Aquatic Area Abundance for Vernal Pool Systems

Percentage of Each Transect Line Crossing Wetland or Other Aquatic Habitat	
Transect	Percent Crossing Aquatic Area
North	86.18
South	73.8
East	63.4
West	60.32
Average value for all Four Transects *Round to the nearest integer*	71

Worksheet 3: Calculating average buffer width of AA
Record the length of each buffer measurement.

Transect	Buffer Width (m)
A	250
B	250
C	250
D	250
E	250
F	250
G	250
H	250
Average Buffer Width *Round to nearest integer*	250

Percent of AA with Buffer: 100 **%**

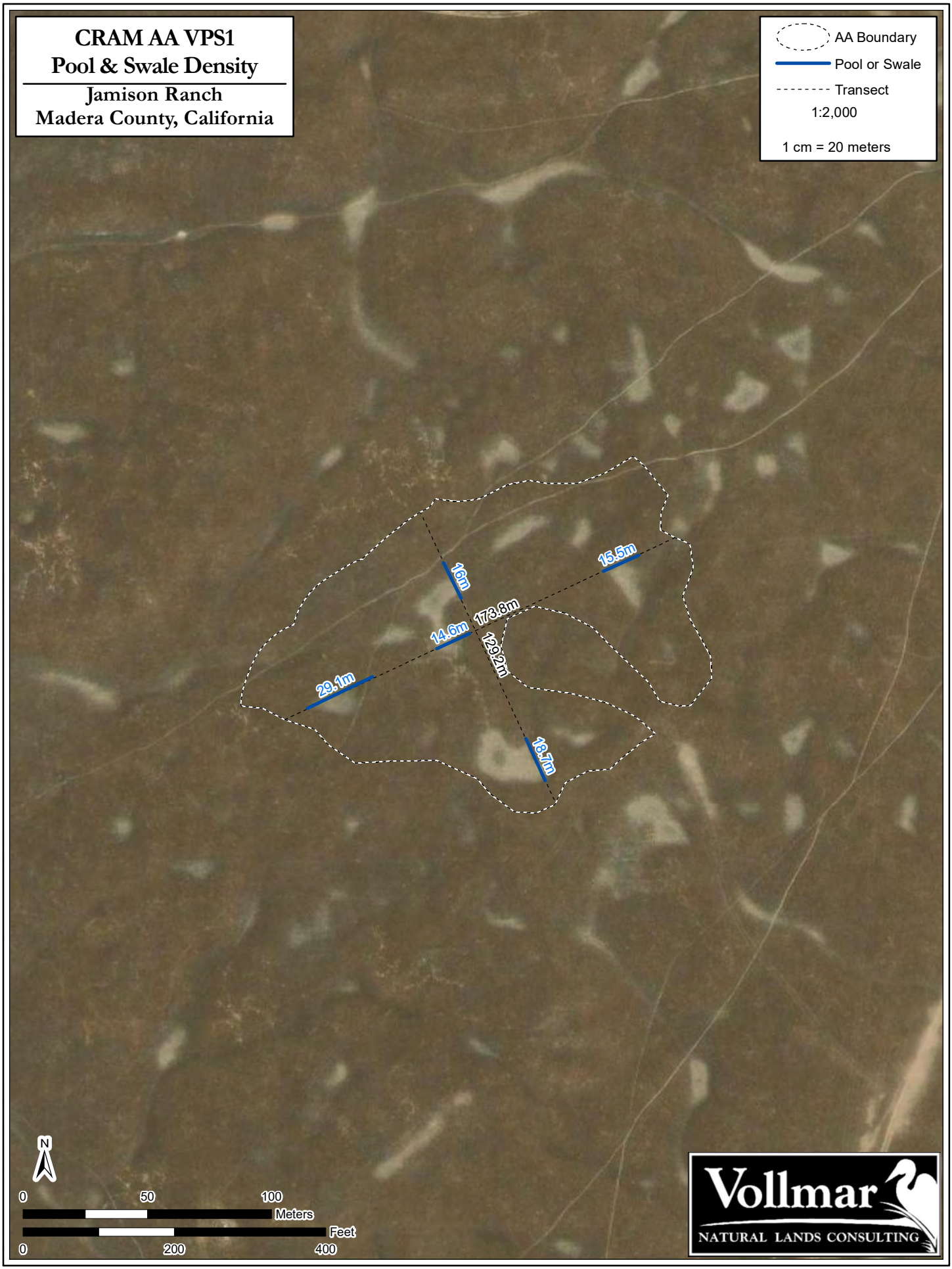


361_CRAM_Vista_A-P_2023-0927.xd

Worksheet 4: Structural Patch Types for Vernal Pool Systems

Identify each type of patch that is observed in the AA and use the total number of observed patch types in Table 15. Each patch should occupy at least 3 m^2 of area in aggregate within the AA, with some exceptions (see definitions below).

Structural Patch Type	Check for Presence
Adjacent shrub or tree cover	
Animal mounds and burrows	
Bare soil	
Cobble and boulders	
Complexly-shaped pools	✓
Drainage branches (more than 1 drainage branch)	
Islands	✓
Large individual pools	✓
Large swales	
Mima mounds	✓
Patches of dense vegetation	
Pool Cluster	✓
Simply-shaped pools	✓
Small individual pools	✓
Small swales	✓
Soil cracks	✓
Within Pool Mounds	
Total Possible	**17**
No. Observed Patch Types (enter here and use in Table 15)	**9**



361_CRAM_Vista_A-P_2023-1004.xd

Worksheet 5: Pool and Swale Density for Vernal Pool Systems

Pool and Swale Density Worksheet		
Transect	Transect Length (m)	Length Crossing Pool or Swale (m)
Long Axis	173.8	59.2
Short Axis	129.2	34.7
Sum of Length (m)	303	93.9
Percent Pool and Swale (Sum of Pools & Swales/Sum of Transect Lengths)*100 *Round to nearest integer*		B

Worksheet 6: Rating of Topographic Complexity for Vernal Pool Systems

Replicate Number	**Replicate Score (A = 12; B = 9; C = 6; D = 3)**	
	Alpha.	*Numeric*
Replicate 1	B	9
Replicate 2	C	6
Replicate 3	B	9
Overall Average Score for All Pool Replicates *Round to nearest integer* (enter here and use in Table 19)		8

Worksheet 7: Rating of Horizontal Interspersion for Vernal Pool Systems

Replicate Number	**Replicate Score (A = 12; B = 9; C = 6; D = 3)**	
	Alpha.	*Numeric*
Replicate 1	A	12
Replicate 2	B	9
Replicate 3	C	6
Overall Average Score for All Pool Replicates *Round to nearest integer* (enter here and use in Table 21)		9

Worksheet 8: Plant Community Metric –
List of Unique Co-dominant Plant Species from all Vernal Pools Combined

Plant Name	Check if non-native	Check if in Appendix I	Pool 1	Pool 2	Pool 3
Eryngium castrense		✓	✓	✓	✓
Plagiobothrys stipitatus var. *micranthus*		✓	✓	✓	
Psilocarphus brevissimus		✓	✓		✓
Lythrum hyssopifolia	✓			✓	
Total number of co-dominant species in each pool			3	3	2
Average number of co-dominant species *round to nearest integer* Enter here and use in Table 22	3				
Total number of co-dominant species (A)	4				
Total number of co-dominant species that are non-native (B)	1				
Percent non-native (B/A) x 100 *Round to nearest integer* Enter here and use in Table 23	25				
Total number of co-dominant species that are endemic Enter here and use in Table 24		3			

Pool Replicate 1

Worksheet 6a: Sketches of Vernal Pool Profiles for Topographic Complexity

Along the long axis of the pool and perpendicular to the long axis across the middle, make a sketch of the profile of each of the three pools from its outside edge (1-3m landward or away from the saturated zone of the pool) to its deepest areas then back out to the outside margin. Try to capture the major breaks in slope and the intervening micro-topographic relief. Based on the sketches, choose a single profile from Figure 9 that best represents the pool overall.

Long Axis



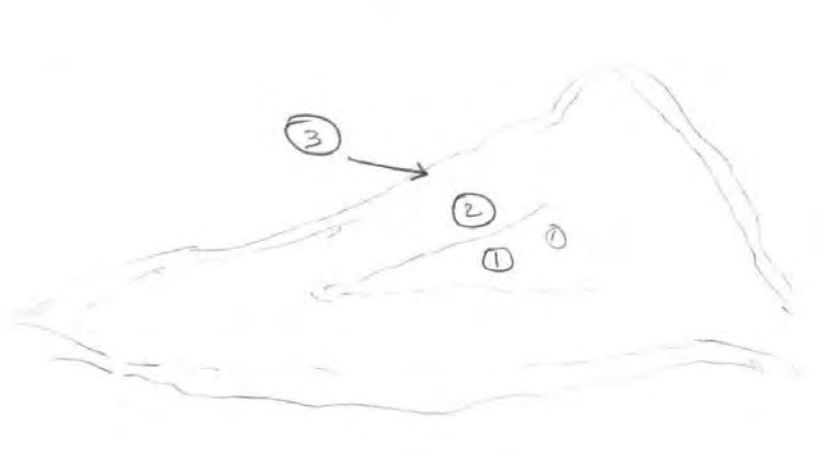
B

Perpendicular to Long Axis



Worksheet 7a: Sketch of Vernal Pool Horizontal Interspersion and Zonation

Pool 1



A

Assigned Zones:

1) LYTHYS-PLASTIM.

2) ERYCAS-PSIBREB

3) EPIBRA-JUNBUF

4)

5)

Pool Replicate 2

Worksheet 6a: Sketches of Vernal Pool Profiles for Topographic Complexity

Along the long axis of the pool and perpendicular to the long axis across the middle, make a sketch of the profile of each of the three pools from its outside edge (1-3m landward or away from the saturated zone of the pool) to its deepest areas then back out to the outside margin. Try to capture the major breaks in slope and the intervening micro-topographic relief. Based on the sketches, choose a single profile from Figure 9 that best represents the pool overall.

Long Axis



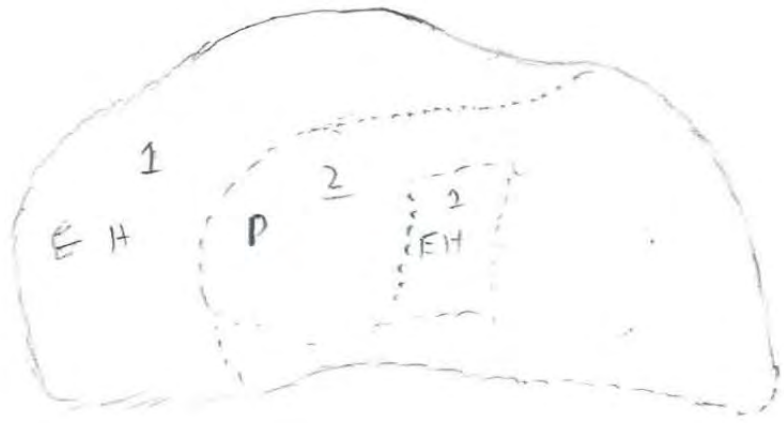
Perpendicular to Long Axis



C

Worksheet 7a: Sketch of Vernal Pool Horizontal Interspersion and Zonation

Pool 2



B

Assigned Zones:

1) ERYCAS-HORMAR

2) PLAACA

3)

4)

5)

Pool Replicate 3

Worksheet 6a: Sketches of Vernal Pool Profiles for Topographic Complexity

Along the long axis of the pool and perpendicular to the long axis across the middle, make a sketch of the profile of each of the three pools from its outside edge (1-3m landward or away from the saturated zone of the pool) to its deepest areas then back out to the outside margin. Try to capture the major breaks in slope and the intervening micro-topographic relief. Based on the sketches, choose a single profile from Figure 9 that best represents the pool overall.

Long Axis



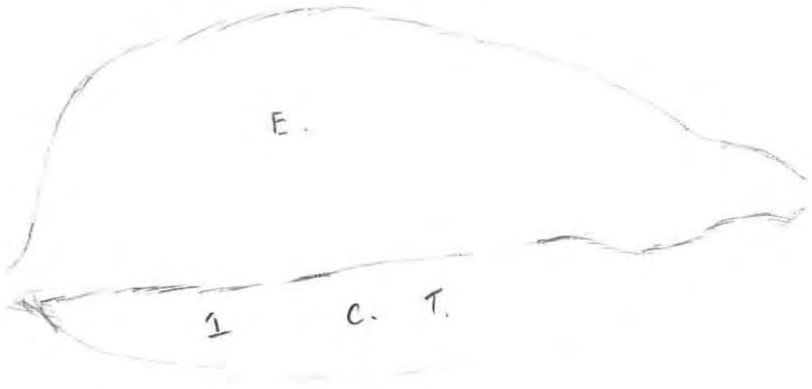
Perpendicular to Long Axis



B

Worksheet 7a: Sketch of Vernal Pool Horizontal Interspersion and Zonation

Pool 3



C

Assigned Zones:

1) TRILAN- CROSET

2) ERYCAS

3)

4)

5)

Table 25: Wetland disturbances and conversions

Has a major disturbance occurred at this wetland?	Yes	(No)		
If yes, was it a flood, fire, landslide, or other?	flood	fire	landslide	other
If yes, then how severe is the disturbance?	likely to affect site next 5 or more years	likely to affect site next 3-5 years	likely to affect site next 1-2 years	
Has this wetland been converted from another type? If yes, then what was the previous type?	depressional	vernal pool	vernal pool system	
	non-confined riverine	confined riverine	bar-built estuarine	
	perennial saline estuarine	perennial non-saline estuarine	wet meadow	
	lacustrine	seep or spring	playa	

Worksheet 9: Stressor Checklist.

HYDROLOGY ATTRIBUTE (WITHIN 50 M OF AA)	Present	Present and likely to have significant negative effect on AA
Point Source (PS) discharges (POTW, other non-stormwater discharge)		
Non-point Source (Non-PS) discharges (urban runoff, farm drainage)		
Flow diversions or unnatural inflows		
Dams (reservoirs, detention basins, recharge basins)		
Flow obstructions (culverts, paved stream crossings)		
Weir/drop structure, tide gates		
Dredged inlet/channel		
Engineered channel (riprap, armored channel bank, bed)		
Dike/levees		
Groundwater extraction		
Ditches (borrow, agricultural drainage, mosquito control, etc.)		
Actively managed hydrology		
Comments		

PHYSICAL STRUCTURE ATTRIBUTE (WITHIN 50 M OF AA)	Present	Present and likely to have significant negative effect on AA
Filling or dumping of sediment or soils **(N/A for restoration areas)**		
Grading/ compaction **(N/A for restoration areas)**		
Plowing/Discing **(N/A for restoration areas)**		
Resource extraction (sediment, gravel, oil and/or gas)		
Vegetation management		
Excessive sediment or organic debris from watershed		
Excessive runoff from watershed		
Nutrient impaired (PS or Non-PS pollution)		
Heavy metal impaired (PS or Non-PS pollution)		
Pesticides or trace organics impaired (PS or Non-PS pollution)		
Bacteria and pathogens impaired (PS or Non-PS pollution)		
Trash or refuse		
Comments		

BIOTIC STRUCTURE ATTRIBUTE (WITHIN 50 M OF AA)	Present	Present and Likely to Have Significant negative effect on AA
Mowing, grazing, excessive herbivory (within AA)	✓	
Excessive human visitation		
Predation and habitat destruction by non-native vertebrates (e.g., *Virginia opossum* and domestic predators, such as feral pets)		
Tree cutting/sapling removal		
Removal of woody debris		
Treatment of non-native and nuisance plant species	✓	
Pesticide application or vector control		
Biological resource extraction or stocking (fisheries, aquaculture)		
Excessive organic debris in matrix (for vernal pools)		
Lack of vegetation management to conserve natural resources		
Lack of treatment of invasive plants adjacent to AA or buffer		
Comments		

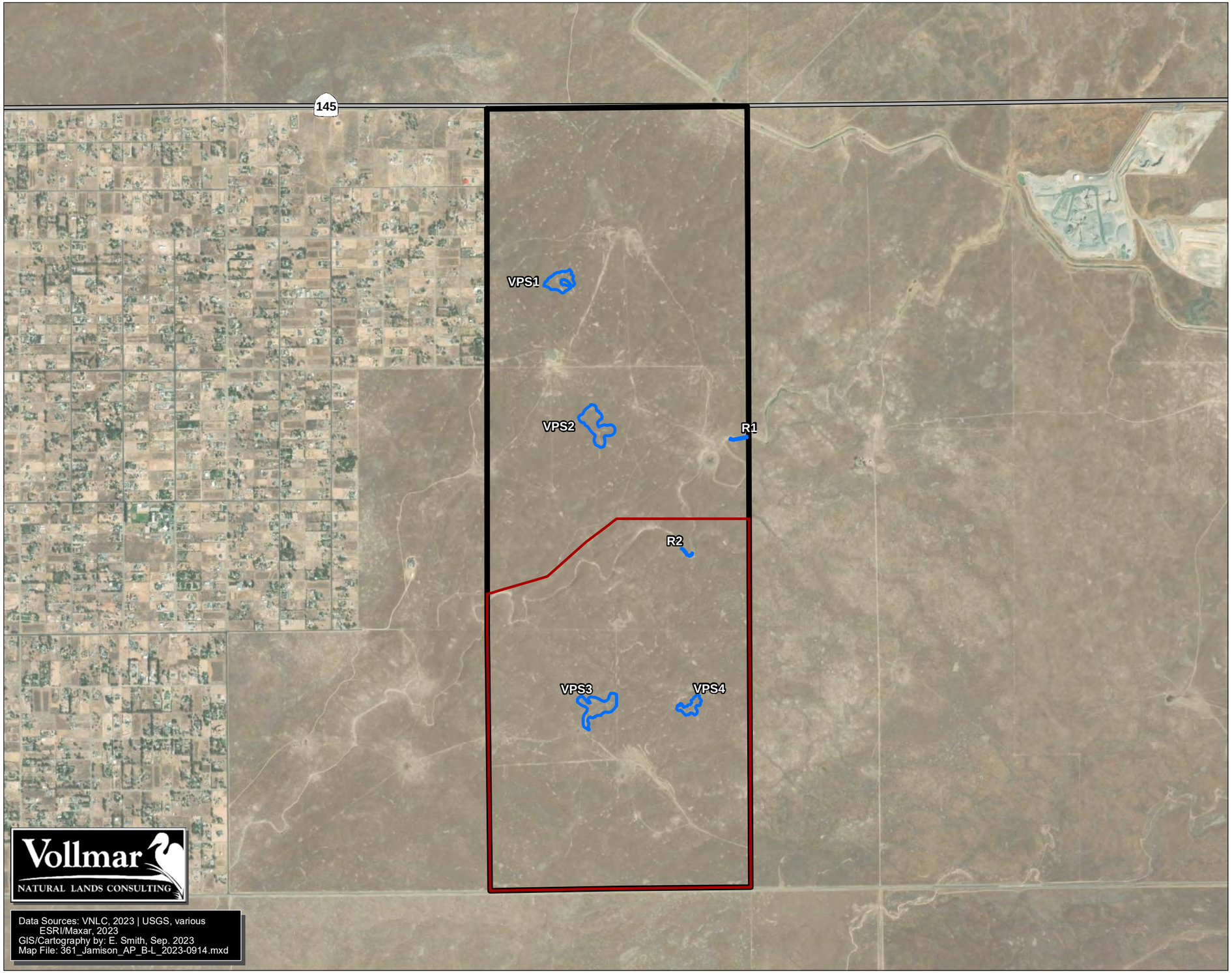
BUFFER AND LANDSCAPE CONTEXT ATTRIBUTE (WITHIN 500 M OF AA)	Present	Present and likely to have significant negative effect on AA
Urban residential		
Industrial/commercial		
Military training/Air traffic		
Dams (or other major flow regulation or disruption)		
Dryland farming		
Intensive row-crop agriculture		
Orchards/nurseries		
Commercial feedlots		
Dairies		
Ranching (enclosed livestock grazing or horse paddock or feedlot)	✓	
Transportation corridor		
Rangeland (livestock rangeland also managed for native vegetation)		
Sports fields and urban parklands (golf courses, soccer fields, etc.)		
Passive recreation (bird-watching, hiking, etc.)		
Active recreation (off-road vehicles, mountain biking, hunting, fishing)		
Physical resource extraction (rock, sediment, oil/gas)		
Biological resource extraction (aquaculture, commercial fisheries)		
Comments		
Working Ranch		

Basic Information: Vernal Pool Systems

Assessment Area Name: VPS 2	
Project Name: Jamison Ranch/Madera Terrace Preserve	
Assessment Area ID #: VPS 2	
Project ID #: 361	**Date:** 9/28/23
Assessment Team Members for This AA	
M. Yonashiro, A. Merril, E. Smith, T. Hurd	
AA Location: **Latitude:** 36.992508 **Longitude:** -119.850194 **Datum:** NAD83	
Wetland Category: ☒ Natural ☐ Constructed ☐ Restoration (Rehabilitation OR Enhancement)	
If Created or Restored, does the action encompass: ☐ entire wetland ☐ portion of the wetland ☒N/A	
What best describes the hydrologic state of the wetland at the time of assessment? ☐ ponded/inundated ☐ saturated soil, but no surface water ☒ dry	
Does the vernal pool system connect with the floodplain of a nearby stream? ☐ yes ☒ no	
Comments: The AA falls within the central pasture of the approximately 1920-acre Jamison Ranch. This area is outside of the proposed preserve for the Vista Ranch project, but representative of overall conditions in the vernal pool grasslands of the ranch.	

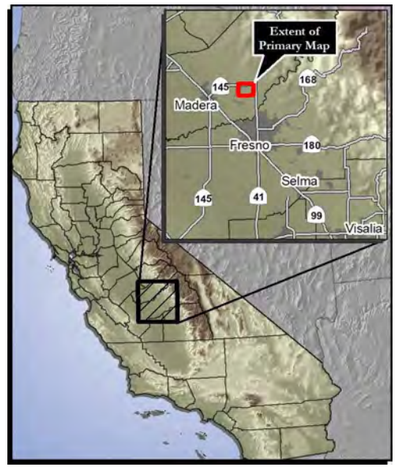
CRAM AA
Locations Map

Jamison Ranch
Madera County, California



Legend

- AA Boundary
- Proposed Preserve (857 ac.)
- Jamison Ranch (1,920 ac.)



Vollmar NATURAL LANDS CONSULTING

Data Sources: VNLC, 2023 | USGS, various ESRI/Maxar, 2023
GIS/Cartography by: E. Smith, Sep. 2023
Map File: 361_Jamison_AP_B-L_2023-0914.mxd

N
W E
S

1:24,000
(1 in. = 2,000 feet. at Tabloid Layout)

0 200 400 800 Meters
0 1,000 2,000 4,000 Feet

Photos and Descriptions:



AA VPS 2, from center / September 29, 2023 (N, 36.992639, -119.85018)



AA VPS 2, from center / September 29, 2023 (E, 36.992639, -119.85018)



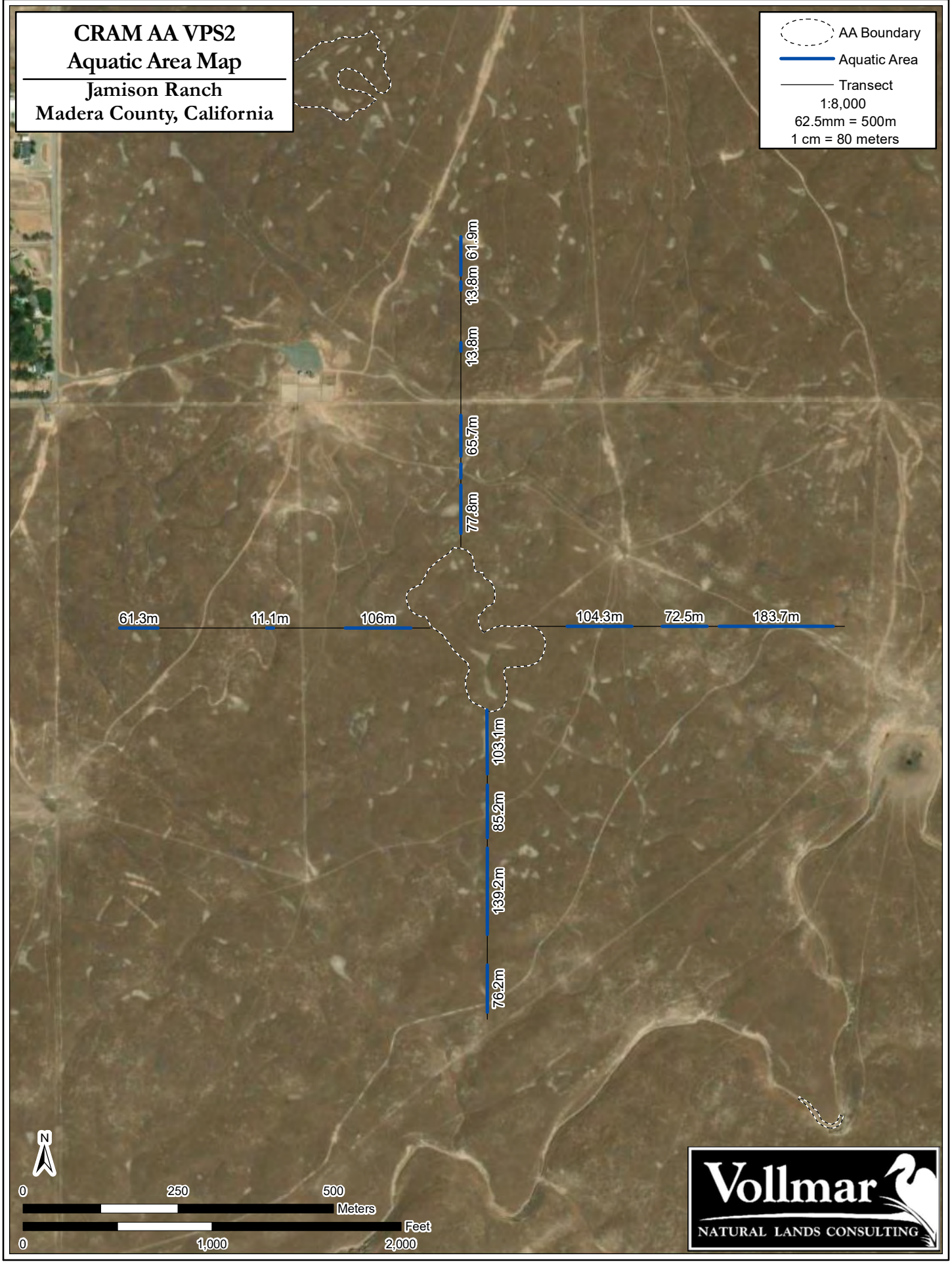
AA VPS 2, from center / September 29, 2023 (S, 36.992639, -119.85018)



AA VPS 2, from center / September 29, 2023 (W, 36.992639, -119.85018)

Scoring Sheet: Vernal Pool Systems

AA Name: VPS 2					**Date:** 9/28/ 23
Attributes and Metrics			Alpha.	Numeric	**Comments/Scores**
Attribute 1: Buffer and Landscape Context (pp. 8-15)					
(A) Aquatic Area Abundance			A	12	
(B): *Percent of AA with Buffer*	Alpha.	Numeric			
	A	12			
(C): *Average Buffer Width*	A	12			
(D): *Buffer Condition*	B	9			
Initial Attribute Score = A + [D x (B x C)^{½}] ^{½}				21	**Final Attribute Score = (Initial Score/24) x 100** 87.5
Attribute 2: Hydrology (pp. 16-18)					
Water Source			A	12	
Hydroperiod			A	12	
Hydrologic Connectivity			A	12	
Initial Attribute Score= sum of metric scores			36		**Final Attribute Score = (Initial Score/36) x 100** 100
Attribute 3: Physical Structure (pp. 19-28)					
Structural Patch Richness			B	9	
Pool and Swale Density			B	9	
Topographic Complexity			A	12	
Initial Attribute Score= sum of metric scores			30		**Final Attribute Score = (Initial Score/36) x 100** 83.33
Attribute 4: Biotic Structure (pp. 29-34)					
Horizontal Interspersion and Zonation			C	6	
Plant Community submetric A: Number of Co-dominant species	Alpha.	Numeric			
	C	6			
Plant Community submetric B: Percent Non Native	B	9			
Plant Community submetric C: Endemic Species Richness	C	6			
Plant Community Composition Metric *(numeric average of submetrics A-C)*				7	
Initial Attribute Score= sum of metric scores			13		**Final Attribute Score = (Initial Score/24) x 100** 54.17
Overall AA Score (Average of four Final Attribute Scores)					**81**



361_CRAM_Vista_A-P_2023-0927.xd

Worksheet 1: Aquatic Area Abundance for Vernal Pool Systems

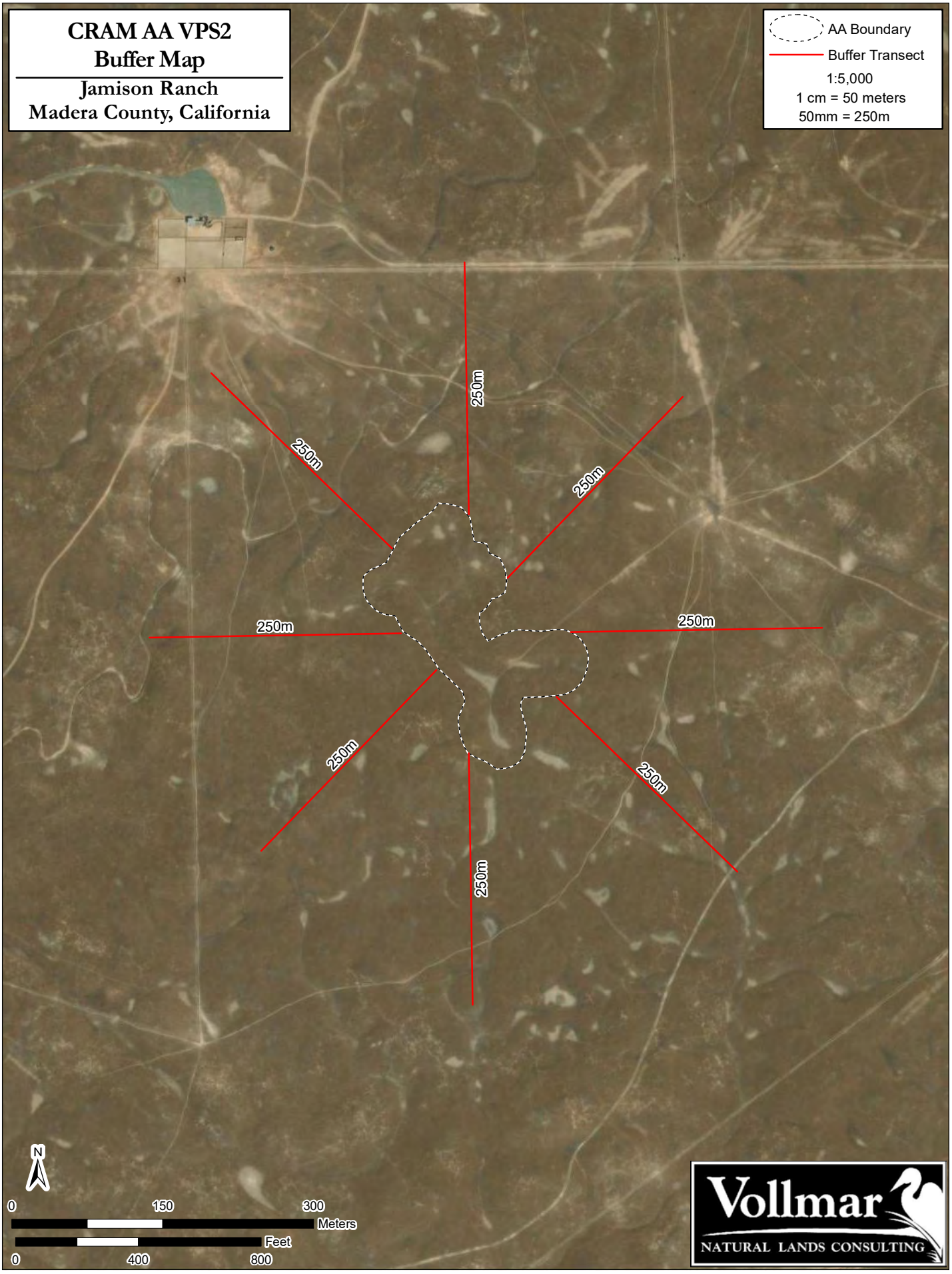
Percentage of Each Transect Line Crossing Wetland or Other Aquatic Habitat	
Transect	Percent Crossing Aquatic Area
North	51
South	80.76
East	72.2
West	35.7
Average value for all Four Transects *Round to the nearest integer*	60

Worksheet 3: Calculating average buffer width of AA

Record the length of each buffer measurement.

Transect	**Buffer Width (m)**
A	250
B	250
C	250
D	250
E	250
F	250
G	250
H	250
Average Buffer Width *Round to nearest integer*	250

Percent of AA with Buffer: 100 **%**



361_CRAM_Vista_A-P_2023-0927.xd

Worksheet 4: Structural Patch Types for Vernal Pool Systems

Identify each type of patch that is observed in the AA and use the total number of observed patch types in Table 15. Each patch should occupy at least 3 m^2 of area in aggregate within the AA, with some exceptions (see definitions below).

Structural Patch Type	Check for Presence
Adjacent shrub or tree cover	
Animal mounds and burrows	✓
Bare soil	
Cobble and boulders	
Complexly-shaped pools	✓
Drainage branches (more than 1 drainage branch)	✓
Islands	
Large individual pools	✓
Large swales	
Mima mounds	✓
Patches of dense vegetation	
Pool Cluster	✓
Simply-shaped pools	✓
Small individual pools	✓
Small swales	✓
Soil cracks	✓
Within Pool Mounds	
Total Possible	**17**
No. Observed Patch Types (enter here and use in Table 15)	**10**



361_CRAM_Vista_A-P_2023-1004.xd

Worksheet 5: Pool and Swale Density for Vernal Pool Systems

Pool and Swale Density Worksheet		
Transect	Transect Length (m)	Length Crossing Pool or Swale (m)
Long Axis	268.3	78.3
Short Axis	60.9	7.6
Sum of Length (m)	329.2	85.9
Percent Pool and Swale (Sum of Pools & Swales/Sum of Transect Lengths)*100 *Round to nearest integer*		26

Worksheet 6: Rating of Topographic Complexity for Vernal Pool Systems

Replicate Number	**Replicate Score (A = 12; B = 9; C = 6; D = 3)**	
	Alpha.	*Numeric*
Replicate 1	B	9
Replicate 2	A	12
Replicate 3	B	9
Overall Average Score for All Pool Replicates *Round to nearest integer* (enter here and use in Table 19)		10

Worksheet 7: Rating of Horizontal Interspersion for Vernal Pool Systems

Replicate Number	**Replicate Score (A = 12; B = 9; C = 6; D = 3)**	
	Alpha.	*Numeric*
Replicate 1	B	6
Replicate 2	A	12
Replicate 3	D	3
Overall Average Score for All Pool Replicates *Round to nearest integer* (enter here and use in Table 21)		7

Worksheet 8: Plant Community Metric –
List of Unique Co-dominant Plant Species from all Vernal Pools Combined

Plant Name	Check if non-native	Check if in Appendix I	Pool 1	Pool 2	Pool 3
Lythrum hyssopifolia	✓		✓		
Eryngium castrense		✓	✓	✓	✓
Plagiobothrys stipitatus		✓	✓		
Plagiobothrys acanthocarpus		✓		✓	
Hordeum marinum ssp. *gussoneanum*	✓			✓	
Croton setiger					✓
Trichostema lanceolatum					✓
Total number of co-dominant species in each pool			3	3	3
Average number of co-dominant species *round to nearest integer* Enter here and use in Table 22	3				
Total number of co-dominant species (A)	7				
Total number of co-dominant species that are non-native (B)	2				
Percent non-native (B/A) x 100 *Round to nearest integer* Enter here and use in Table 23	29				
Total number of co-dominant species that are endemic Enter here and use in Table 24		3			

Pool Replicate 1

Worksheet 6a: Sketches of Vernal Pool Profiles for Topographic Complexity

Along the long axis of the pool and perpendicular to the long axis across the middle, make a sketch of the profile of each of the three pools from its outside edge (1-3m landward or away from the saturated zone of the pool) to its deepest areas then back out to the outside margin. Try to capture the major breaks in slope and the intervening micro-topographic relief. Based on the sketches, choose a single profile from Figure 9 that best represents the pool overall.

Long Axis



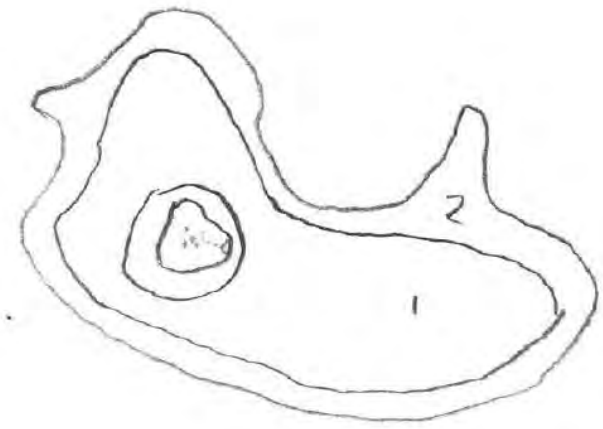
Perpendicular to Long Axis



B

Worksheet 7a: Sketch of Vernal Pool Horizontal Interspersion and Zonation

Pool 1



B

Assigned Zones:

1) PLASTIM

2) ERYCAS

3)

4)

5)

Pool Replicate 2

Worksheet 6a: Sketches of Vernal Pool Profiles for Topographic Complexity

Along the long axis of the pool and perpendicular to the long axis across the middle, make a sketch of the profile of each of the three pools from its outside edge (1-3m landward or away from the saturated zone of the pool) to its deepest areas then back out to the outside margin. Try to capture the major breaks in slope and the intervening micro-topographic relief. Based on the sketches, choose a single profile from Figure 9 that best represents the pool overall.

Long Axis



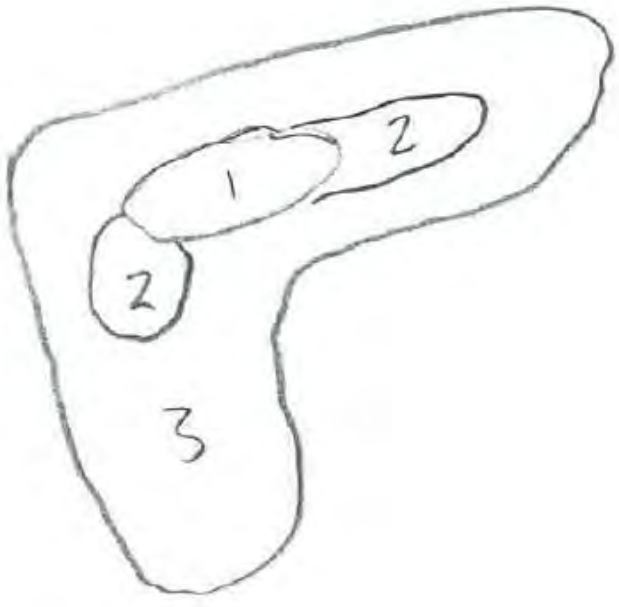
Perpendicular to Long Axis



A

Worksheet 7a: Sketch of Vernal Pool Horizontal Interspersion and Zonation

Pool 2



A

Assigned Zones:

1) LYTHYS

2) PLASTIM

3) ERYCAS

4)

5)

Pool Replicate 3

Worksheet 6a: Sketches of Vernal Pool Profiles for Topographic Complexity

Along the long axis of the pool and perpendicular to the long axis across the middle, make a sketch of the profile of each of the three pools from its outside edge (1-3m landward or away from the saturated zone of the pool) to its deepest areas then back out to the outside margin. Try to capture the major breaks in slope and the intervening micro-topographic relief. Based on the sketches, choose a single profile from Figure 9 that best represents the pool overall.

Long Axis



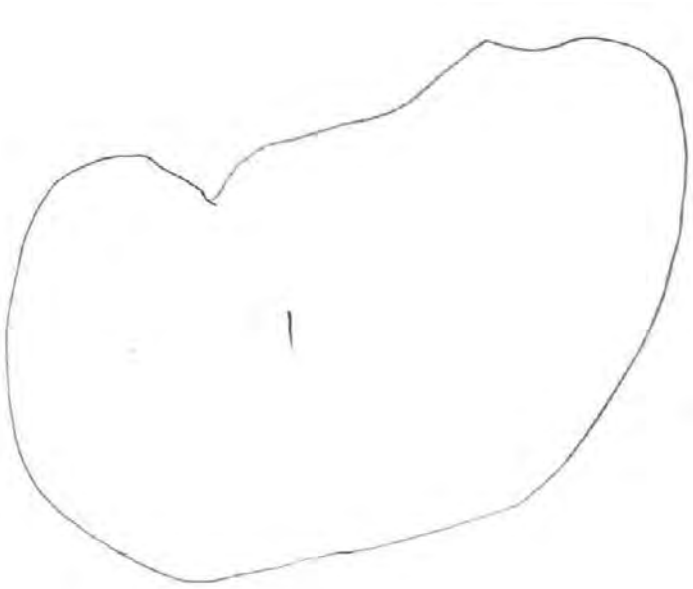
Perpendicular to Long Axis



B

Worksheet 7a: Sketch of Vernal Pool Horizontal Interspersion and Zonation

Pool 3



D

Assigned Zones:

1) ERYCAS

2)

3)

4)

5)

Table 25: Wetland disturbances and conversions

Has a major disturbance occurred at this wetland?	Yes	(No)		
If yes, was it a flood, fire, landslide, or other?	flood	fire	landslide	other
If yes, then how severe is the disturbance?	likely to affect site next 5 or more years	likely to affect site next 3-5 years	likely to affect site next 1-2 years	
Has this wetland been converted from another type? If yes, then what was the previous type?	depressional	vernal pool	vernal pool system	
	non-confined riverine	confined riverine	bar-built estuarine	
	perennial saline estuarine	perennial non-saline estuarine	wet meadow	
	lacustrine	seep or spring	playa	

Worksheet 9: Stressor Checklist.

HYDROLOGY ATTRIBUTE (WITHIN 50 M OF AA)	Present	Present and likely to have significant negative effect on AA
Point Source (PS) discharges (POTW, other non-stormwater discharge)		
Non-point Source (Non-PS) discharges (urban runoff, farm drainage)		
Flow diversions or unnatural inflows		
Dams (reservoirs, detention basins, recharge basins)		
Flow obstructions (culverts, paved stream crossings)		
Weir/drop structure, tide gates		
Dredged inlet/channel		
Engineered channel (riprap, armored channel bank, bed)		
Dike/levees		
Groundwater extraction		
Ditches (borrow, agricultural drainage, mosquito control, etc.)		
Actively managed hydrology		
Comments		

PHYSICAL STRUCTURE ATTRIBUTE (WITHIN 50 M OF AA)	Present	Present and likely to have significant negative effect on AA
Filling or dumping of sediment or soils **(N/A for restoration areas)**		
Grading/ compaction **(N/A for restoration areas)**		
Plowing/Discing **(N/A for restoration areas)**		
Resource extraction (sediment, gravel, oil and/or gas)		
Vegetation management		
Excessive sediment or organic debris from watershed		
Excessive runoff from watershed		
Nutrient impaired (PS or Non-PS pollution)		
Heavy metal impaired (PS or Non-PS pollution)		
Pesticides or trace organics impaired (PS or Non-PS pollution)		
Bacteria and pathogens impaired (PS or Non-PS pollution)		
Trash or refuse		
Comments		

BIOTIC STRUCTURE ATTRIBUTE (WITHIN 50 M OF AA)	Present	Present and Likely to Have Significant negative effect on AA
Mowing, grazing, excessive herbivory (within AA)	✓	
Excessive human visitation		
Predation and habitat destruction by non-native vertebrates (e.g., *Virginia opossum* and domestic predators, such as feral pets)		
Tree cutting/sapling removal		
Removal of woody debris		
Treatment of non-native and nuisance plant species		
Pesticide application or vector control		
Biological resource extraction or stocking (fisheries, aquaculture)		
Excessive organic debris in matrix (for vernal pools)		
Lack of vegetation management to conserve natural resources		
Lack of treatment of invasive plants adjacent to AA or buffer		
Comments		

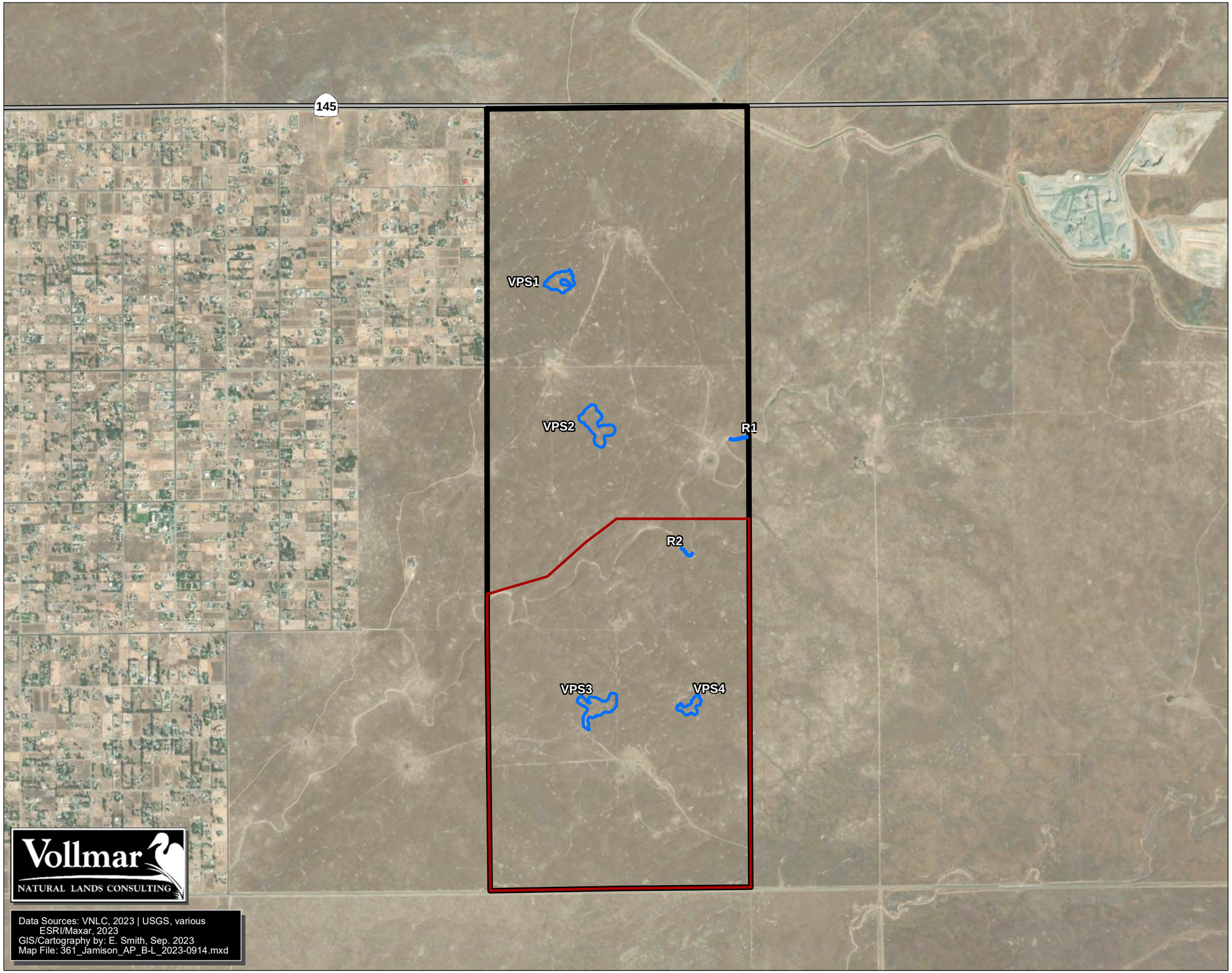
BUFFER AND LANDSCAPE CONTEXT ATTRIBUTE (WITHIN 500 M OF AA)	Present	Present and likely to have significant negative effect on AA
Urban residential	✓	
Industrial/commercial		
Military training/Air traffic		
Dams (or other major flow regulation or disruption)		
Dryland farming		
Intensive row-crop agriculture		
Orchards/nurseries		
Commercial feedlots		
Dairies		
Ranching (enclosed livestock grazing or horse paddock or feedlot)		
Transportation corridor	✓	
Rangeland (livestock rangeland also managed for native vegetation)	✓	
Sports fields and urban parklands (golf courses, soccer fields, etc.)		
Passive recreation (bird-watching, hiking, etc.)		
Active recreation (off-road vehicles, mountain biking, hunting, fishing)		
Physical resource extraction (rock, sediment, oil/gas)		
Biological resource extraction (aquaculture, commercial fisheries)		
Comments		
Residential is low density Madera Ranchos		

Basic Information: Vernal Pool Systems

Assessment Area Name: VPS 3	
Project Name: Jamison Ranch/Madera Terrace Preserve	
Assessment Area ID #: VPS 3	
Project ID #: 361-3	**Date:** 9/29/23
Assessment Team Members for This AA	
M. Yonashiro, E. Smith	
AA Location: **Latitude:** 36.976980 **Longitude: -**119.849850 **Datum:** NAD 1983	
Wetland Category: ☒ Natural ☐ Constructed ☐ Restoration (Rehabilitation OR Enhancement)	
If Created or Restored, does the action encompass: ☒ entire wetland ☐ portion of the wetland ☒N/A	
What best describes the hydrologic state of the wetland at the time of assessment? ☐ ponded/inundated ☐ saturated soil, but no surface water ☒ dry	
Does the vernal pool system connect with the floodplain of a nearby stream? ☐ yes ☒ no	
Comments: The AA falls within the southwest pasture of the approximately 1920-acre Jamison Ranch, within the area proposed as a mitigation preserve for the Vista Ranch project.	

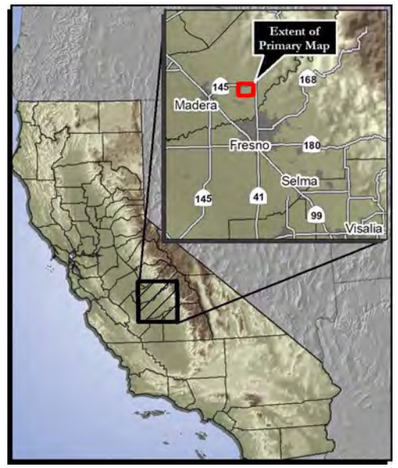
CRAM AA
Locations Map

Jamison Ranch
Madera County, California



Legend

- AA Boundary
- Proposed Preserve (857 ac.)
- Jamison Ranch (1,920 ac.)



Vollmar NATURAL LANDS CONSULTING

Data Sources: VNLC, 2023 | USGS, various ESRI/Maxar, 2023
GIS/Cartography by: E. Smith, Sep. 2023
Map File: 361_Jamison_AP_B-L_2023-0914.mxd

N
W E
S

1:24,000
(1 in. = 2,000 feet. at Tabloid Layout)

0 200 400 800 Meters
0 1,000 2,000 4,000 Feet

Photos and Descriptions:



AA VPS 3, from center / September 29, 2023 (N, 36.976946, -119.84991)



AA VPS 3, from center / September 29, 2023 (E, 36.976946, -119.84991)



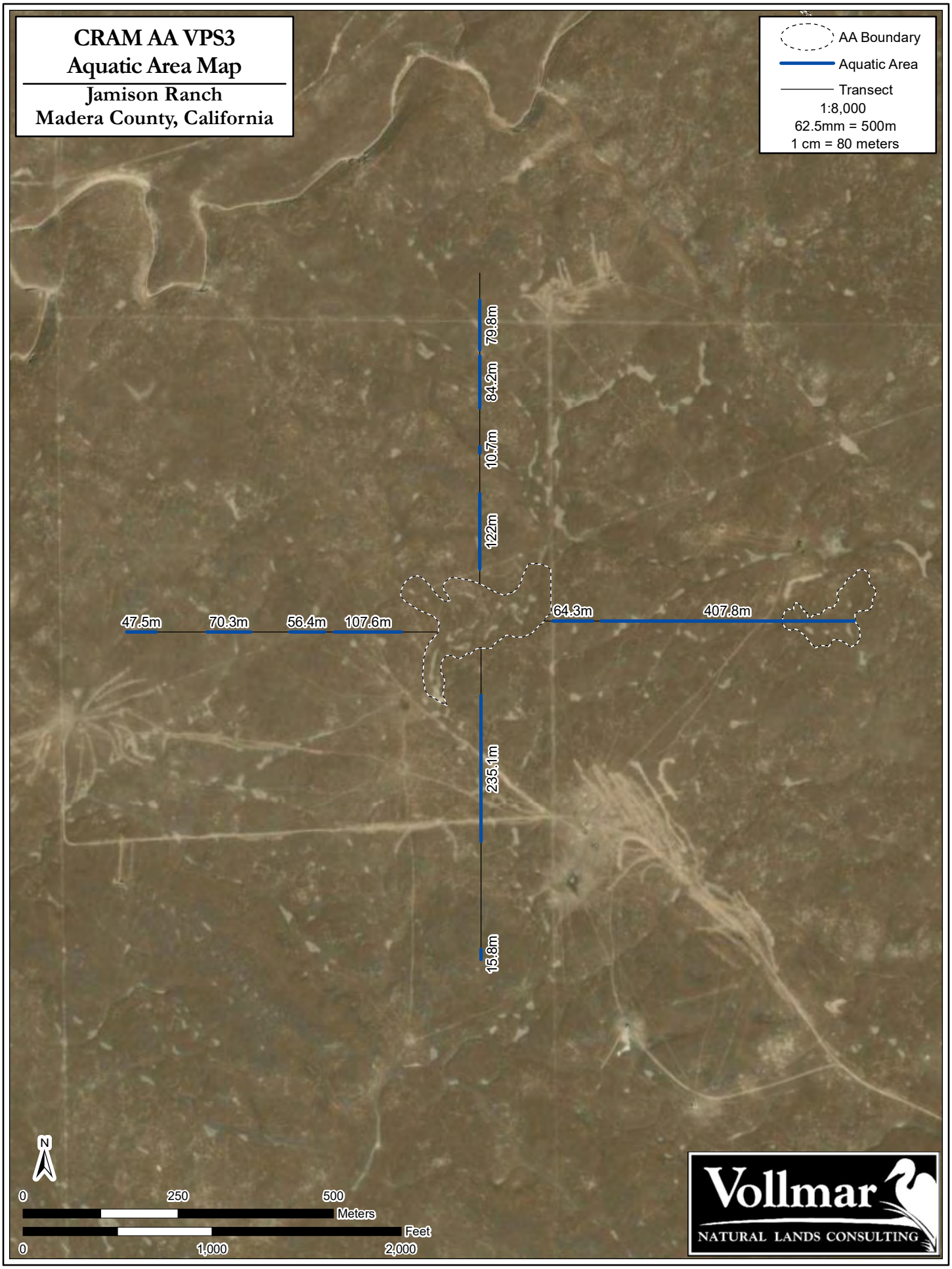
AA VPS 3, from center / September 29, 2023 (S, 36.976946, -119.84991)



AA VPS 3, from center / September 29, 2023 (W, 36.976946, -119.84991)

Scoring Sheet: Vernal Pool Systems

AA Name: VPS 3					**Date:** 9/29/ 23
Attributes and Metrics			Alpha.	Numeric	**Comments/Scores**
Attribute 1: Buffer and Landscape Context (pp. 8-15)					
(A) Aquatic Area Abundance			A	12	
(B): *Percent of AA with Buffer*	Alpha.	Numeric			
	A	12			
(C): *Average Buffer Width*	A	12			
(D): *Buffer Condition*	B	9			
Initial Attribute Score = A + [D x (B x C)^{½}] ^{½}				21	**Final Attribute Score = (Initial Score/24) x 100** 87.5
Attribute 2: Hydrology (pp. 16-18)					
Water Source			A	12	
Hydroperiod			A	12	
Hydrologic Connectivity			A	12	
Initial Attribute Score= sum of metric scores			36		**Final Attribute Score = (Initial Score/36) x 100** 100
Attribute 3: Physical Structure (pp. 19-28)					
Structural Patch Richness			A	12	
Pool and Swale Density			B	9	
Topographic Complexity			A	12	
Initial Attribute Score= sum of metric scores			33		**Final Attribute Score = (Initial Score/36) x 100** 91.67
Attribute 4: Biotic Structure (pp. 29-34)					
Horizontal Interspersion and Zonation			A	12	
Plant Community submetric A: Number of Co-dominant species	Alpha.	Numeric			
	B	9			
Plant Community submetric B: Percent Non Native	A	12			
Plant Community submetric C: Endemic Species Richness	C	6			
Plant Community Composition Metric *(numeric average of submetrics A-C)*				9	
Initial Attribute Score= sum of metric scores			21		**Final Attribute Score = (Initial Score/24) x 100** 87.5
Overall AA Score (Average of four Final Attribute Scores)					**92**



361_CRAM_Vista_A-P_2023-0927.xd

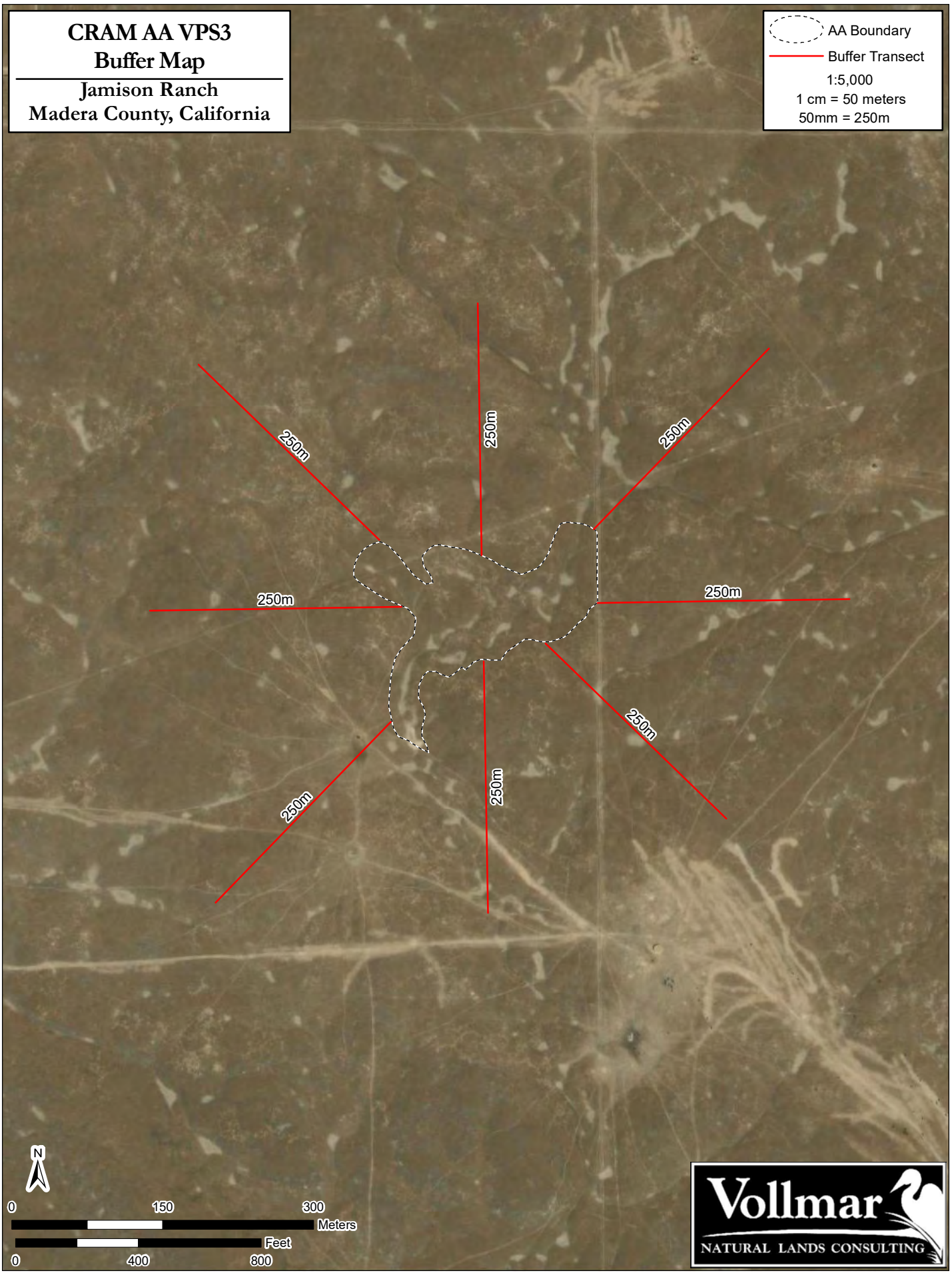
Worksheet 1: Aquatic Area Abundance for Vernal Pool Systems

Percentage of Each Transect Line Crossing Wetland or Other Aquatic Habitat	
Transect	Percent Crossing Aquatic Area
North	59.34
South	50.18
East	94.42
West	56.36
Average value for all Four Transects *Round to the nearest integer*	65

Worksheet 3: Calculating average buffer width of AA
Record the length of each buffer measurement.

Transect	Buffer Width (m)
A	250
B	250
C	250
D	250
E	250
F	250
G	250
H	250
Average Buffer Width *Round to nearest integer*	250

Percent of AA with Buffer: 100 **%**



361_CRAM_Vista_A-P_2023-0927.xd

Worksheet 4: Structural Patch Types for Vernal Pool Systems

Identify each type of patch that is observed in the AA and use the total number of observed patch types in Table 15. Each patch should occupy at least 3 m^2 of area in aggregate within the AA, with some exceptions (see definitions below).

Structural Patch Type	Check for Presence
Adjacent shrub or tree cover	
Animal mounds and burrows	✓
Bare soil	✓
Cobble and boulders	
Complexly-shaped pools	✓
Drainage branches (more than 1 drainage branch)	✓
Islands	✓
Large individual pools	✓
Large swales	
Mima mounds	✓
Patches of dense vegetation	
Pool Cluster	✓
Simply-shaped pools	✓
Small individual pools	✓
Small swales	✓
Soil cracks	✓
Within Pool Mounds	
Total Possible	**17**
No. Observed Patch Types (enter here and use in Table 15)	**12**



361_CRAM_Vista_A-P_2023-1004.xd

Worksheet 5: Pool and Swale Density for Vernal Pool Systems

Pool and Swale Density Worksheet		
Transect	Transect Length (m)	Length Crossing Pool or Swale (m)
Long Axis	246.5	88.9
Short Axis	123.7	18.9
Sum of Length (m)	370.2	107.8
Percent Pool and Swale (Sum of Pools & Swales/Sum of Transect Lengths)*100 *Round to nearest integer*		B

Worksheet 6: Rating of Topographic Complexity for Vernal Pool Systems

Replicate Number	**Replicate Score (A = 12; B = 9; C = 6; D = 3)**	
	Alpha.	*Numeric*
Replicate 1	A	12
Replicate 2	A	12
Replicate 3	A	12
Overall Average Score for All Pool Replicates *Round to nearest integer* (enter here and use in Table 19)		A

Worksheet 7: Rating of Horizontal Interspersion for Vernal Pool Systems

Replicate Number	**Replicate Score (A = 12; B = 9; C = 6; D = 3)**	
	Alpha.	*Numeric*
Replicate 1	A	12
Replicate 2	A	12
Replicate 3	A	12
Overall Average Score for All Pool Replicates *Round to nearest integer* (enter here and use in Table 21)		A

Worksheet 8: Plant Community Metric –
List of Unique Co-dominant Plant Species from all Vernal Pools Combined

Plant Name	Check if non-native	Check if in Appendix I	Pool 1	Pool 2	Pool 3
Eryngium castrense		✓	✓	✓	✓
Plagiobothrys stipitatus		✓		✓	✓
Juncus bufonius				✓	✓
Hordeum marinum ssp. *gussoneanum*	✓				✓
Croton setiger			✓		
Eleocharis acicularis			✓		
Psilocarphus brevissimus		✓		✓	
Lasthenia fremontii		✓		✓	
Total number of co-dominant species in each pool			3	5	4
Average number of co-dominant species *round to nearest integer* Enter here and use in Table 22	4				
Total number of co-dominant species (A)	8				
Total number of co-dominant species that are non-native (B)	1				
Percent non-native (B/A) x 100 *Round to nearest integer* Enter here and use in Table 23	12.5				
Total number of co-dominant species that are endemic Enter here and use in Table 24		4			

Pool Replicate 1

Worksheet 6a: Sketches of Vernal Pool Profiles for Topographic Complexity

Along the long axis of the pool and perpendicular to the long axis across the middle, make a sketch of the profile of each of the three pools from its outside edge (1-3m landward or away from the saturated zone of the pool) to its deepest areas then back out to the outside margin. Try to capture the major breaks in slope and the intervening micro-topographic relief. Based on the sketches, choose a single profile from Figure 9 that best represents the pool overall.

Long Axis

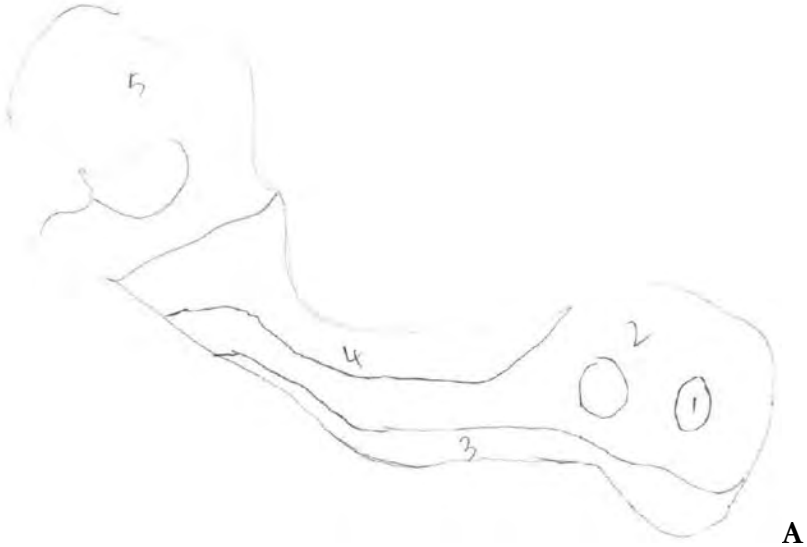


Perpendicular to Long Axis



Worksheet 7a: Sketch of Vernal Pool Horizontal Interspersion and Zonation

Pool 1



A

Assigned Zones:

1) deepest- no plants from dam

2) mostly CROSET

3) JUNBUF-CROSET

4) ERYCAS-CROSET

5) ERYCAS-ELEACI

Pool Replicate 2

Worksheet 6a: Sketches of Vernal Pool Profiles for Topographic Complexity

Along the long axis of the pool and perpendicular to the long axis across the middle, make a sketch of the profile of each of the three pools from its outside edge (1-3m landward or away from the saturated zone of the pool) to its deepest areas then back out to the outside margin. Try to capture the major breaks in slope and the intervening micro-topographic relief. Based on the sketches, choose a single profile from Figure 9 that best represents the pool overall.

Long Axis

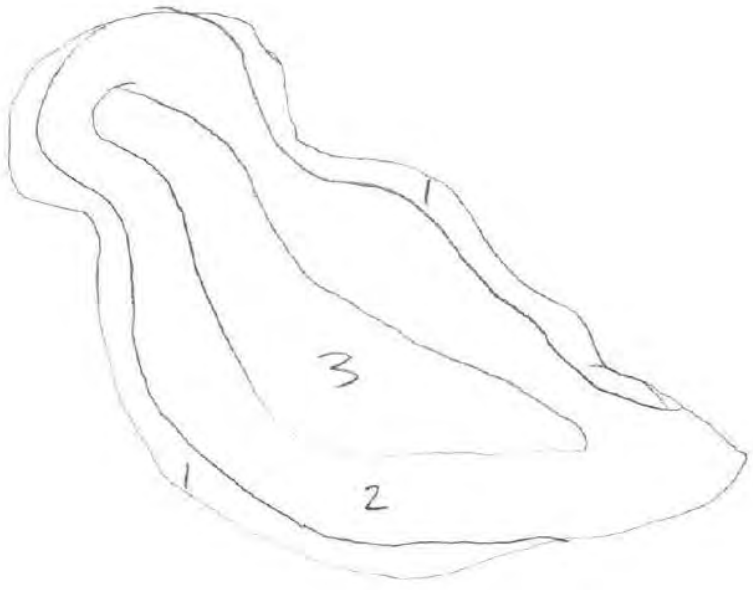


Perpendicular to Long Axis



Worksheet 7a: Sketch of Vernal Pool Horizontal Interspersion and Zonation

Pool 2



A

Assigned Zones:

1) JUNBUF-HORMARG

2) ERYCAS

3) PLASTIM-ERYCAS

4)

5)

Pool Replicate 3

Worksheet 6a: Sketches of Vernal Pool Profiles for Topographic Complexity

Along the long axis of the pool and perpendicular to the long axis across the middle, make a sketch of the profile of each of the three pools from its outside edge (1-3m landward or away from the saturated zone of the pool) to its deepest areas then back out to the outside margin. Try to capture the major breaks in slope and the intervening micro-topographic relief. Based on the sketches, choose a single profile from Figure 9 that best represents the pool overall.

Long Axis



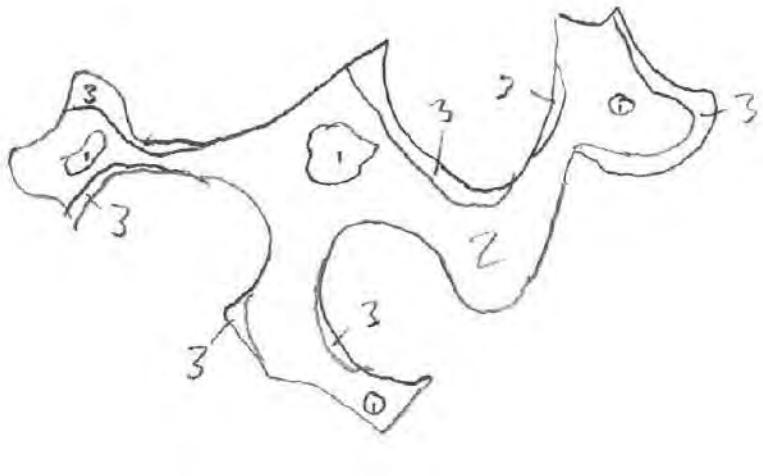
A

Perpendicular to Long Axis



Worksheet 7a: Sketch of Vernal Pool Horizontal Interspersion and Zonation

Pool 3



A

Assigned Zones:

1) PLASTIM

2) ERACYS

3) JUNBUF-HORMARG

4)

5)

Table 25: Wetland disturbances and conversions

Has a major disturbance occurred at this wetland?	Yes	(No)		
If yes, was it a flood, fire, landslide, or other?	flood	fire	landslide	other
If yes, then how severe is the disturbance?	likely to affect site next 5 or more years	likely to affect site next 3-5 years	likely to affect site next 1-2 years	
Has this wetland been converted from another type? If yes, then what was the previous type?	depressional	vernal pool	vernal pool system	
	non-confined riverine	confined riverine	bar-built estuarine	
	perennial saline estuarine	perennial non-saline estuarine	wet meadow	
	lacustrine	seep or spring	playa	

Worksheet 9: Stressor Checklist.

HYDROLOGY ATTRIBUTE (WITHIN 50 M OF AA)	Present	Present and likely to have significant negative effect on AA
Point Source (PS) discharges (POTW, other non-stormwater discharge)		
Non-point Source (Non-PS) discharges (urban runoff, farm drainage)		
Flow diversions or unnatural inflows		
Dams (reservoirs, detention basins, recharge basins)		
Flow obstructions (culverts, paved stream crossings)		
Weir/drop structure, tide gates		
Dredged inlet/channel		
Engineered channel (riprap, armored channel bank, bed)		
Dike/levees		
Groundwater extraction		
Ditches (borrow, agricultural drainage, mosquito control, etc.)		
Actively managed hydrology		
Comments		

PHYSICAL STRUCTURE ATTRIBUTE (WITHIN 50 M OF AA)	Present	Present and likely to have significant negative effect on AA
Filling or dumping of sediment or soils **(N/A for restoration areas)**		
Grading/ compaction **(N/A for restoration areas)**		
Plowing/Discing **(N/A for restoration areas)**		
Resource extraction (sediment, gravel, oil and/or gas)		
Vegetation management		
Excessive sediment or organic debris from watershed		
Excessive runoff from watershed		
Nutrient impaired (PS or Non-PS pollution)		
Heavy metal impaired (PS or Non-PS pollution)		
Pesticides or trace organics impaired (PS or Non-PS pollution)		
Bacteria and pathogens impaired (PS or Non-PS pollution)		
Trash or refuse		
Comments		
Cattle compaction, low intensity		

BIOTIC STRUCTURE ATTRIBUTE (WITHIN 50 M OF AA)	Present	Present and Likely to Have Significant negative effect on AA
Mowing, grazing, excessive herbivory (within AA)	✓	
Excessive human visitation		
Predation and habitat destruction by non-native vertebrates (e.g., *Virginia opossum* and domestic predators, such as feral pets)		
Tree cutting/sapling removal		
Removal of woody debris		
Treatment of non-native and nuisance plant species	✓	
Pesticide application or vector control		
Biological resource extraction or stocking (fisheries, aquaculture)		
Excessive organic debris in matrix (for vernal pools)		
Lack of vegetation management to conserve natural resources		
Lack of treatment of invasive plants adjacent to AA or buffer		
Comments		
Cattle grazing, presumed weed spot treatment		

BUFFER AND LANDSCAPE CONTEXT ATTRIBUTE (WITHIN 500 M OF AA)	Present	Present and likely to have significant negative effect on AA
Urban residential		
Industrial/commercial		
Military training/Air traffic		
Dams (or other major flow regulation or disruption)		
Dryland farming		
Intensive row-crop agriculture		
Orchards/nurseries		
Commercial feedlots		
Dairies		
Ranching (enclosed livestock grazing or horse paddock or feedlot)		
Transportation corridor		
Rangeland (livestock rangeland also managed for native vegetation)	✓	
Sports fields and urban parklands (golf courses, soccer fields, etc.)		
Passive recreation (bird-watching, hiking, etc.)		
Active recreation (off-road vehicles, mountain biking, hunting, fishing)		
Physical resource extraction (rock, sediment, oil/gas)		
Biological resource extraction (aquaculture, commercial fisheries)		
Comments		

Basic Information: Vernal Pool Systems

Assessment Area Name: VPS 4	
Project Name: Jamison Ranch/Madera Terrace Preserve	
Assessment Area ID #: VPS 4	
Project ID #: 361	**Date:** 9/29/23
Assessment Team Members for This AA	
M. Yonashiro, E. Smith	
AA Location: **Latitude:** 36.976734 **Longitude: -**119.842937 **Datum:** NAD83	
Wetland Category: ☒ Natural ☐ Constructed ☐ Restoration (Rehabilitation OR Enhancement)	
If Created or Restored, does the action encompass: ☐ entire wetland ☐ portion of the wetland ☒N/A	
What best describes the hydrologic state of the wetland at the time of assessment? ☐ ponded/inundated ☐ saturated soil, but no surface water ☒ dry	
Does the vernal pool system connect with the floodplain of a nearby stream? ☐ yes ☒ no	
Comments: The AA falls within the southeast pasture of the approximately 1920-acre Jamison Ranch, within the area proposed as a mitigation preserve for the Vista Ranch project.	

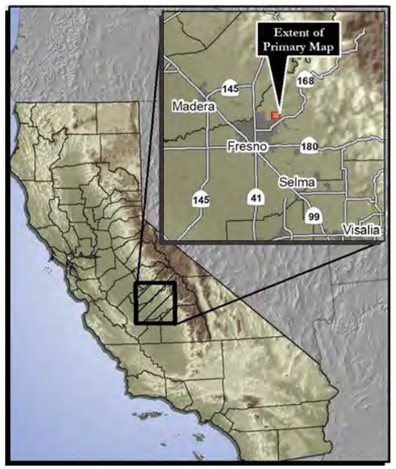
CRAM AA
Locations Map

Vista Ranch Development
Fresno County, California

D1
D2
R1
R2

Legend

Project Site (368 ac.)



Vollmar
NATURAL LANDS CONSULTING

Data Sources: VNLC, 2023 | USDA-WSS, 2023
ESRI/Maxar, 2023 | USGS, various | GAP, 2023
GIS/Cartography by: E. Smith, Sep. 2023
Map File: 361_Vista_AP_B-L_2023-0914.mxd

N
W E
S

1:7,200
(1 in. = 600 feet. at Tabloid Layout)

0 50 100 200 Meters
0 300 600 1,200 Feet

Photos and Descriptions:



AA VPS 4, from center / September 29, 2023 (N, 36.977014, -119.843063)



AA VPS 4, from center / September 29, 2023 (E, 36.977014, -119.843063)



AA VPS 4, from center / September 29, 2023 (S, 36.977014, -119.843063)



AA VPS 4, from center / September 29, 2023 (W, 36.977014, -119.843063)

Scoring Sheet: Vernal Pool Systems

AA Name: VPS 4					**Date:** 9/29/ 23	
Attributes and Metrics			Alpha.	Numeric	**Comments/Scores**	
Attribute 1: Buffer and Landscape Context (pp. 8-15)						
(A) Aquatic Area Abundance			A	12		
(B): *Percent of AA with Buffer*	Alpha.	Numeric				
	A	12				
(C): *Average Buffer Width*	A	12				
(D): *Buffer Condition*	B	9				
Initial Attribute Score = A + [D x (B x C)^{½}] ^{½}				21	**Final Attribute Score = (Initial Score/24) x 100**	87.5
Attribute 2: Hydrology (pp. 16-18)						
Water Source			A	12		
Hydroperiod			A	12		
Hydrologic Connectivity			A	12		
Initial Attribute Score= sum of metric scores			36		**Final Attribute Score = (Initial Score/36) x 100**	100
Attribute 3: Physical Structure (pp. 19-28)						
Structural Patch Richness			B	9		
Pool and Swale Density			C	6		
Topographic Complexity			A	12		
Initial Attribute Score= sum of metric scores			27		**Final Attribute Score = (Initial Score/36) x 100**	75
Attribute 4: Biotic Structure (pp. 29-34)						
Horizontal Interspersion and Zonation			B	9		
Plant Community submetric A: Number of Co-dominant species	Alpha.	Numeric				
	B	9				
Plant Community submetric B: Percent Non Native	B	9				
Plant Community submetric C: Endemic Species Richness	C	6				
Plant Community Composition Metric *(numeric average of submetrics A-C)*				8		
Initial Attribute Score= sum of metric scores			17		**Final Attribute Score = (Initial Score/24) x 100**	70.83
Overall AA Score (Average of four Final Attribute Scores)					**83**	



361_CRAM_Vista_A-P_2023-0927.xd

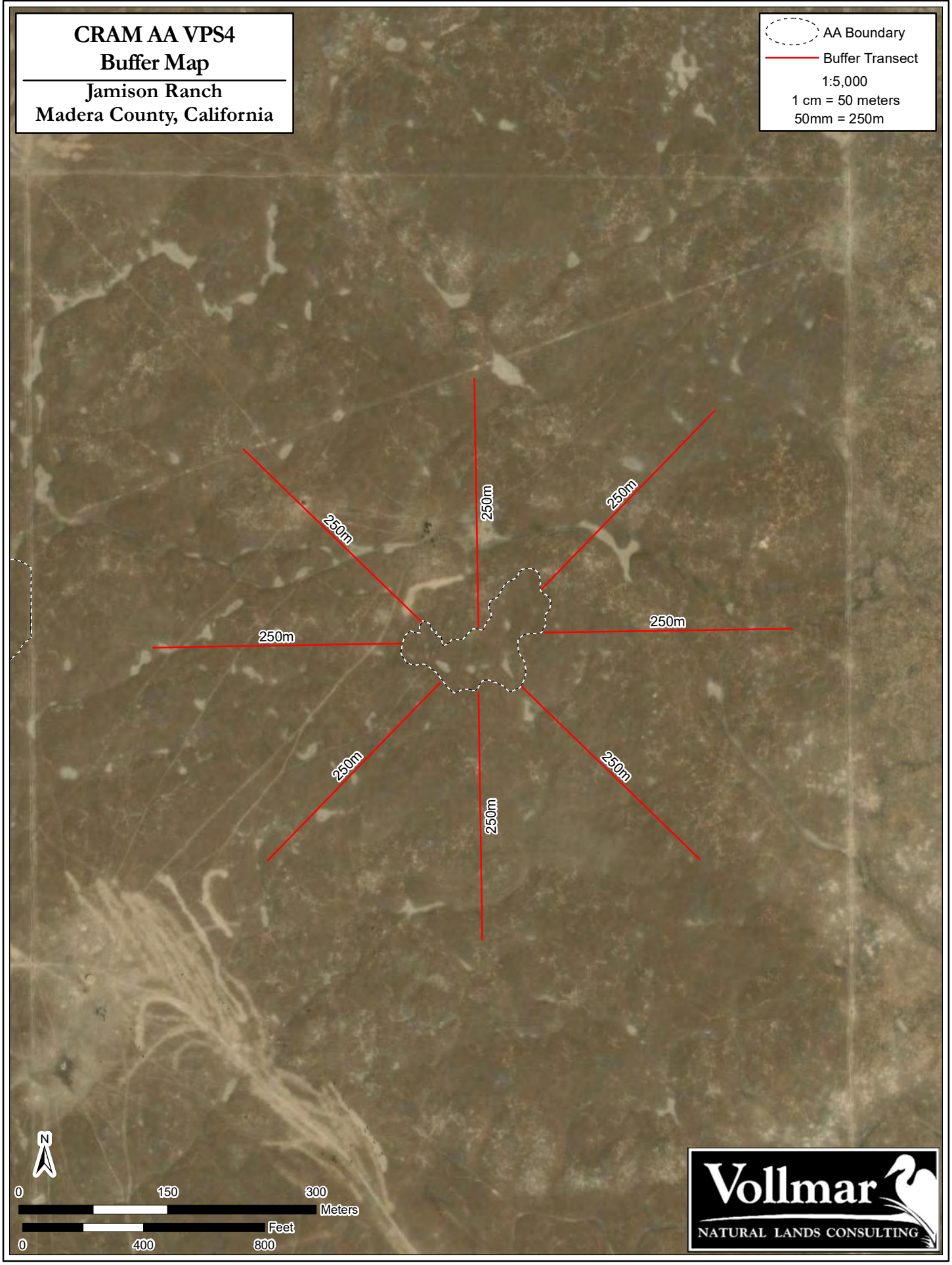
Worksheet 1: Aquatic Area Abundance for Vernal Pool Systems

Percentage of Each Transect Line Crossing Wetland or Other Aquatic Habitat	
Transect	Percent Crossing Aquatic Area
North	79.04
South	79.54
East	64.98
West	91.22
Average value for all Four Transects *Round to the nearest integer*	79

Worksheet 3: Calculating average buffer width of AA
Record the length of each buffer measurement.

Transect	**Buffer Width (m)**
A	250
B	250
C	250
D	250
E	250
F	250
G	250
H	250
Average Buffer Width *Round to nearest integer*	250

Percent of AA with Buffer: ____100____%



361_CRAM_Vista_A-P_2023-0927.xd

Worksheet 4: Structural Patch Types for Vernal Pool Systems

Identify each type of patch that is observed in the AA and use the total number of observed patch types in Table 15. Each patch should occupy at least 3 m^2 of area in aggregate within the AA, with some exceptions (see definitions below).

Structural Patch Type	Check for Presence
Adjacent shrub or tree cover	
Animal mounds and burrows	✓
Bare soil	
Cobble and boulders	
Complexly-shaped pools	✓
Drainage branches (more than 1 drainage branch)	✓
Islands	
Large individual pools	✓
Large swales	
Mima mounds	✓
Patches of dense vegetation	
Pool Cluster	✓
Simply-shaped pools	✓
Small individual pools	✓
Small swales	✓
Soil cracks	✓
Within Pool Mounds	
Total Possible	**17**
No. Observed Patch Types (enter here and use in Table 15)	**10**



361_CRAM_Vista_A-P_2023-1004.xd

Worksheet 5: Pool and Swale Density for Vernal Pool Systems

Pool and Swale Density Worksheet		
Transect	Transect Length (m)	Length Crossing Pool or Swale (m)
Long Axis	154.6	31
Short Axis	56.9	8.9
Sum of Length (m)	211.5	39.9
Percent Pool and Swale (Sum of Pools & Swales/Sum of Transect Lengths)*100 *Round to nearest integer*		18.87

Worksheet 6: Rating of Topographic Complexity for Vernal Pool Systems

Replicate Number	**Replicate Score (A = 12; B = 9; C = 6; D = 3)**	
	Alpha.	*Numeric*
Replicate 1	B	9
Replicate 2	A	12
Replicate 3	B	9
Overall Average Score for All Pool Replicates *Round to nearest integer* (enter here and use in Table 19)		10

Worksheet 7: Rating of Horizontal Interspersion for Vernal Pool Systems

Replicate Number	**Replicate Score (A = 12; B = 9; C = 6; D = 3)**	
	Alpha.	*Numeric*
Replicate 1	B	9
Replicate 2	C	6
Replicate 3	A	12
Overall Average Score for All Pool Replicates *Round to nearest integer* (enter here and use in Table 21)		9

Worksheet 8: Plant Community Metric –
List of Unique Co-dominant Plant Species from all Vernal Pools Combined

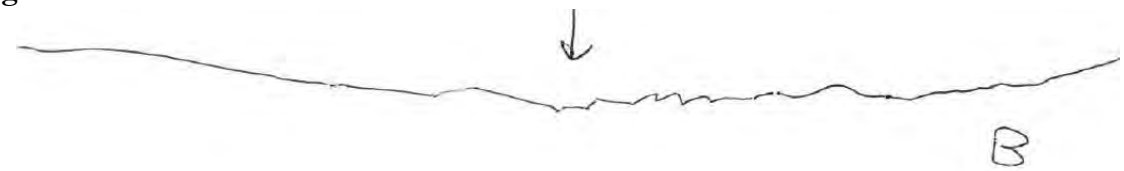
Plant Name	Check if non-native	Check if in Appendix I	Pool 1	Pool 2	Pool 3
Eryngium castrense		✓	✓	✓	✓
Hordeum marinum ssp. *gussoneanum*	✓				✓
Plagiobothrys acanthocarpus		✓			✓
Psilocarphus brevissimus		✓		✓	✓
Juncus bufonius			✓		✓
Plagiobothrys stipitatus		✓	✓	✓	
Total number of co-dominant species in each pool			3	3	5
Average number of co-dominant species *round to nearest integer* Enter here and use in Table 22	4				
Total number of co-dominant species (A)	6				
Total number of co-dominant species that are non-native (B)	1				
Percent non-native (B/A) x 100 *Round to nearest integer* Enter here and use in Table 23	17				
Total number of co-dominant species that are endemic Enter here and use in Table 24		4			

Pool Replicate 1

Worksheet 6a: Sketches of Vernal Pool Profiles for Topographic Complexity

Along the long axis of the pool and perpendicular to the long axis across the middle, make a sketch of the profile of each of the three pools from its outside edge (1-3m landward or away from the saturated zone of the pool) to its deepest areas then back out to the outside margin. Try to capture the major breaks in slope and the intervening micro-topographic relief. Based on the sketches, choose a single profile from Figure 9 that best represents the pool overall.

Long Axis



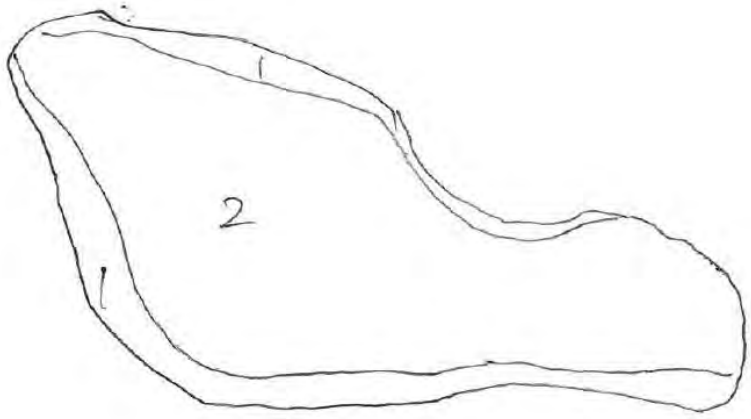
Perpendicular to Long Axis



B

Worksheet 7a: Sketch of Vernal Pool Horizontal Interspersion and Zonation

Pool 1



B

Assigned Zones:

1) JUNBUF-HORMARG

2) ERYCAS-PLASTIMIR

3)

4)

5)

Pool Replicate 2

Worksheet 6a: Sketches of Vernal Pool Profiles for Topographic Complexity

Along the long axis of the pool and perpendicular to the long axis across the middle, make a sketch of the profile of each of the three pools from its outside edge (1-3m landward or away from the saturated zone of the pool) to its deepest areas then back out to the outside margin. Try to capture the major breaks in slope and the intervening micro-topographic relief. Based on the sketches, choose a single profile from Figure 9 that best represents the pool overall.

Long Axis

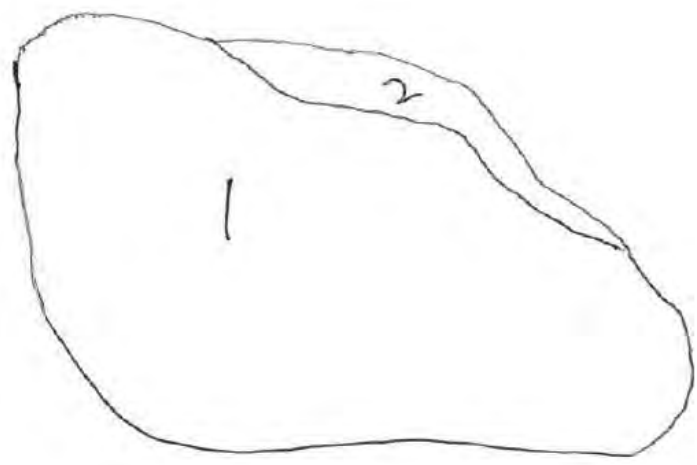


Perpendicular to Long Axis



Worksheet 7a: Sketch of Vernal Pool Horizontal Interspersion and Zonation

Pool 2



C

Assigned Zones:

1) ERYCAS-BRIBEB-PASLTIM

2) JUNBUF

3)

4)

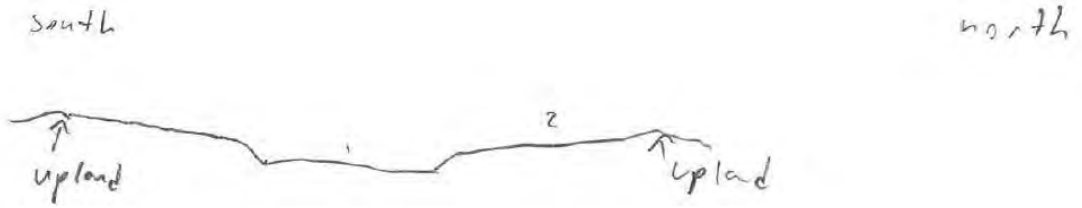
5)

Pool Replicate 3

Worksheet 6a: Sketches of Vernal Pool Profiles for Topographic Complexity

Along the long axis of the pool and perpendicular to the long axis across the middle, make a sketch of the profile of each of the three pools from its outside edge (1-3m landward or away from the saturated zone of the pool) to its deepest areas then back out to the outside margin. Try to capture the major breaks in slope and the intervening micro-topographic relief. Based on the sketches, choose a single profile from Figure 9 that best represents the pool overall.

Long Axis



Perpendicular to Long Axis



B

Worksheet 7a: Sketch of Vernal Pool Horizontal Interspersion and Zonation

Pool 3



A

Assigned Zones:

1) HORMARG

2) PLAACA

3) ERYCAS

4)

5)

Table 25: Wetland disturbances and conversions

Has a major disturbance occurred at this wetland?	Yes	(No)		
If yes, was it a flood, fire, landslide, or other?	flood	fire	landslide	other
If yes, then how severe is the disturbance?	likely to affect site next 5 or more years	likely to affect site next 3-5 years	likely to affect site next 1-2 years	
Has this wetland been converted from another type? If yes, then what was the previous type?	depressional	vernal pool	vernal pool system	
	non-confined riverine	confined riverine	bar-built estuarine	
	perennial saline estuarine	perennial non-saline estuarine	wet meadow	
	lacustrine	seep or spring	playa	

Worksheet 9: Stressor Checklist.

HYDROLOGY ATTRIBUTE (WITHIN 50 M OF AA)	Present	Present and likely to have significant negative effect on AA
Point Source (PS) discharges (POTW, other non-stormwater discharge)		
Non-point Source (Non-PS) discharges (urban runoff, farm drainage)		
Flow diversions or unnatural inflows		
Dams (reservoirs, detention basins, recharge basins)		
Flow obstructions (culverts, paved stream crossings)		
Weir/drop structure, tide gates		
Dredged inlet/channel		
Engineered channel (riprap, armored channel bank, bed)		
Dike/levees		
Groundwater extraction		
Ditches (borrow, agricultural drainage, mosquito control, etc.)		
Actively managed hydrology		
Comments		

PHYSICAL STRUCTURE ATTRIBUTE (WITHIN 50 M OF AA)	Present	Present and likely to have significant negative effect on AA
Filling or dumping of sediment or soils **(N/A for restoration areas)**		
Grading/ compaction **(N/A for restoration areas)**	✓	
Plowing/Discing **(N/A for restoration areas)**		
Resource extraction (sediment, gravel, oil and/or gas)		
Vegetation management		
Excessive sediment or organic debris from watershed		
Excessive runoff from watershed		
Nutrient impaired (PS or Non-PS pollution)		
Heavy metal impaired (PS or Non-PS pollution)		
Pesticides or trace organics impaired (PS or Non-PS pollution)		
Bacteria and pathogens impaired (PS or Non-PS pollution)		
Trash or refuse		
Comments		
Cattle compaction, low intensity		

BIOTIC STRUCTURE ATTRIBUTE (WITHIN 50 M OF AA)	Present	Present and Likely to Have Significant negative effect on AA
Mowing, grazing, excessive herbivory (within AA)	✓	
Excessive human visitation		
Predation and habitat destruction by non-native vertebrates (e.g., *Virginia opossum* and domestic predators, such as feral pets)		
Tree cutting/sapling removal		
Removal of woody debris		
Treatment of non-native and nuisance plant species	✓	
Pesticide application or vector control		
Biological resource extraction or stocking (fisheries, aquaculture)		
Excessive organic debris in matrix (for vernal pools)		
Lack of vegetation management to conserve natural resources		
Lack of treatment of invasive plants adjacent to AA or buffer		
Comments		
Cattle grazing, presumed weed spot treatment		

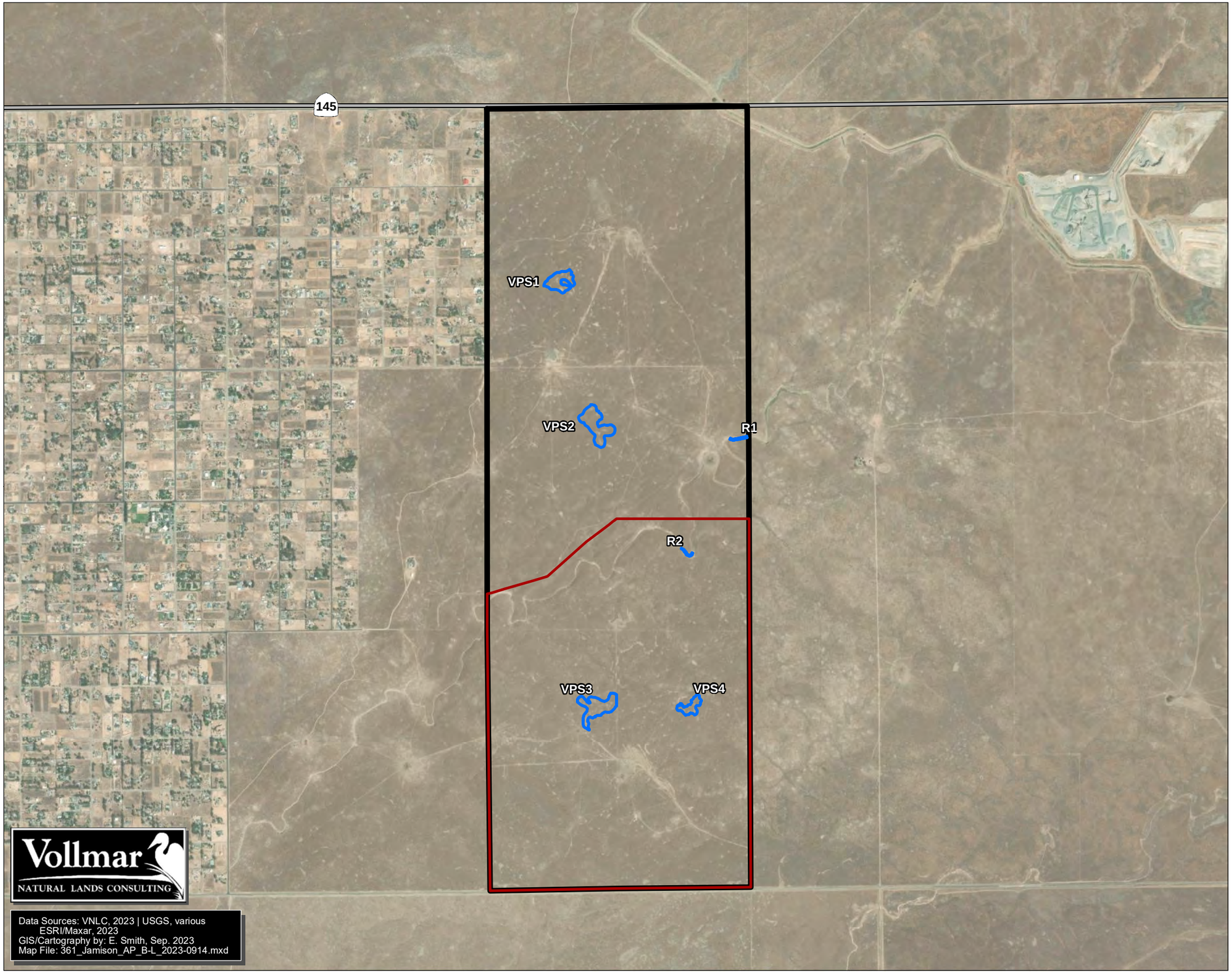
BUFFER AND LANDSCAPE CONTEXT ATTRIBUTE (WITHIN 500 M OF AA)	Present	Present and likely to have significant negative effect on AA
Urban residential		
Industrial/commercial		
Military training/Air traffic		
Dams (or other major flow regulation or disruption)		
Dryland farming		
Intensive row-crop agriculture		
Orchards/nurseries		
Commercial feedlots		
Dairies		
Ranching (enclosed livestock grazing or horse paddock or feedlot)		
Transportation corridor		
Rangeland (livestock rangeland also managed for native vegetation)	✓	
Sports fields and urban parklands (golf courses, soccer fields, etc.)		
Passive recreation (bird-watching, hiking, etc.)		
Active recreation (off-road vehicles, mountain biking, hunting, fishing)		
Physical resource extraction (rock, sediment, oil/gas)		
Biological resource extraction (aquaculture, commercial fisheries)		
Comments		

Basic Information Sheet: Riverine Wetlands

Assessment Area Name: Jamison R1	
Project Name: Jamison Ranch/Madera Terrace Preserve	
Assessment Area ID #: J-R1	
Project ID #: 361	**Date:** 2023-0928
Assessment Team Members for This AA:	
Eric Smith, Amy Merrill	
Average Bankfull Width: 3.87m	
Approximate Length of AA (10 times bankfull width, min 100 m, max 200 m)**:** 100m	
Upstream Point Latitude: 36.991850	**Longitude:** -119.839641
Downstream Point Latitude: 36.991770	**Longitude:** -119.840824
Wetland Sub-type: ☐ Confined ☒ Non-confined	
AA Category: ☐ Restoration ☒ Mitigation ☐ Impacted ☐ Ambient ☐ Reference ☐ Training ☐ Other: (Proposed mitigation preserve site, restoration not proposed)	
Did the river/stream have flowing water at the time of the assessment? ☐ yes ☑ no	
What is the apparent hydrologic flow regime of the reach you are assessing? The hydrologic flow regime of a stream describes the frequency with which the channel conducts water. *Perennial* streams conduct water all year long, whereas *ephemeral* streams conduct water only during and immediately following precipitation events. *Intermittent* streams are dry for part of the year, but conduct water for periods longer than ephemeral streams, as a function of watershed size and water source. ☐ perennial ☒ intermittent ☐ ephemeral	

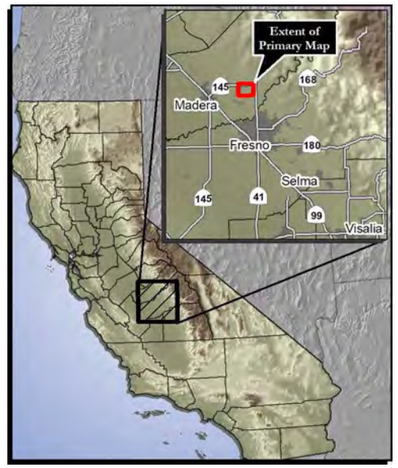
CRAM AA
Locations Map

Jamison Ranch
Madera County, California



Legend

- AA Boundary
- Proposed Preserve (857 ac.)
- Jamison Ranch (1,920 ac.)



Vollmar NATURAL LANDS CONSULTING

Data Sources: VNLC, 2023 | USGS, various ESRI/Maxar, 2023
GIS/Cartography by: E. Smith, Sep. 2023
Map File: 361_Jamison_AP_B-L_2023-0914.mxd

N
W E
S

1:24,000
(1 in. = 2,000 feet. at Tabloid Layout)

0 200 400 800 Meters
0 1,000 2,000 4,000 Feet

Photos and Descriptions:



Looking downstream from top of AA, 36.991892, -119.839783



Looking north up confluence at top of AA, 36.991892, -119.839783



Looking upstream from top of AA, 36.991892, -119.839783



Looking upstream from middle of AA, 36.991875, -119.839695



Looking upstream from middle of AA, 36.991875, -119.839695



Looking downstream from middle of AA, 36.991751, -119.840488



Looking downstream from middle of AA, 36.991751, -119.840488



Looking downstream from middle of AA, 36.991751, -119.840488



Looking south toward AA from north of AA, 36.991762, -119.840782



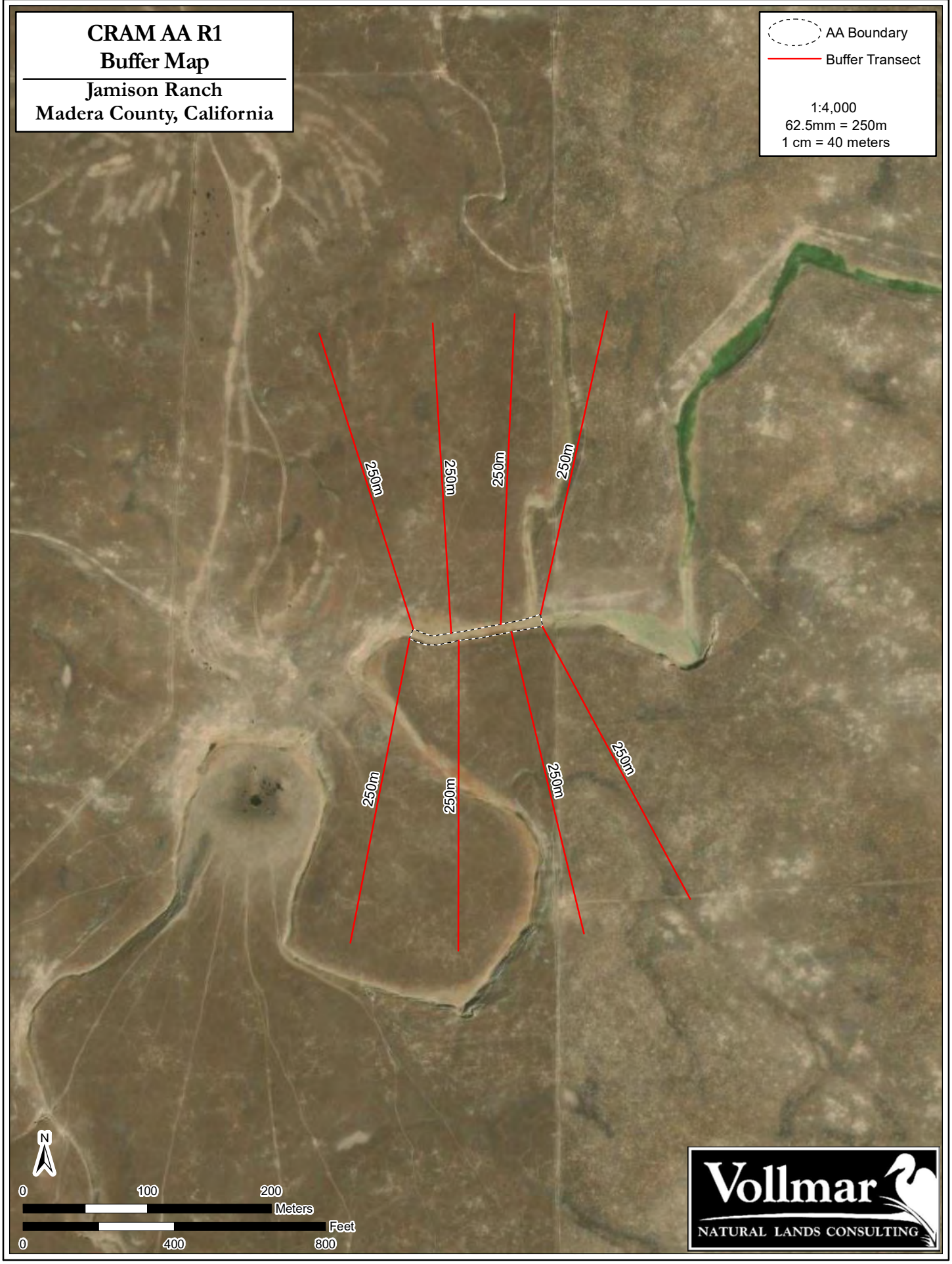
Looking southeast from northwest of AA, 36.991762, -119.840782

Site Location Description:
The AA is located along North Fork Little Dry Creek, near the eastern edge of the Jamison Ranch. The top of the AA is located where an ephemeral tributary joins the creek.

Comments:
The creek is an intermittent stream in a vernal pool grassland. The stream is cut down to a lower terrace than the vernal pools. The site lacks any woody vegetation. This stream supports brief flows in winter, and scattered pools that last into spring. The pools support California tiger salamander (*Ambystoma californiense*) breeding; they typically have submergent vegetation such as white water-crowsfoot (*Ranunculus aquatilis*) during the wet season, but that is lacking at the time of assessment. Conducting the assessment in spring would likely increase scores.

Scoring Sheet: Riverine Wetlands

AA Name: J-R1					**Date:** 2023-0928	
Attribute 1: Buffer and Landscape Context (pp. 11-19)					**Comments**	
Stream Corridor Continuity (D)			Alpha. A	Numeric 12	No obstructions	
Buffer:						
Buffer submetric A: Percent of AA with Buffer	Alpha. A	Numeric 12			No non-buffer land covers nearby	
Buffer submetric B: Average Buffer Width	A	12				
Buffer submetric C: Buffer Condition	B	9			Buffer is ranched vernal pool grass-land w/ dominant Eurasian grasses.	
Raw Attribute Score = $D+[C \times (A \times B)^{1/2}]^{1/2}$				22.39	**Final Attribute Score = (Raw Score/24) x 100**	93.30
Attribute 2: Hydrology (pp. 20-26)						
Water Source			Alpha. A	Numeric 12		
Channel Stability			A	12		
Hydrologic Connectivity			A	12		
Raw Attribute Score = sum of numeric scores				36	**Final Attribute Score = (Raw Score/36) x 100**	100
Attribute 3: Physical Structure (pp. 27-33)						
Structural Patch Richness			Alpha. D	Numeric 3	Score of C would be expected in wet season due to algae and submergent plants.	
Topographic Complexity			B	9		
Raw Attribute Score = sum of numeric scores				12	**Final Attribute Score = (Raw Score/24) x 100**	50
Attribute 4: Biotic Structure (pp. 34-41)						
Plant Community Composition (based on sub-metrics A-C)						
Plant Community submetric A: Number of plant layers	Alpha. C	Numeric 6			"B" in wet season due to submergents	
Plant Community submetric B: Number of Co-dominant species	D	3				
Plant Community submetric C: Percent Invasion	D	3				
Plant Community Composition Metric *(numeric average of submetrics A-C)*				4		
Horizontal Interspersion			C	6		
Vertical Biotic Structure			C	6		
Raw Attribute Score = sum of numeric scores				16	**Final Attribute Score = (Raw Score/36) x 100**	44.44
Overall AA Score (average of four final Attribute Scores)					**72**	



361_CRAM_Jami_A-P_2023-1004.xd

Worksheet for Stream Corridor Continuity Metric for Riverine Wetlands

Lengths of Non-buffer Segments For Distance of 500 m Upstream of AA		**Lengths of Non-buffer Segments For Distance of 500 m Downstream of AA**	
Segment No.	Length (m)	Segment No.	Length (m)
1	-	1	-
2	-	2	-
3	-	3	-
4	-	4	-
5	-	5	-
Upstream Total Length	0	Downstream Total Length	0

Percent of AA with Buffer Worksheet

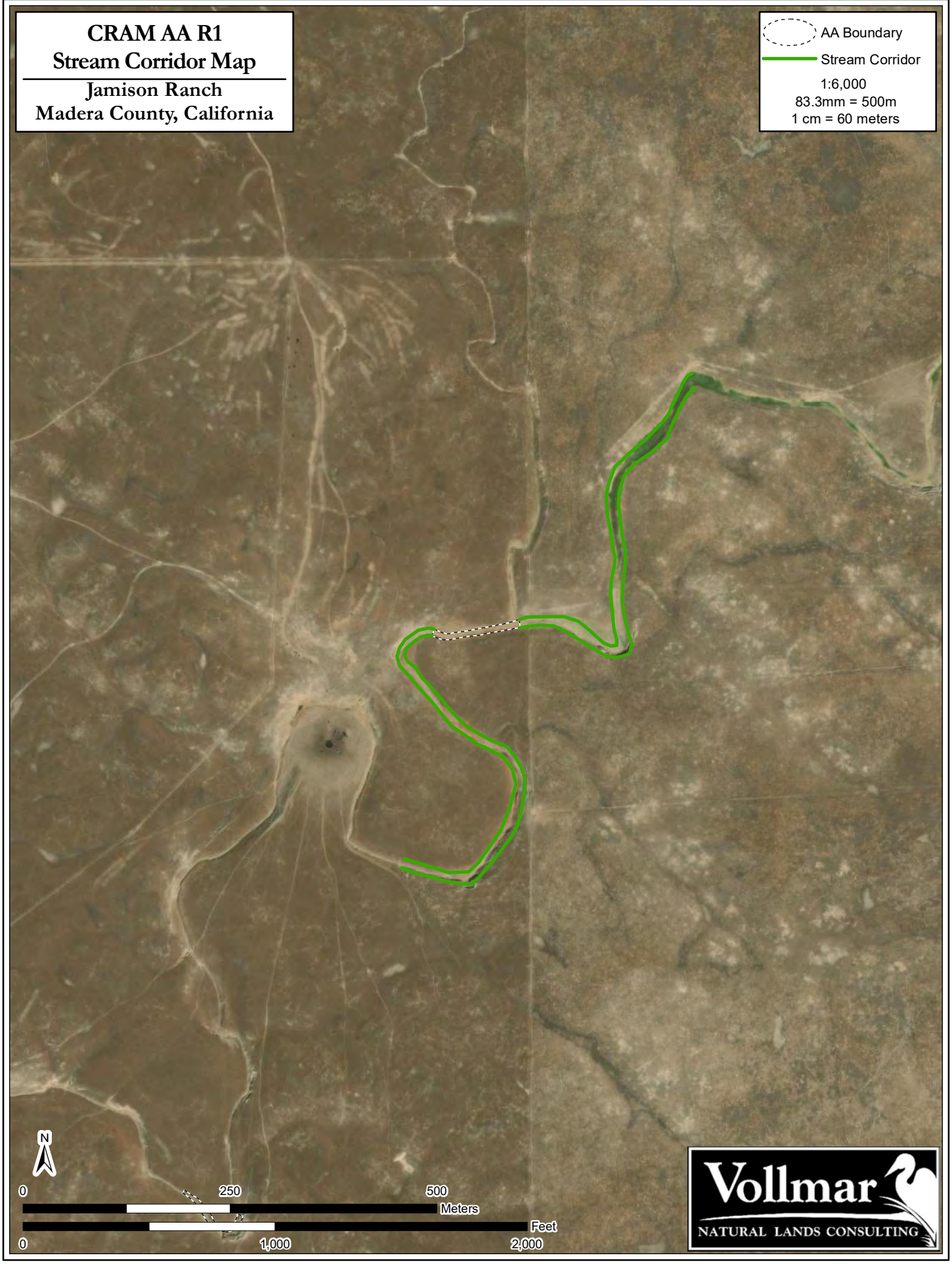
In the space provided below make a quick sketch of the AA, or perform the assessment directly on the aerial imagery; indicate where buffer is present, estimate the percentage of the AA perimeter providing buffer functions, and record the estimate amount in the space provided.

Percent of AA with Buffer: 100 **%**

Worksheet for calculating average buffer width of AA

Line	**Buffer Width (m)**
A	250
B	250
C	250
D	250
E	250
F	250
G	250
H	250
Average Buffer Width ***Round to the nearest integer***	250

CRAM AA R1
Stream Corridor Map
Jamison Ranch
Madera County, California



Vollmar
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361_CRAM_Vista_A-P_2023-0927.xd

Worksheet for Assessing Channel Stability for Riverine Wetlands

Condition	Field Indicators (check all existing conditions)
Indicators of Channel Equilibrium	☒ The channel (or multiple channels in braided systems) has a well-defined bankfull contour that clearly demarcates an obvious active floodplain in the cross-sectional profile of the channel throughout most of the AA. ☐ Perennial riparian vegetation is abundant and well established along the bankfull contour, but not below it. ☐ There is leaf litter, thatch, or wrack in most pools (if pools are present). ☐ The channel contains embedded woody debris of the size and amount consistent with what is naturally available in the riparian area. ☐ There is little or no active undercutting or burial of riparian vegetation. ☐ If mid-channel bars and/or point bars are present, they are not densely vegetated with perennial vegetation. ☐ Channel bars consist of well-sorted bed material (smaller grain size on the top and downstream end of the bar, larger grain size along the margins and upstream end of the bar). ☒ There are channel pools, the spacing between pools tends to be regular and the bed is not planar throughout the AA ☐ The larger bed material supports abundant mosses or periphyton.
Indicators of Active Degradation	☐ The channel is characterized by deeply undercut banks with exposed living roots of trees or shrubs. ☐ There are abundant bank slides or slumps. ☐ The lower banks are uniformly scoured and not vegetated. ☐ Riparian vegetation is declining in stature or vigor, or many riparian trees and shrubs along the banks are leaning or falling into the channel. ☐ An obvious historical floodplain has recently been abandoned, as indicated by the age structure of its riparian vegetation. ☐ The channel bed appears scoured to bedrock or dense clay. ☐ Recently active flow pathways appear to have coalesced into one channel (i.e. a previously braided system is no longer braided). ☐ The channel has one or more knickpoints indicating headward erosion of the bed.
Indicators of Active Aggradation	☐ There is an active floodplain with fresh splays of coarse sediment (sand and larger that is not vegetated) deposited in the current or previous year. ☐ There are partially buried living tree trunks or shrubs along the banks. ☐ The bed is planar (flat or uniform gradient) overall; it lacks well-defined channel pools, or they are uncommon and irregularly spaced. ☐ There are partially buried, or sediment-choked, culverts. ☐ Perennial terrestrial or riparian vegetation is encroaching into the channel or onto channel bars below the bankfull contour. ☐ There are avulsion channels on the floodplain or adjacent valley floor.
Overall	**☒ Equilibrium** **☐ Degradation** **☐ Aggradation**

Riverine Wetland Entrenchment Ratio Calculation Worksheet

The following 5 steps should be conducted for each of 3 cross-sections located in the AA at the approximate midpoints along straight riffles or glides, away from deep pools or meander bends. An attempt should be made to place them at the top, middle, and bottom of the AA.

Steps	Replicate Cross-sections ⟶	TOP	MID	BOT
1 Estimate bankfull width.	This is a critical step requiring familiarity with field indicators of the bankfull contour. Estimate or measure the distance between the right and left bankfull contours.	3.87	3.96	3.78
2: Estimate max. bankfull depth.	Imagine a level line between the right and left bankfull contours; estimate or measure the height of the line above the thalweg (the deepest part of the channel).	0.20	0.36	0.61
3: Estimate flood prone depth.	Double the estimate of maximum bankfull depth from Step 2.	0.4	0.72	1.21
4: Estimate flood prone width.	Imagine a level line having a height equal to the flood prone depth from Step 3; note where the line intercepts the right and left banks; estimate or measure the length of this line.	6.74	28	21
5: Calculate entrenchment ratio.	Divide the flood prone width (Step 4) by the bankfull width (Step 1).	2.16	7.07	5.56
6: Calculate average entrenchment ratio.	Calculate the average results for Step 5 for all 3 replicate cross-sections. Enter the average result here and use it in Table 13a or 13b.			4.93

Structural Patch Type Worksheet for Riverine wetlands

Circle each type of patch that is observed in the AA and enter the total number of observed patches in Table below. In the case of riverine wetlands, their status as confined or non-confined must first be determined (see page 6) to determine with patches are expected in the system (indicated by a "1" in the table below). Any feature onsite should only be counted once as a patch type. If a feature appears to meet the definition of more than one patch type (i.e. swale and secondary channel) the practitioner should choose which patch type best illustrates the feature. Not all features at a site will be patch types.

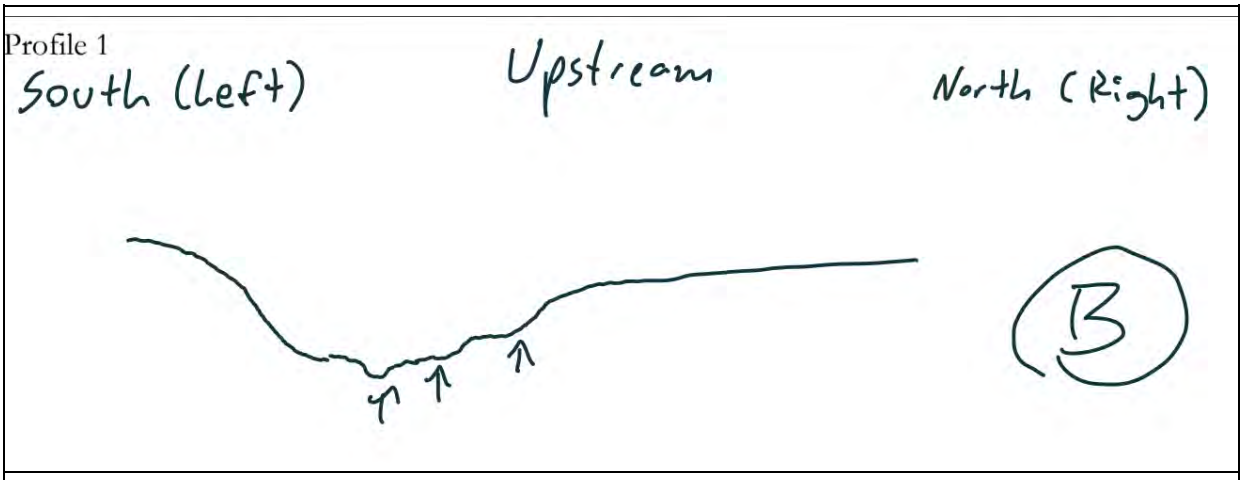
**Please refer to the CRAM Photo Dictionary at www.cramwetlands.org for photos of each of the following patch types.*

STRUCTURAL PATCH TYPE (circle for presence)	**Riverine (Non-confined)**	**Riverine (Confined)**
Minimum Patch Size	**3 m^2**	**3 m^2**
Abundant wrackline or organic debris in channel, on floodplain	**1**	**1**
Bank slumps or undercut banks in channels or along shoreline	**(1)**	**1**
Cobbles and/or Boulders	**1**	**1**
Debris jams	**1**	**1**
Filamentous macroalgae or algal mats	**1**	**1**
Large woody debris	**1**	**1**
Pannes or pools on floodplain	**1**	**N/A**
Plant hummocks and/or sediment mounds	**1**	**1**
Point bars and in-channel bars	**1**	**1**
Pools or depressions in channels (wet or dry channels)	**(1)**	**1**
Riffles or rapids (wet or dry channels)	**1**	**1**
Secondary channels on floodplains or along shorelines	**1**	**N/A**
Standing snags (at least 3 m tall)	**1**	**1**
Submerged vegetation	**1**	**N/A**
Swales on floodplain or along shoreline	**(1)**	**N/A**
Variegated, convoluted, or crenulated foreshore (instead of broadly arcuate or mostly straight)	**(1)**	**1**
Vegetated islands (mostly above high-water)	**1**	**N/A**
Total Possible	**17**	**12**
No. Observed Patch Types (enter here and use in Table 14 below)	4	

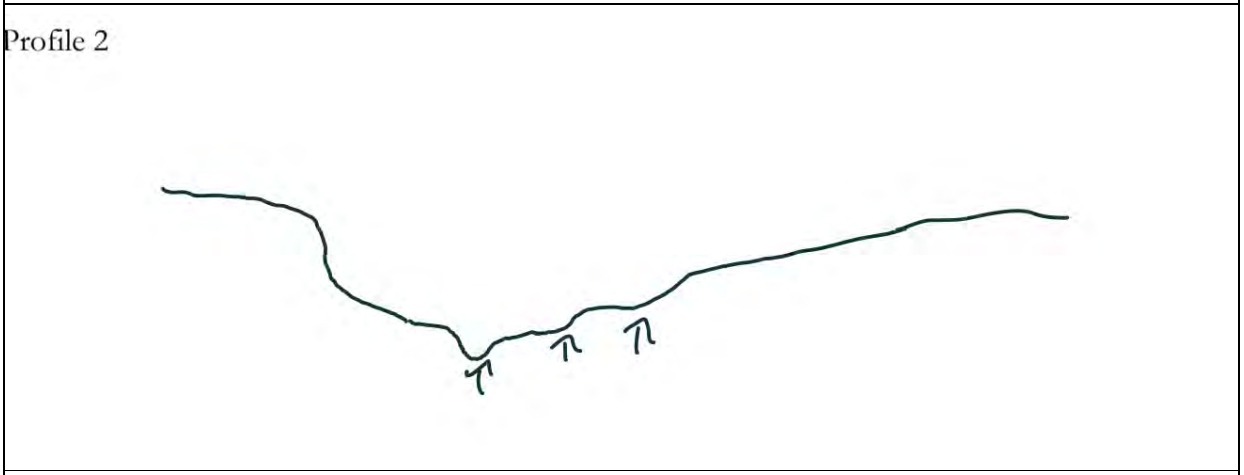
Worksheet for AA Topographic Complexity

At three locations along the AA, make a sketch of the profile of the stream from the AA boundary down to its deepest area then back out to the other AA boundary. Try to capture the benches and the intervening micro-topographic relief. To maintain consistency, make drawings at each of the stream hydrologic connectivity measurements, always facing downstream. Include the water level, an arrow at the bankfull contour, and label the benches. Based on these sketches and the profiles in Figure 10, choose a description in Table 16 that best describes the overall topographic complexity of the AA.

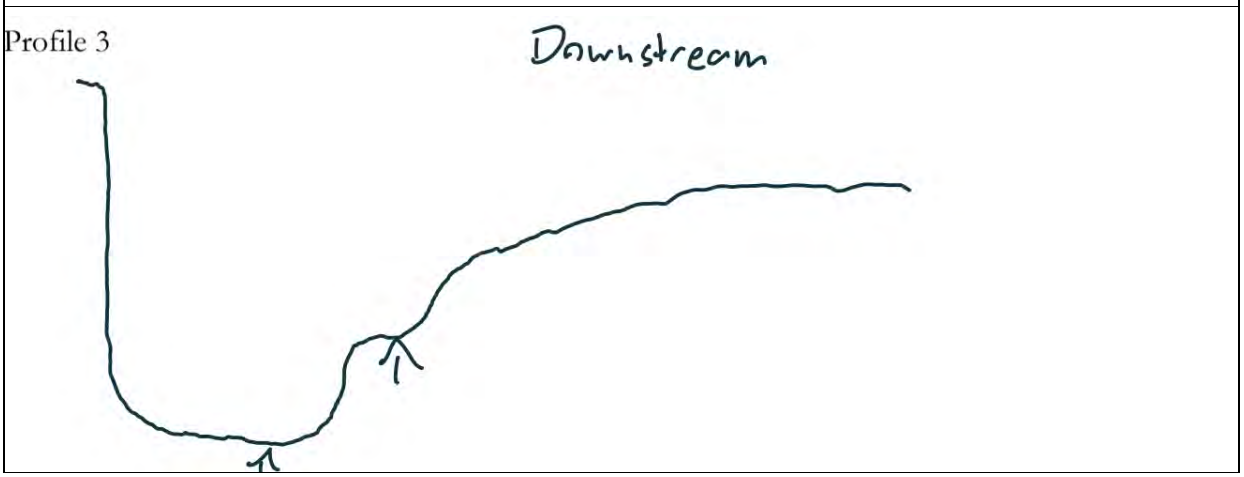
Profile 1



Profile 2



Profile 3



Plant Community Metric Worksheet: Co-dominant species richness for Riverine wetlands
(A dominant species represents ≥10% *relative* cover)

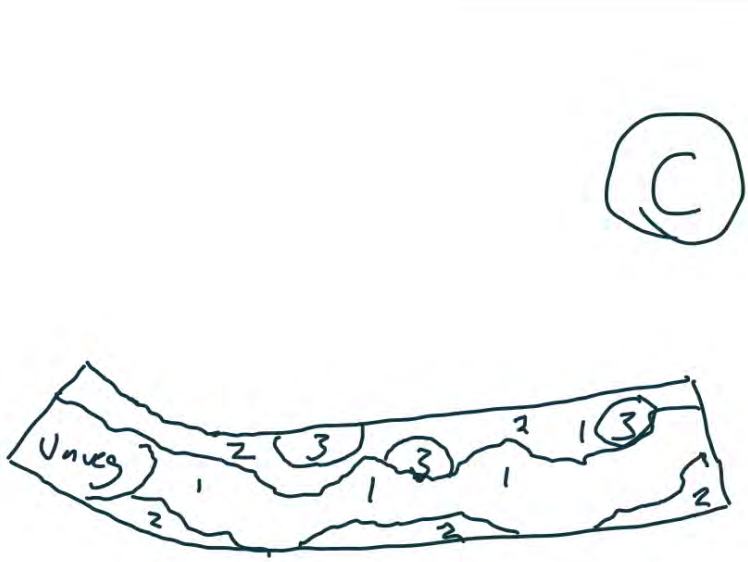
Special Note:

* *Combine the counts of co-dominant species from all layers to identify the total species count. Each plant species is only counted once when calculating the Number of Co-dominant Species and Percent Invasion submetric scores, regardless of the numbers of layers in which it occurs.*

Floating or Canopy-forming (non-confined only)	**Invasive?**	**Short (<0.5 m)**	**Invasive?**
n/a (Ranunculus aquatilis present in		*Cynodon dactylon*	✓
wet season)		*Hordeum marinum* ssp. *gussoneanum*	✓
Medium (0.5-1.5 m)	**Invasive?**	**Tall (1.5-3.0 m)**	**Invasive?**
Hordeum marinum ssp. *gussoneanum*	✓		
Acmispon sp.			
Very Tall (>3.0 m)	**Invasive?**	**Total number of co-dominant species for all layers combined (enter here and use in Table 18)**	3
		Percent Invasion *Round to the nearest integer* (enter here and use in Table 18)	67

Horizontal Interspersion Worksheet.

Use the spaces below to make a quick sketch of the AA in plan view, outlining the major plant zones (this should take no longer than 10 minutes). Assign the zones names and record them on the right. Based on the sketch, choose a single profile from Figure 12 that best represents the AA overall.



Assigned zones:

1) **CYNDAC**

2) **HORMARG**

3) **Acmispon sp.**

4)

5)

6)

Worksheet for Wetland disturbances and conversions

Has a major disturbance occurred at this wetland?	Yes	No		
If yes, was it a flood, fire, landslide, or other?	flood	fire	landslide	other
If yes, then how severe is the disturbance?	likely to affect site next 5 or more years	likely to affect site next 3-5 years	likely to affect site next 1-2 years	
Has this wetland been converted from another type? If yes, then what was the previous type? **No, N/A**	depressional	vernal pool	vernal pool system	
	non-confined riverine	confined riverine	seasonal estuarine	
	perennial saline estuarine	perennial non-saline estuarine	wet meadow	
	lacustrine	seep or spring	playa	

Stressor Checklist Worksheet

HYDROLOGY ATTRIBUTE (WITHIN 50 M OF AA)	Present	Significant negative effect on AA
Point Source (PS) discharges (POTW, other non-stormwater discharge)		
Non-point Source (Non-PS) discharges (urban runoff, farm drainage)		
Flow diversions or unnatural inflows		
Dams (reservoirs, detention basins, recharge basins)		
Flow obstructions (culverts, paved stream crossings)		
Weir/drop structure, tide gates		
Dredged inlet/channel		
Engineered channel (riprap, armored channel bank, bed)		
Dike/levees		
Groundwater extraction		
Ditches (borrow, agricultural drainage, mosquito control, etc.)		
Actively managed hydrology		
Comments		

PHYSICAL STRUCTURE ATTRIBUTE (WITHIN 50 M OF AA)	Present	Significant negative effect on AA
Filling or dumping of sediment or soils **(N/A for restoration areas)**		
Grading/ compaction **(N/A for restoration areas)**	✓	
Plowing/Discing **(N/A for restoration areas)**		
Resource extraction (sediment, gravel, oil and/or gas)		
Vegetation management		
Excessive sediment or organic debris from watershed		
Excessive runoff from watershed		
Nutrient impaired (PS or Non-PS pollution)		
Heavy metal impaired (PS or Non-PS pollution)		
Pesticides or trace organics impaired (PS or Non-PS pollution)		
Bacteria and pathogens impaired (PS or Non-PS pollution)	✓	
Trash or refuse		
Comments		
Assumed minor compaction and bacterial input from cattle; no direct evidence.		

BIOTIC STRUCTURE ATTRIBUTE (WITHIN 50 M OF AA)	Present	Significant negative effect on AA
Mowing, grazing, excessive herbivory (within AA)	✓	✓
Excessive human visitation		
Predation and habitat destruction by non-native vertebrates (e.g., *Virginia opossum* and domestic predators, such as feral pets)		
Tree cutting/sapling removal		
Removal of woody debris		
Treatment of non-native and nuisance plant species		
Pesticide application or vector control		
Biological resource extraction or stocking (fisheries, aquaculture)		
Excessive organic debris in matrix (for vernal pools)		
Lack of vegetation management to conserve natural resources	✓	✓
Lack of treatment of invasive plants adjacent to AA or buffer	✓	✓
Comments		
Cattle have free access, preventing establishment of any woody vegetation. Invasive grasses are dominant within and near the AA.		

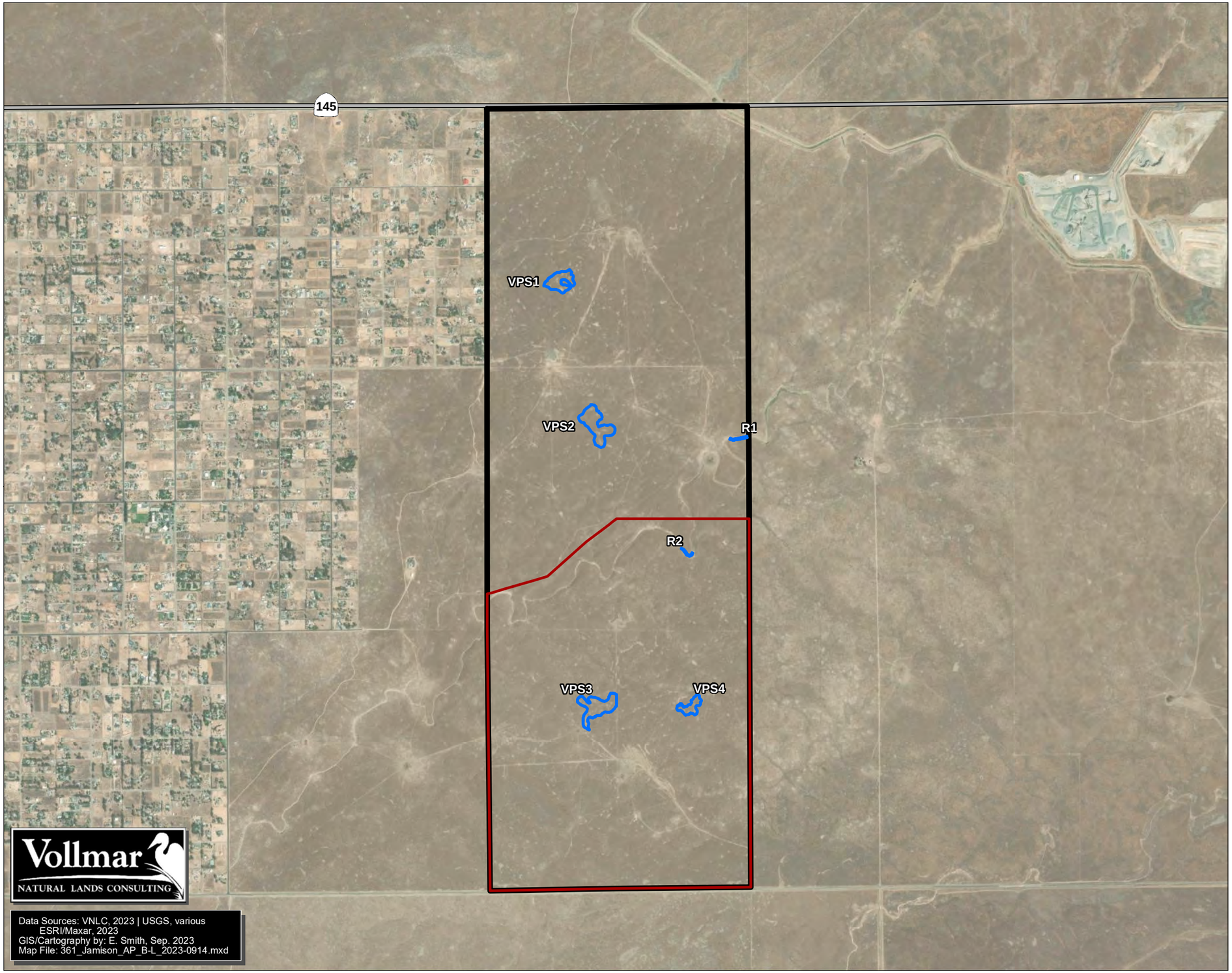
BUFFER AND LANDSCAPE CONTEXT ATTRIBUTE (WITHIN 500 M OF AA)	Present	Significant negative effect on AA
Urban residential		
Industrial/commercial		
Military training/Air traffic		
Dams (or other major flow regulation or disruption)		
Dryland farming		
Intensive row-crop agriculture		
Orchards/nurseries		
Commercial feedlots		
Dairies		
Ranching (enclosed livestock grazing or horse paddock or feedlot)		
Transportation corridor		
Rangeland (livestock rangeland also managed for native vegetation)	✓	
Sports fields and urban parklands (golf courses, soccer fields, etc.)		
Passive recreation (bird-watching, hiking, etc.)		
Active recreation (off-road vehicles, mountain biking, hunting, fishing)		
Physical resource extraction (rock, sediment, oil/gas)		
Biological resource extraction (aquaculture, commercial fisheries)		
Comments		
AA is part of an active cattle ranch. Cattle management within 500m is generally beneficial due to thatch control within the vernal pool grasslands (and associated management by the ranchers).		

Basic Information Sheet: Riverine Wetlands

Assessment Area Name: Jamison R2	
Project Name: Jamison Ranch/Madera Terrace Preserve	
Assessment Area ID #: J-R2	
Project ID #: 361	**Date:** 2023-0928
Assessment Team Members for This AA:	
Eric Smith, Amy Merrill	
Average Bankfull Width: 1.89m	
Approximate Length of AA (10 times bankfull width, min 100 m, max 200 m)**:** 100m	
Upstream Point Latitude: 36.985413	**Longitude:** -119.843492
Downstream Point Latitude: 36.985706	**Longitude:** -119.844293
Wetland Sub-type: ☒ Confined ☐ Non-confined	
AA Category: ☐ Restoration ☒ Mitigation ☐ Impacted ☐ Ambient ☐ Reference ☐ Training ☐ Other: Proposed preserve	
Did the river/stream have flowing water at the time of the assessment? ☐ yes ☒ no	
What is the apparent hydrologic flow regime of the reach you are assessing? The hydrologic flow regime of a stream describes the frequency with which the channel conducts water. *Perennial* streams conduct water all year long, whereas *ephemeral* streams conduct water only during and immediately following precipitation events. *Intermittent* streams are dry for part of the year, but conduct water for periods longer than ephemeral streams, as a function of watershed size and water source. ☐ perennial ☒ intermittent ☐ ephemeral	

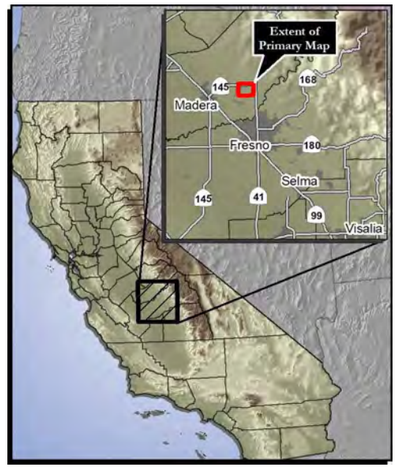
CRAM AA
Locations Map

Jamison Ranch
Madera County, California



Legend

- AA Boundary
- Proposed Preserve (857 ac.)
- Jamison Ranch (1,920 ac.)



Vollmar NATURAL LANDS CONSULTING

Data Sources: VNLC, 2023 | USGS, various ESRI/Maxar, 2023
GIS/Cartography by: E. Smith, Sep. 2023
Map File: 361_Jamison_AP_B-L_2023-0914.mxd

N
W E
S

1:24,000
(1 in. = 2,000 feet. at Tabloid Layout)

0 200 400 800 Meters
0 1,000 2,000 4,000 Feet

Photos and Descriptions:



Looking upstream from top of AA, 36.985464, -119.843538



Looking downstream from top of AA, 36.985464, -119.843538



Looking upstream from middle of AA, 36.985441, -119.843909



Looking downstream from middle of AA, 36.985441, -119.843909



Looking upstream from bottom of AA, 36.98573, -119.844275



Looking downstream from bottom of AA, 36.98573, -119.844275



Stream near AA with clearly-defined bankfull and flood-prone contours (indicated by arrows)

Site Location Description:
The AA is located along North Fork Little Dry Creek, near the center of the Jamison Ranch, and within the proposed preserve area.

Comments:
This AA is within a somewhat incised portion of the stream, where it makes a tight turn against the hillside. The bottom is very sandy and largely unvegetated. The bankfull contour is very clear, and the flood-prone area is also clearly visible within the incised channel, making it clear that the relatively high flows of 2023 did not escape the incised channel. Like J-R1, this stream has pools that support California tiger salamander (*Ambystoma californiense*) breeding; they typically have submergent vegetation such as white water-crowsfoot (*Ranunculus aquatilis*) during the wet season, but that is lacking at the time of assessment. Conducting the assessment in spring would likely increase scores.

Scoring Sheet: Riverine Wetlands

AA Name: J-R2					**Date:** 2023-0928	
Attribute 1: Buffer and Landscape Context (pp. 11-19)					**Comments**	
Stream Corridor Continuity (D)			Alpha. A	Numeric 12	No obstructions	
Buffer:						
Buffer submetric A: Percent of AA with Buffer	Alpha. A	Numeric 12			No non-buffer land covers nearby	
Buffer submetric B: Average Buffer Width	A	12				
Buffer submetric C: Buffer Condition	B	9			Buffer is ranched vernal pool grass-land w/ dominant Eurasian grasses.	
Raw Attribute Score = $D+[C \times (A \times B)^{1/2}]^{1/2}$				22.39	**Final Attribute Score = (Raw Score/24) x 100**	93.30
Attribute 2: Hydrology (pp. 20-26)						
Water Source			Alpha. A	Numeric 12		
Channel Stability			A	12	Channel entrenched, but is now stable	
Hydrologic Connectivity			C	6	Low score due to entrenchment	
Raw Attribute Score = sum of numeric scores				30	**Final Attribute Score = (Raw Score/36) x 100**	83.33
Attribute 3: Physical Structure (pp. 27-33)						
Structural Patch Richness			Alpha. D	Numeric 3	Score of C would be expected in wet season due to algae and submergent plants.	
Topographic Complexity			B	6	B2, 1 bench and bumpy	
Raw Attribute Score = sum of numeric scores				9	**Final Attribute Score = (Raw Score/24) x 100**	37.5
Attribute 4: Biotic Structure (pp. 34-41)						
Plant Community Composition (based on sub-metrics A-C)						
Plant Community submetric A: Number of plant layers	Alpha. C	Numeric 6				
Plant Community submetric B: Number of Co-dominant species	D	3				
Plant Community submetric C: Percent Invasion	D	3				
Plant Community Composition Metric *(numeric average of submetrics A-C)*				4		
Horizontal Interspersion			D	3		
Vertical Biotic Structure			B	9		
Raw Attribute Score = sum of numeric scores				16	**Final Attribute Score = (Raw Score/36) x 100**	44.44
Overall AA Score (average of four final Attribute Scores)					**65**	

CRAM AA R2
Stream Corridor Map
Jamison Ranch
Madera County, California



361_CRAM_Vista_A-P_2023-0927.xd

Worksheet for Stream Corridor Continuity Metric for Riverine Wetlands

Lengths of Non-buffer Segments For Distance of 500 m Upstream of AA		**Lengths of Non-buffer Segments For Distance of 500 m Downstream of AA**	
Segment No.	Length (m)	Segment No.	Length (m)
1	-	1	-
2	-	2	-
3	-	3	-
4	-	4	-
5	-	5	-
Upstream Total Length	0	Downstream Total Length	0

Percent of AA with Buffer Worksheet

In the space provided below make a quick sketch of the AA, or perform the assessment directly on the aerial imagery; indicate where buffer is present, estimate the percentage of the AA perimeter providing buffer functions, and record the estimate amount in the space provided.

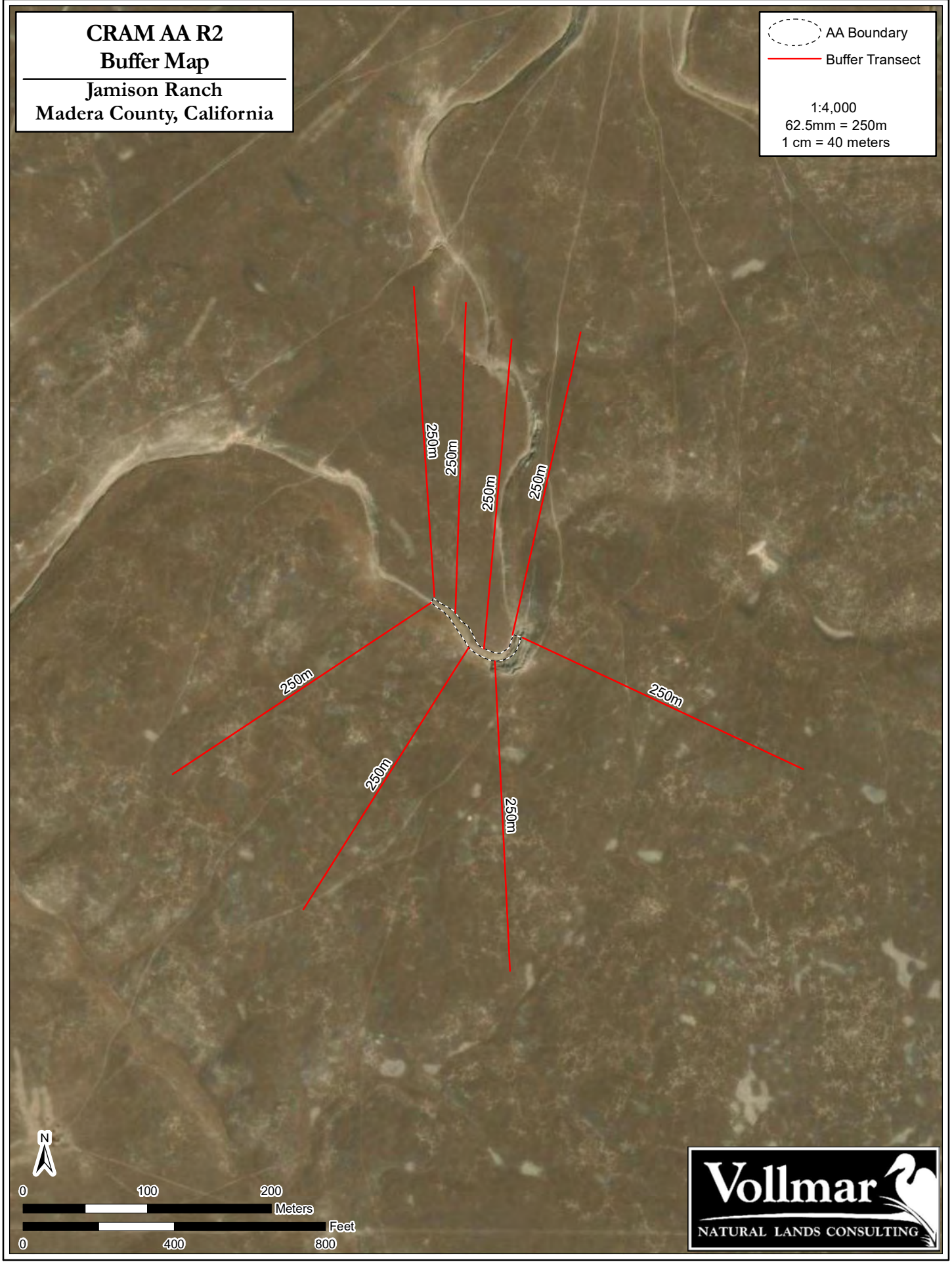
Percent of AA with Buffer: 100 **%**

Worksheet for calculating average buffer width of AA

Line	**Buffer Width (m)**
A	250
B	250
C	250
D	250
E	250
F	250
G	250
H	250
Average Buffer Width ***Round to the nearest integer***	250

CRAM AA R2
Buffer Map

Jamison Ranch
Madera County, California



361_CRAM_Jami_A-P_2023-1004.xd

Worksheet for Assessing Channel Stability for Riverine Wetlands

Condition	Field Indicators (check all existing conditions)
Indicators of Channel Equilibrium	☐The channel (or multiple channels in braided systems) has a well-defined bankfull contour that clearly demarcates an obvious active floodplain in the cross-sectional profile of the channel throughout most of the AA. ☐Perennial riparian vegetation is abundant and well established along the bankfull contour, but not below it. ☐There is leaf litter, thatch, or wrack in most pools (if pools are present). ☐The channel contains embedded woody debris of the size and amount consistent with what is naturally available in the riparian area. ☐There is little or no active undercutting or burial of riparian vegetation. ☐If mid-channel bars and/or point bars are present, they are not densely vegetated with perennial vegetation. ☐Channel bars consist of well-sorted bed material (smaller grain size on the top and downstream end of the bar, larger grain size along the margins and upstream end of the bar). ☐There are channel pools, the spacing between pools tends to be regular and the bed is not planar throughout the AA ☐The larger bed material supports abundant mosses or periphyton.
Indicators of Active Degradation	☒The channel is characterized by deeply undercut banks with exposed living roots of trees or shrubs. ☐There are abundant bank slides or slumps. ☒The lower banks are uniformly scoured and not vegetated. ☐Riparian vegetation is declining in stature or vigor, or many riparian trees and shrubs along the banks are leaning or falling into the channel. ☐An obvious historical floodplain has recently been abandoned, as indicated by the age structure of its riparian vegetation. ☐The channel bed appears scoured to bedrock or dense clay. ☐Recently active flow pathways appear to have coalesced into one channel (i.e. a previously braided system is no longer braided). ☐The channel has one or more knickpoints indicating headward erosion of the bed.
Indicators of Active Aggradation	☐There is an active floodplain with fresh splays of coarse sediment (sand and larger that is not vegetated) deposited in the current or previous year. ☐There are partially buried living tree trunks or shrubs along the banks. ☐The bed is planar (flat or uniform gradient) overall; it lacks well-defined channel pools, or they are uncommon and irregularly spaced. ☐There are partially buried, or sediment-choked, culverts. ☐Perennial terrestrial or riparian vegetation is encroaching into the channel or onto channel bars below the bankfull contour. ☐There are avulsion channels on the floodplain or adjacent valley floor.
Overall	**☒ Equilibrium** **☐ Degradation** **☐ Aggradation**

Riverine Wetland Entrenchment Ratio Calculation Worksheet

The following 5 steps should be conducted for each of 3 cross-sections located in the AA at the approximate midpoints along straight riffles or glides, away from deep pools or meander bends. An attempt should be made to place them at the top, middle, and bottom of the AA.

Steps	Replicate Cross-sections ⟶	TOP	MID	BOT
1 Estimate bankfull width.	This is a critical step requiring familiarity with field indicators of the bankfull contour. Estimate or measure the distance between the right and left bankfull contours.	2.06	1.83	1.78
2: Estimate max. bankfull depth.	Imagine a level line between the right and left bankfull contours; estimate or measure the height of the line above the thalweg (the deepest part of the channel).	30	25	23
3: Estimate flood prone depth.	Double the estimate of maximum bankfull depth from Step 2.	60	50	46
4: Estimate flood prone width.	Imagine a level line having a height equal to the flood prone depth from Step 3; note where the line intercepts the right and left banks; estimate or measure the length of this line.	2.97	2.87	2.34
5: Calculate entrenchment ratio.	Divide the flood prone width (Step 4) by the bankfull width (Step 1).	1.44	1.57	1.31
6: Calculate average entrenchment ratio.	Calculate the average results for Step 5 for all 3 replicate cross-sections. Enter the average result here and use it in Table 13a or 13b.			1.44

Structural Patch Type Worksheet for Riverine wetlands

Circle each type of patch that is observed in the AA and enter the total number of observed patches in Table below. In the case of riverine wetlands, their status as confined or non-confined must first be determined (see page 6) to determine with patches are expected in the system (indicated by a "1" in the table below). Any feature onsite should only be counted once as a patch type. If a feature appears to meet the definition of more than one patch type (i.e. swale and secondary channel) the practitioner should choose which patch type best illustrates the feature. Not all features at a site will be patch types.

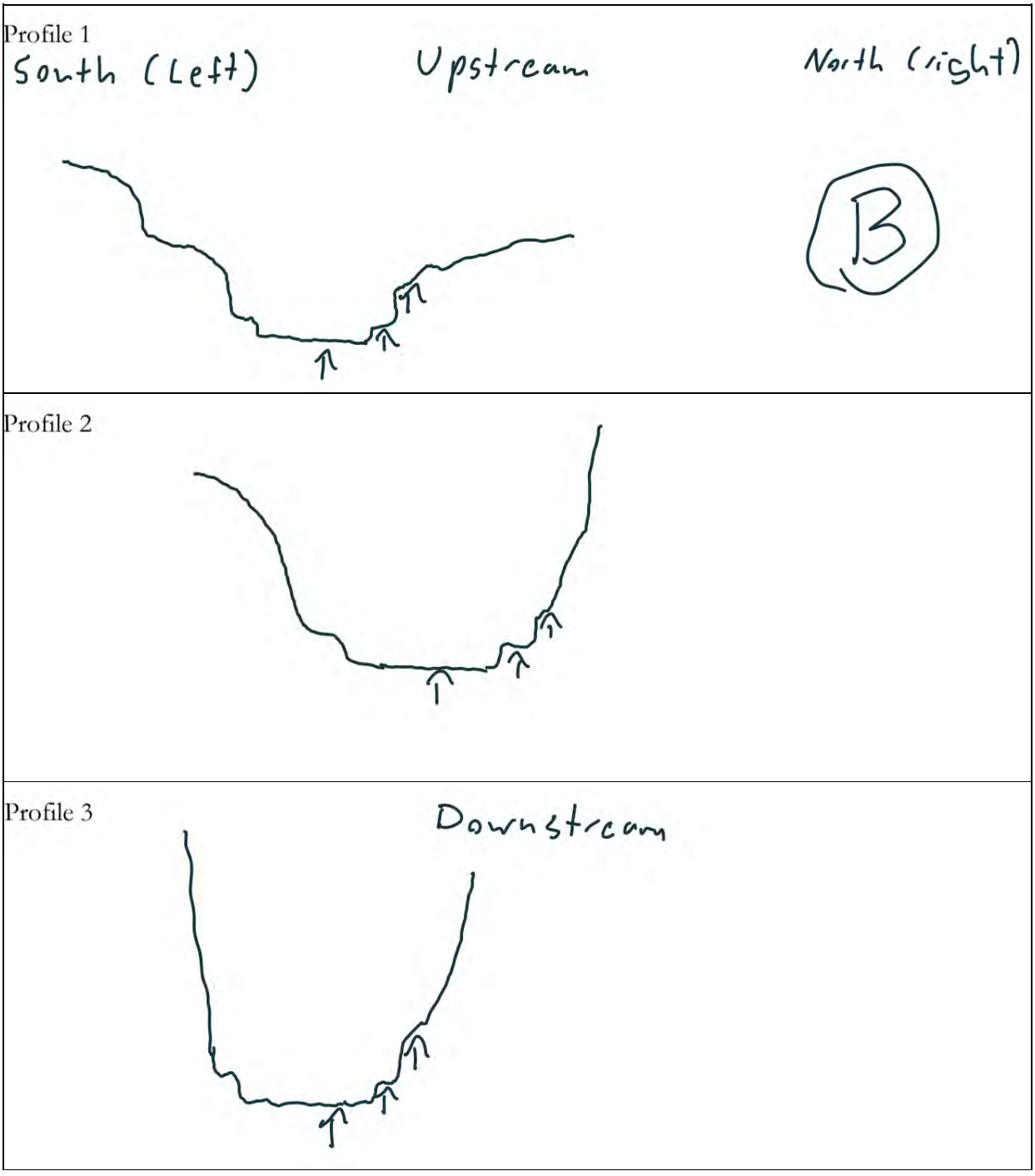
**Please refer to the CRAM Photo Dictionary at www.cramwetlands.org for photos of each of the following patch types.*

STRUCTURAL PATCH TYPE (circle for presence)	**Riverine (Non-confined)**	**Riverine (Confined)**
Minimum Patch Size	**3 m^2**	**3 m^2**
Abundant wrackline or organic debris in channel, on floodplain	**1**	**1**
Bank slumps or undercut banks in channels or along shoreline	**1**	**(1)**
Cobbles and/or Boulders	**1**	**1**
Debris jams	**1**	**1**
Filamentous macroalgae or algal mats	**1**	**1**
Large woody debris	**1**	**1**
Pannes or pools on floodplain	**1**	**N/A**
Plant hummocks and/or sediment mounds	**1**	**1**
Point bars and in-channel bars	**1**	**1**
Pools or depressions in channels (wet or dry channels)	**1**	**1**
Riffles or rapids (wet or dry channels)	**1**	**1**
Secondary channels on floodplains or along shorelines	**1**	**N/A**
Standing snags (at least 3 m tall)	**1**	**1**
Submerged vegetation	**1**	**N/A**
Swales on floodplain or along shoreline	**1**	**N/A**
Variegated, convoluted, or crenulated foreshore (instead of broadly arcuate or mostly straight)	**1**	**(1)**
Vegetated islands (mostly above high-water)	**1**	**N/A**
Total Possible	**17**	**12**
No. Observed Patch Types (enter here and use in Table 14 below)	0	2

Worksheet for AA Topographic Complexity

At three locations along the AA, make a sketch of the profile of the stream from the AA boundary down to its deepest area then back out to the other AA boundary. Try to capture the benches and the intervening micro-topographic relief. To maintain consistency, make drawings at each of the stream hydrologic connectivity measurements, always facing downstream. Include the water level, an arrow at the bankfull contour, and label the benches. Based on these sketches and the profiles in Figure 10, choose a description in Table 16 that best describes the overall topographic complexity of the AA.

Profile 1



Profile 2

Profile 3

Plant Community Metric Worksheet: Co-dominant species richness for Riverine wetlands
(A dominant species represents ≥10% *relative* cover)

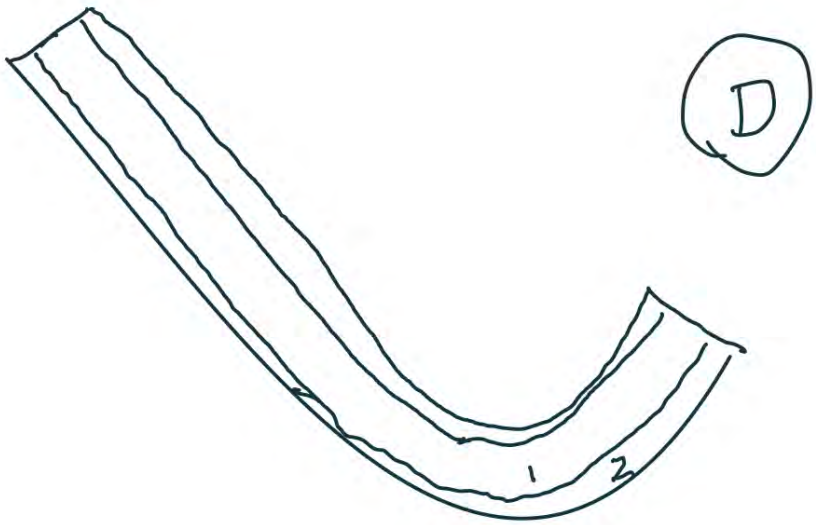
Special Note:

** Combine the counts of co-dominant species from all layers to identify the total species count. Each plant species is only counted once when calculating the Number of Co-dominant Species and Percent Invasion submetric scores, regardless of the numbers of layers in which it occurs.*

Floating or Canopy-forming (non-confined only)	Invasive?	Short (<0.5 m)	Invasive?
		Croton setiger	
Medium (0.5-1.5 m)	**Invasive?**	**Tall (1.5-3.0 m)**	**Invasive?**
Bromus hordeaceus	✓		
Amaranthus albus			
Avena fatua	✓		
Very Tall (>3.0 m)	**Invasive?**	**Total number of co-dominant species for all layers combined (enter here and use in Table 18)**	4
		Percent Invasion *Round to the nearest integer* (enter here and use in Table 18)	50

Horizontal Interspersion Worksheet.

Use the spaces below to make a quick sketch of the AA in plan view, outlining the major plant zones (this should take no longer than 10 minutes). Assign the zones names and record them on the right. Based on the sketch, choose a single profile from Figure 12 that best represents the AA overall.



Assigned zones:

1) **Unvegetated, sandy**
2) **Annual grassland**
3)
4)
5)
6)

Worksheet for Wetland disturbances and conversions

Has a major disturbance occurred at this wetland?	Yes	No (circled)		
If yes, was it a flood, fire, landslide, or other?	flood	fire	landslide	other
If yes, then how severe is the disturbance?	likely to affect site next 5 or more years	likely to affect site next 3-5 years	likely to affect site next 1-2 years	
Has this wetland been converted from another type? If yes, then what was the previous type? **No, N/A**	depressional	vernal pool	vernal pool system	
	non-confined riverine	confined riverine	seasonal estuarine	
	perennial saline estuarine	perennial non-saline estuarine	wet meadow	
	lacustrine	seep or spring	playa	

Stressor Checklist Worksheet

HYDROLOGY ATTRIBUTE (WITHIN 50 M OF AA)	Present	Significant negative effect on AA
Point Source (PS) discharges (POTW, other non-stormwater discharge)		
Non-point Source (Non-PS) discharges (urban runoff, farm drainage)		
Flow diversions or unnatural inflows		
Dams (reservoirs, detention basins, recharge basins)		
Flow obstructions (culverts, paved stream crossings)		
Weir/drop structure, tide gates		
Dredged inlet/channel		
Engineered channel (riprap, armored channel bank, bed)		
Dike/levees		
Groundwater extraction		
Ditches (borrow, agricultural drainage, mosquito control, etc.)		
Actively managed hydrology		
Comments		

PHYSICAL STRUCTURE ATTRIBUTE (WITHIN 50 M OF AA)	Present	Significant negative effect on AA
Filling or dumping of sediment or soils **(N/A for restoration areas)**		
Grading/ compaction **(N/A for restoration areas)**	✓	
Plowing/Discing **(N/A for restoration areas)**		
Resource extraction (sediment, gravel, oil and/or gas)		
Vegetation management		
Excessive sediment or organic debris from watershed		
Excessive runoff from watershed		
Nutrient impaired (PS or Non-PS pollution)		
Heavy metal impaired (PS or Non-PS pollution)		
Pesticides or trace organics impaired (PS or Non-PS pollution)		
Bacteria and pathogens impaired (PS or Non-PS pollution)	✓	
Trash or refuse		
Comments		
Assumed minor compaction and bacterial input from cattle; no direct evidence.		

BIOTIC STRUCTURE ATTRIBUTE (WITHIN 50 M OF AA)	Present	Significant negative effect on AA
Mowing, grazing, excessive herbivory (within AA)	✓	✓
Excessive human visitation		
Predation and habitat destruction by non-native vertebrates (e.g., *Virginia opossum* and domestic predators, such as feral pets)		
Tree cutting/sapling removal		
Removal of woody debris		
Treatment of non-native and nuisance plant species		
Pesticide application or vector control		
Biological resource extraction or stocking (fisheries, aquaculture)		
Excessive organic debris in matrix (for vernal pools)		
Lack of vegetation management to conserve natural resources	✓	✓
Lack of treatment of invasive plants adjacent to AA or buffer		
Comments		
Cattle have free access, preventing establishment of any woody vegetation. Invasive grasses are dominant within and near the AA.		

BUFFER AND LANDSCAPE CONTEXT ATTRIBUTE (WITHIN 500 M OF AA)	Present	Significant negative effect on AA
Urban residential		
Industrial/commercial		
Military training/Air traffic		
Dams (or other major flow regulation or disruption)		
Dryland farming		
Intensive row-crop agriculture		
Orchards/nurseries		
Commercial feedlots		
Dairies		
Ranching (enclosed livestock grazing or horse paddock or feedlot)		
Transportation corridor		
Rangeland (livestock rangeland also managed for native vegetation)	✓	
Sports fields and urban parklands (golf courses, soccer fields, etc.)		
Passive recreation (bird-watching, hiking, etc.)		
Active recreation (off-road vehicles, mountain biking, hunting, fishing)		
Physical resource extraction (rock, sediment, oil/gas)		
Biological resource extraction (aquaculture, commercial fisheries)		
Comments		
AA is part of an active cattle ranch. Cattle management within 500m is generally beneficial due to thatch control within the vernal pool grasslands (and associated management by the ranchers).		



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E.2 - Supplementary Memo

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MEMORANDUM

To: Cody Barnes, U.S. Army Corps of Engineers, Sacramento District — Date: 7/11/2024

CC: Kathy Norton, U.S. Army Corps of Engineers, Sacramento District

From: Eric Smith, Vollmar Natural Lands Consulting — No. Pages: 22, plus attachments

Subject: Supplementary Information for Endangered Species Act Consultation, Western Spadefoot and Northwestern Pond Turtle, Vista Ranch Project, Fresno County, California, File Reference #SPK-2023-00511

1.0 Executive Summary

This document provides supplementary information about the effects of the Vista Ranch Project ("Project") on western spadefoot (WSF, *Spea hammondii*) and northwestern pond turtle (NPT, *Actinemys marmorata* [western pond turtle, *Emys marmorata*]). This document was prepared to supplement the information provided in the Draft Biological Assessment for the Project, submitted to U.S. Army Corps of Engineers (USACE) in October 2023.

The Project will impact occupied WSF habitat and may result in mortality of WSF. Therefore, the Project **may affect, and is likely to adversely affect**, WSF. However, the Project incorporates avoidance and minimization measures (AMMs) to reduce the amount of take of this species, and also incorporates the preservation of a large block of occupied WSF habitat. The Project Proponents are seeking Incidental Take Coverage for this species.

The Project Site has limited habitat value for NPT, and the species has not been documented on the Project Site. However, Project development includes the risk of incidental take of transient NPT moving through the work area. The Project incorporates AMMs to reduce this risk, as well as habitat enhancement which could benefit NPT. While the risk is limited, the Project Proponents are seeking Incidental Take Coverage for this species in order to empower project biologists to safely relocate NPT individuals in the event the species is listed, and in order to protect the Project from liability for unauthorized incidental take. Therefore, although we feel that incidental take is unlikely, especially with AMMs incorporated, we have concluded that the Project **may affect, and is likely to adversely affect**, NPT.

2.0 Introduction

Wilson Premier Homes ("Project Proponent") has proposed the development of the Vista Ranch Project, a mixed-use development which will create approximately 2,718 residential units at varying densities on an approximately 368-acre site in Fresno County, California, along with commercial, recreational, and open-space uses. Project development would require fill of

approximately 0.495 acre of potentially jurisdictional wetlands and waters of the U.S. The Project Proponent has applied for Clean Water Act Section 404 coverage for this fill under Nationwide Permit 29 (NWP29).

The development of the Project, including the fill of potentially jurisdictional waters of the U.S., may result in take of species listed under the Endangered Species Act (ESA). Accordingly, USACE has initiated formal consultation with the U.S. Fish and Wildlife Service (USFWS) under Section 7 of the ESA. USACE provided a Biological Assessment (BA) of the Proposed Action (issuance by USACE of a verified authorization under NWP29) and interrelated and interdependent actions (development of the remainder of the Project) to USFWS in November of 2023. The BA analyzed the Proposed Action's effects on ESA-listed species including California tiger salamander (CTS, *Ambystoma californiense*), vernal pool fairy shrimp (VPFS, *Branchinecta lynchi*), and others.

On May 2, 2024, USFWS indicated that their consultation with USFWS would include WSF and NPT and requested a Biological Assessment evaluating the Project's effects on these species. These two species are each proposed for listing as Threatened under the ESA. WSF occurs on the Project site, and NPT has been documented in the Project vicinity, but the prior (2023) BA did not analyze effects of the Proposed Action on these species. This document provides information to allow USFWS to determine the Project's effects on these species.

3.0 Proposed Action

The Proposed Action is as described in the BA (with minor modifications, described below). The Proposed Action includes issuance by USACE of a verified authorization under NWP29, and interrelated and interdependent activities including development of the approximately 368-acre Project Site plus off-site improvements (collectively "Impact Area"), implementation of AMMs for sensitive species and habitats, and compensatory mitigation. The proposed compensatory mitigation consists of the establishment of an approximately 857-acre permittee-responsible mitigation preserve on the Jamison Ranch Property in Madera County ("Property"). The regional locations of these actions are depicted in **Figure 1**. The compensatory mitigation is described in detail in the Conceptual Mitigation Plan & Mitigation Climate Change Analysis (RCEC 2024). The Conceptual Mitigation Plan & Mitigation Climate Change Analysis will be submitted with the Section 401 Water Quality Certification Application; copies will be provided to USACE and USFWS at the time of submission.

3.1 Modifications to the Proposed Action

In addition to the activities described in the BA, the Proposed Action has been modified to incorporate additional AMMs. The BA includes conservation measures designed to minimize the extent and likelihood of take of listed species, particularly of CTS and VPFS. The AMMs to be incorporated into the Project have been revised to "sync" them with other ongoing compliance

efforts, and to incorporate protections for WSF and NPT. Revisions to AMMs to be incorporated into the Proposed Action are described below.

3.1.1 Worker Awareness Training

In the prior (2023) BA, worker awareness training was included within species-specific AMMs for CTS and VPFS. A general worker awareness training AMM has been added to the Project to cover all sensitive biological resources. Its text is as follows:

> *The applicant will require all construction personnel to undergo Worker Awareness Training that provides information on*
>
> - *the sensitive habitats on the project site*
> - *special-status species known and potentially present on the site, including their*
>   - *listing status and causes of decline*
>   - *habitat preferences*
>   - *distinguishing physical characteristics*
> - *the measures (AMMs, permit conditions, and CEQA mitigation) required to protect sensitive habitats and special-status species, including avoidance of delineated exclusion areas, and next steps and notifications in the event of a special-status species sighting*
>
> *The training will include a hard copy handout that summarizes the information presented and includes photographs of habitat resources and species to facilitate identification in the field by construction personnel. A readily available copy of the AMMs, permit conditions, and CEQA mitigation will be maintained by the construction foreman on the construction site for reference.*
>
> *The applicant will ensure that all construction personnel undergo Worker Awareness Training before beginning work on the site. Training will be delivered by a qualified biologist experienced in the Fresno County/San Joaquin Valley area, and will be provided bilingually in English and Spanish if appropriate. Upon completion of training, employees will sign a form stating that they attended the training and understand all of the required CEQA mitigation and permit conditions. Signed forms will be submitted to CDFW and USFWS.*

3.1.2 California Tiger Salamander Protection

The AMMs for CTS (described in Section 3.2.1.3.1.2 of the prior BA) have been updated. The revised AMMs for CTS are as follows:

> *The applicant will complete the state ITP and Clean Water Act Section 404 permitting processes and will obtain the necessary permits from CDFW and the Corps. The applicant will then be responsible for implementing all permit conditions relative to CTS, including AMMs and habitat compensation. Purchase of the mitigation property, establishment of the necessary*

conservation easement, and finalization of agreements for long-term maintenance and management responsibilities will be completed prior to project ground-breaking.

The following measures will be required. If, via the state ITP process or the federal interagency consultation process, CDFW and/or USFWS issue alternate requirements that would be equally or more protective, those will be substituted.

- *The applicant will develop a CTS Relocation Plan, prepared by a qualified biologist and subject to approval by CDFW and USFWS. The Relocation Plan will include specific areas to which the designated qualified biologist may relocate individual CTS that are at risk from project-related activities. It will also include provisions for the biologist to monitor the translocated animal until it is determined that it is not at risk from predators or other factors. CTS will be relocated to appropriate habitat for their stage in the life cycle; for example, CTS found in burrows will be relocated to burrows and not to aquatic habitat*

- *If a known or potential CTS individual is encountered during any project-related activity, the following requirements will apply.*

  - *All work that could result in direct injury or disturbance of the individual animal will cease immediately*

  - *The foreman and on-call biologist will be notified immediately*

  - *The biologist will take appropriate action to secure the individual (relocation per the Relocation Plan, and/or veterinary care if appropriate), and will then notify CDFW, USFWS, and the applicant via telephone or email*

  The applicant will appoint a representative to act as the contact for the biologist, to receive notifications of CTS encounters. The representative will be identified during the Worker Awareness Training program, and their name and contact information will be provided to CDFW and USFWS

- *An Herbicide Use Plan will be drawn up prior to the onset of development activities, and will be subject to CDFW and USFWS approval before work on each phase begins. The plan will allow no more than two applications of herbicide per year during development activities. Herbicides will be used only in a manner that avoids primary or secondary poisoning of CTS and the prey populations on which they depend within the phase footprint. All uses of such compounds will comply with label and other restrictions mandated by the U.S. Environmental Protection Agency, California Department of Food and Agriculture, and other appropriate state and federal regulations, as well as any other additional project-specific restrictions required by CDFW and/or USFWS*

- *Prior to ground disturbance for each phase or sub-phase (defined as major earthwork associated with rough grading, lot leveling, infrastructure construction, and street improvements; not including construction of individual homes on previously graded pads), the disturbance areas will be subject to the following measures to protect California tiger salamander (CTS). These measures will be in force for the duration of ground-disturbing activities, under the oversight of a qualified biologist. After the completion of initial ground-disturbing activities for each phase or sub-phase, the qualified biologist will continue to be available by phone and will be on call to visit the project site as needed throughout phase construction. The biologist's contact information will be provided to CDFW and USFWS*

  - *First, individual sub-phases or disturbance areas will be identified within each project phase (see Figure 3.4-4). Sub-phases will be defined with the input of a qualified biologist such that no undisturbed areas of potential CTS habitat are surrounded or cut off from other CTS habitat as a result of ground disturbance and/or implementation of other AMMs such as wetland exclusion areas. Instead, sub-phases will be developed such that the most direct route from any given patch of potential CTS habitat onsite to the nearest accessible offsite CTS habitat remains open until the onsite patch has been subject to relocation measures, described below. Multiple, or even all, sub-phases may be active concurrently, but no portion of the project or phase site will be disturbed until after CTS relocation and other AMMs have been undertaken on it*

  - *Following survey and relocation of individuals, exclusion barrier will be installed at the limits of grading for the phase or sub-phase to prevent CTS from reentering the disturbance area. The materials and installation methods for the exclusion barrier will be subject to approval by CDFW and USFWS, and the barrier will be installed under biologist oversight. The exclusion barrier will be inspected weekly and maintained and repaired as necessary to ensure that it is functional and not a hazard to any CTS on the outside of the barrier. The barrier will remain in place until the completion of major ground-disturbing activities within the phase or sub-phase it encompasses*

  - *Once visual surveys, relocation, and exclusion barrier installation have been completed, the disturbance area may be subject to initial ground-disturbing activities (vegetation clearing, grubbing, scraping, grading, trenching, and other activities that will convert potential CTS upland habitat to non-habitat through the disruption of onsite rodent burrows)*

  - *A qualified biologist will be onsite to monitor vegetation clearing, grubbing, and rough grading, until or unless the biologist determines that monitoring is no longer necessary. The biologist(s) will have authority to stop any work that may result in the take of CTS, and to ensure the adherence to all required*

AMMs. CDFW, USFWS, and the Corps will be notified of any "stop-work" orders issued by the biologist(s)

- *The following requirements will apply in areas that have <u>not</u> been "cleared" for CTS and enclosed in exclusion barrier*

  - *A qualified biologist will be onsite to monitor all work. The biologist(s) will have authority to stop any work that may result in the take of CTS, and to ensure the adherence to all required AMMs. CDFW, USFWS, and the Corps will be notified of any "stop-work" orders issued by the biologist(s)*

  - *Work will be prohibited when the National Weather Service 72-hour forecast predicts a 70% or greater chance of rainfall; work may resume 24 hours following the cessation of rainfall, if 0% chance of rain is predicted in the next 72 hours*

  - *Because CTS may take refuge in cavity-like and den-like structures such as pipes and may enter stored pipes and become trapped, all pipes, culverts, and similar structures that are stored at the project site for one or more overnight periods will either be securely capped prior to storage or will thoroughly inspected by the authorized on-call biologist and/or the construction foreman/manager for CTS before the pipe moved, capped, buried, or otherwise used or moved in any way*

  - *To prevent inadvertent entrapment of CTS during development, the on-call biologist and/or construction foreman/manager will ensure that all steep-walled excavations and trenches more than 1 foot deep are completely covered at the close of each working day by plywood or similar materials or are provided with one or more escape ramps constructed of earth fill or wooden planks and inspected by the on-call biologist. Before excavations or trenches are filled, they will be thoroughly inspected for trapped animals by the on-call biologist and/or construction foreman/manager*

- *The following requirements will apply on <u>all parts of the project site</u> (within and outside CTS exclusion barrier)*

  - *Project-related vehicles will observe a 15 mile-per-hour offroad speed limit*

  - *Erosion control measures will employ tightly woven fiber netting or similar material to reduce the potential for CTS entrapment. This limitation will be communicated to all contractors through the use of Special Provisions included in the bid solicitation package. No plastic monofilament netting (erosion control matting) or similar materials will be used*

- *No insecticides or rodenticides will be used in construction or development areas as part of the project development process*

- *To reduce the potential that predators of CTS will be attracted to the site, all food-related trash items such as wrappers, cans, bottles, and food scraps will be disposed of in solid, closed containers (trash cans) and removed at the end of each working day from the construction site*

3.1.3 Western Spadefoot Protection

In order to provide protection for WSF, the following AMM has been added to the Project:

> *The applicant will complete the Clean Water Act Section 404 permitting process and will obtain the necessary permit from USACE. The applicant will then be responsible for implementing all permit conditions and USFWS Biological Opinion (BO) conditions relative to western spadefoot, including AMMs and habitat compensation. Purchase of the mitigation property, establishment of the necessary conservation easement, and finalization of agreements for long-term maintenance and management responsibilities will be completed prior to project ground-breaking.*
>
> *At a minimum, all AMMs identified for CTS [above] will also be required for western spadefoot. Surveys, relocation efforts, and activities related to exclusion barriers will be combined where feasible to increase efficiency and effectiveness. If, via the federal interagency consultation process, USFWS issues alternate requirements that would be equally or more protective, those will be substituted.*
>
> *If western spadefoot does not become listed under the federal Endangered Species Act and the federal BO and Clean Water Act Section 404 permit do not prescribe other requirements, the requirements of Mitigation Measure 3.4-9 [preconstruction surveys, reproduced below] may be substituted. In this case, surveys and, if warranted, relocation of individuals, will be conducted consistent with agency guidance current at the time of survey, and with prevailing best conservation practices.*

3.1.4 Northwestern Pond Turtle Protection

In order to provide protection for NPT, the following AMM for has been added to the Project:

> *The applicant will complete the Clean Water Act Section 404 permitting process and will obtain the necessary permit from USACE. The applicant will then be responsible for implementing all permit conditions and USFWS BO conditions relative to northwestern pond turtle, including AMMs and habitat compensation. Purchase of any mitigation property, establishment of any necessary conservation easement, and finalization of any agreements for long-term maintenance and management responsibilities will be completed prior to project ground-breaking.*

If northwestern pond turtle does not become listed under the federal Endangered Species Act and the federal BO and Clean Water Act Section 404 permit do not prescribe other requirements, the requirements of Mitigation Measure 3.4-9 [preconstruction surveys, reproduced below] may be substituted. In this case the applicable guidance will be Draft USGS Western Pond Turtle (Emys marmorata) Visual Survey Protocol for the Southcoast Ecoregion (U.S. Geological Survey 2006)

3.1.5 Pre-Construction Surveys

Mitigation Measure 3.4-9 has been added to the Project to ensure pre-construction surveys are conducted for other special-status species. It provides an additional opportunity to detect CTS, WSF, and NPT. As described above, it will still provide protection for WSF and/or NPT if those species are not listed and the BO does not list any measures to protect them. Mitigation Measure 3.4-9 is as follows:

Prior to construction in each of the phases, the applicant will retain a qualified biologist/ecologist with experience in the Fresno County area to conduct comprehensive preconstruction surveys for special-status wildlife. Surveys will be timed to allow follow-up such as relocation of individuals and/or consultation with resource agency staff if warranted. Surveys will be designed and implemented in consideration of the particular species with potential to be present; survey methods will be consistent with prevailing best practices by species and consistent with current applicable agency guidance, including but not necessarily limited to the following, currently available at https://wildlife.ca.gov/Conservation/Survey-Protocols (or updated versions thereof).

- *Survey Considerations for California Endangered Species Act Candidate Bumble Bee Species (California Department of Fish and Wildlife 2023)*
- *Staff Guidance Regarding Avoidance of Impacts to Tricolored Blackbird Breeding Colonies on Agricultural Fields in 2015 (California Department of Fish and Wildlife 2015)*
- *Staff Report on Burrowing Owl Mitigation (California Department of Fish and Game 2012)*
- *Recommended Timing and Methodology for Swainson's Hawk Nesting Surveys in California's Central Valley (Swainson's Hawk Technical Advisory Committee 2000)*
- *Standardized Recommendations for Protection of the San Joaquin Kit Fox Prior to or during Ground Disturbance (U.S. Fish & Wildlife Service 1999)*

If no special-status wildlife or sign thereof is observed during the surveys, no further action is required.

If listed or candidate species or sign(s) thereof are observed onsite, the applicant will consult with CDFW and/or USFWS (depending on the species' listing status), and will proceed in accordance with agency direction.

If non-listed species that qualify for another form of special status in California, or sign(s) thereof, are observed onsite, the applicant will consult with CDFW and proceed in accordance with CDFW direction.

Follow-up actions for common (non-listed/non-special-status) species will be consistent with the biologist's professional judgment and current prevailing conservation best practices.

3.1.6 Avoided Wetland Protection/Enhancement

The amendments described above are designed specifically to extend planned protections to WSF and NPT. In addition, the Proposed Action has been modified to provide additional aquatic resource protections to avoided wetlands within the Project Site. These revisions are designed primarily to protect aquatic resources, but they may also benefit WSF and NPT. Specifically, the following elements have been added to the Project:

- *Discharging stormwater from within the new development to protected wetlands and the tailwater pond to maintain them as aquatic features once they are surrounded by development and no longer receive overland or tailwater input. Stormwater would be routed via appropriate low-impact treatment features to manage discharge water quality*
- *…In the southwest portion of the project area, where no easement is currently in place, a new 100-foot-wide easement would be established to protect the Outlet Channel and maintain [Fresno Municipal Flood Control District] access for operations and maintenance*
- *… Open space protecting wetlands and waters to be avoided and preserved in place would be placed under conservation easement and would be managed over the long term by the Vista Ranch Homeowners' association or another entity approved by the resource agencies. A long-term management plan to maintain water quality and habitat value in these areas will be developed and provided for resource agency review and approval.*

4.0 Status of the Species and Critical Habitat in the Action Area

4.1 Western Spadefoot

4.1.1 Species Description

WSF is an anuran belonging to the family Scaphiopodidae. It is endemic to California and northern Baja California. It ranges from northern California south throughout the Central Valley and its foothills, into coastal southern California and northwest Baja California. Much of the WSF habitat has been lost in the Central Valley due to urban and agricultural development on land that previously supported seasonal rain pools. An estimated 80% of its former habitat in southern California has been lost due to development (Stebbins 2003).

WSF inhabits a variety of different habitats including washes, floodplains of rivers, alluvial fans, playas, and alkali flats. It occurs in grasslands, scrublands, and occasionally in savannah or open woodlands to an elevation of approximately 1,385m (4,500 feet). WSF breeding sites include vernal pools and other temporary rain pools, cattle tanks, and pools of intermittent streams. (Stebbins 2012).

Adult WSF shelter in burrows up to one meter deep for most of the dry season. They may use soil cracks, burrows of gophers, ground squirrels or kangaroo rats, or dig their own burrows with the spades on the hind feet (Stebbins 2012). They are active on the surface primarily at night and in wet conditions. Their diet consists of a variety of invertebrates, including adult beetles, larval and adult moths, crickets, flies, ants, spiders, and earthworms. Tadpoles feed on planktonic organisms, algae, small invertebrates, dead aquatic larvae of amphibians, and may exhibit cannibalism (Bragg 1964).

Adults remain in underground burrows for most of the year, and move to breeding pools after heavy rains, typically in February and March (though they are physiologically capable of breeding at any time if conditions are favorable) (Ervin and Cass 2007). WSF breeding usually occurs 1-2 days after heavy rains. Hatching is rapid, occurring a few days after laying. Tadpoles transform in 4-11 weeks; breeding pools must last for at least 30 days for successful transformation of larvae. Recently metamorphosed individuals seek refuge in the immediate vicinities of breeding pools for up to several days after transformation. They have been witnessed hiding in drying mud cracks and beneath boards and other surface objects (Weintraub 1980).

4.1.2 Status in the Action Area

Targeted WSF surveys have not been conducted at either the Project Site or the Property, but WSF have been documented at both sites during surveys for CTS and VPFS.

The Project Site consists of a mix of more-and-less degraded grasslands and farmlands, as well as seasonal wetlands, stock ponds, and other habitats, as described in the BA, and under "Environmental Baseline", below. Surveys in 2023-2024 documented WSF larvae in 18 features totaling 0.632 acre on and adjacent to the Project Site (**Figure 2**). An additional 0.719 acre of aquatic features also provide suitable WSF breeding habitat, though breeding has not been documented in these features. An agricultural tailwater pond (1.129 acre) on the Project Site provides low-suitability aquatic habitat due to its large size, great depth, and artificially controlled hydrology, all of which are atypical of WSF breeding habitat.

Grasslands cover approximately 206.043 acres of the Project Site, providing suitable upland habitat for WSF. Degraded uplands (primarily fallowed agricultural areas) provide approximately 136.154 acres of low-suitability upland habitat for the species.

The Project includes off-site improvement areas, as displayed on **Figure 2**. These consist of required improvements to roads, utilities, and related infrastructure required for the Project. As described in the 2023 BA, these areas consist of existing roads and low- and medium-density

residential development. The off-site improvement work areas do not include aquatic resources or open grasslands or shrublands; WSF are not expected to occur in these areas.

WSF breeding is widespread at the Jamison Ranch Property. While comprehensive surveys of all wetlands on the ranch have not been completed, to date WSF breeding has been observed in 52 pools across the ranch, 32 of which (totaling 4.4 acres) are within the proposed preserve (**Figure 3**). The entirety of the 857-acre proposed preserve is occupied WSF habitat. This area consists of a matrix of vernal pools and swales, grasslands, and ephemeral and intermittent streams, all suitable for WSF use. Comprehensive wetland mapping has not been completed for the Property but is underway. Total aquatic area on the proposed preserve is estimated to be approximately 50-60 acres, with the remainder being grasslands.

4.2 Northwestern Pond Turtle

4.2.1 Species Description

NPT is a small turtle in the family Emydidae. It has undergone recent taxonomic revisions, including classification under *Clemmys*, *Emy*s, and *Actinemys*. It was taxonomically split into two species: NPT is distributed from Washington through Oregon, northern California, and the Central Valley. Populations on the central and south coast of California, southern California, and Baja California are now treated separately as southwestern pond turtle (*Actinemys pallida*).

NPT is highly aquatic, spending most of its life in or immediately around rivers, streams, lakes, ponds wetlands, reservoirs, and brackish estuarine waters from sea level to 6,500 feet (Holland 1994; Jennings and Hayes 1994). They prefer habitats with areas for cover (vegetation, logs) and basking sites (rocks and other substrates) (Holland 1994). These turtles often bask outside of the water, but quickly re-enter if they are threatened. Summer droughts and cold winters are survived by aestivating/hibernating or burying in loose soil or mud.

NPT move through uplands to travel between aquatic habitats, and to lay eggs. Between April and August, females dig nests on land and lay clutches of 2-11 eggs. Nests are generally located in sunny, open areas with friable soils, typically within 100m of aquatic habitat (Slavens 1995).

Western pond turtles are omnivores, with the potential to be opportunistic predators and scavengers (Holland 1985a, 1985b, Bury 1986). Their diet primarily consists of crustaceans, midges, dragonflies, beetles, and caddisflies. They are also known to eat mammal, bird, reptile, amphibian, and fish carrion. They have been observed foraging on willow and alder catkins, and on ditch grass inflorescences (Holland 1991).

Western pond turtles begin to breed between 10 and 14 years of age. Females leave drying creeks from May to July to oviposit in sunny upland habitats, including grazed pastures. Clutch size ranges from one to 13 eggs, and incubation lasts 80-100 days. Nest predation rates are high and complete failure of nests is common.

4.2.2 Status in the Action Area

NPT is declining in most of its range. It is almost extinct in the San Joaquin Valley and has seen extensive habitat loss, in part due to predation as well as competition from introduced animals, including exotic pet turtles that have been released into the wild (Zeiner and Laudenslayer 1990). A few sites in the San Joaquin Valley have been more recently studied and shown to have strong, extant populations of NPT. The Fresno-Clovis Regional Wastewater Reclamation Facility, southwest of Fresno and Five-Mile Slough in western Fresno County are the two strongest population centers in the region (Germano 2001, Germano 2010).

Both the Project Site and the Property have been subject to intensive biological studies, particularly of aquatic habitats, over multiple years. NPT has not been observed at either site. The nearest documented occurrence of NPT to the Project Site is approximately 0.8 mile to the south (CNDDB 2024). This occurrence consists of a single adult turtle observed in 2016 in the Enterprise Canal within urban Clovis. The occurrence is separated from the Project Site by approximately 0.6 mile of dense suburban development. The Enterprise Canal intersects with Dry Creek (which crosses the Project Site) approximately 2 miles (along Enterprise Canal) of the occurrence location, and approximately 1.4 miles (along Dry Creek) of the Project Site, for a combined stream distance of approximately 3.4 miles. The Enterprise Canal carries water for much of the year, but Dry Creek below the Project Site is intermittent and controlled by dam releases from Big Dry Creek Dam; it does not generally provide suitable aquatic habitat.

The Project Site itself presents limited aquatic habitat for NPT (**Figure 4**). The Outlet Channel from Big Dry Creek Reservoir (which functionally replaces Dry Creek through the Project Site) is a constructed trapezoidal feature with no riparian corridor. Its hydrology is controlled by dam releases, and therefore tends to consist of either rapid, unimpeded channel flow, or else shallow, marshy conditions with only a few inches of water. Deep, slow-moving water preferred by NPT generally does not occur. The channel lacks haulout and basking opportunities such as inchannel bars, beaches, and instream woody material.

Numerous depressional seasonal wetlands provide potential and occupied habitat for CTS, VPFS, and WSF, but are too small and shallow to be used by NPT. Three seasonal stock ponds are present in the northwest corner of the Project Site, though these typically dry between March and April, and therefore provide aquatic habitat for only a short portion of NPT's active season. They also lack riparian habitat, other cover, and basking opportunities.

The 1.129-acre agricultural tailwater pond near the center of the Project Site provides the best potential habitat for NPT on the Project Site. This feature is large, deep, and still, with a vegetated wetland edge, but little in the way of other cover or basking opportunities. This pond typically fills only from backflow from the Outlet Channel during large releases from Big Dry Creek Reservoir, though it also receives overland flow from former agricultural fields on the Project Site. During drought years, the pond never fills, but in wet years it may remain wet for the entire summer. This

irregular hydroperiod, including multi-year dry periods, likely makes the pond unsuitable for supporting a population of NPT.

The Project includes off-site improvement areas, as displayed on **Figure 4**. These consist of required improvements to roads, utilities, and related infrastructure required for the Project. As described in the 2023 BA, these areas consist of existing roads and low- and medium-density residential development. The off-site improvement work areas do not include aquatic resources that might be used by NPT.

Outside the Project work area, Big Dry Creek Reservoir and sections of Dry Creek above the dam may provide suitable habitat in the vicinity of the Project, though NPT has not been documented in these areas. The nearest documented occurrence to the Project Site outside of metropolitan Fresno is approximately five miles north of the Project Site, where turtles were documented along the Friant-Kern Canal in 2004.

The upland portions of the Project Site contain large areas of sunny, relatively open habitat with friable soils. These areas may be suitable for NPT nesting. However, their distance from known aquatic habitats makes them unlikely to be used by NPT.

In summary, NPT has been observed occasionally in the Project vicinity to the south; some suitable habitat occurs to the north of the Project Site; the Project Site itself provides some suitable habitat on a temporary basis, but NPT has not been observed to use it, despite multiple surveys of the site, many of which focused on its aquatic resources. It is therefore prudent to assume that NPT may occasionally move through the Project Site or forage there for limited periods. However, it is unlikely that the Project Site supports a population of NPT. Similarly, NPT could move through offsite work areas while travelling between suitable habitat patches, but there is no habitat to support sheltering or feeding in the off-site work areas.

The nearest documented NPT occurrence to the proposed preserve is approximately 8.7 miles to the northeast, dating to 2010 (CDFW 2024). This occurrence consists of an adult turtle seen entering Hildreth Creek and moving downstream (i.e. toward the proposed preserve). The area between this occurrence and the proposed preserve consists of open grassland crossed by occasional small, intermittent streams lacking riparian vegetation. The confluence between Hildreth Creek and Little Dry Creek (which flows through the Mitigation Area) is over 20 stream-miles below the occurrence, and 10 below the Mitigation Area. The other regional NPT occurrences are located further away, in the foothills, along the San Joaquin River, or associated with the Fresno metropolitan area.

The proposed preserve presents very limited habitat for NPT. Little Dry Creek and its tributaries in the proposed preserve have several stream pools, but these are small and shallow, and lack riparian vegetation, basking opportunities, or cover. These pools typically dry in late Spring or early Summer. Small stock ponds or “dirt tanks” on the proposed preserve are relatively deep (a few feet) and hold water into Summer, but lack any riparian vegetation, basking opportunities, or

cover for turtles. Moreover, they are small and disconnected from any riparian corridors. Vernal pools and other seasonal wetlands on the proposed preserve are too shallow to support NPT. Nearly all of the proposed preserve consists of open, sunny grasslands with friable soils which could be used for NPT nesting. However, NPT are very unlikely to travel so far from core aquatic habitat to nest.

The Madera Canal crosses the Jamison Ranch approximately 1.6 miles north of the proposed preserve. The canal is a large, steep-sided, trapezoidal feature used to provide large water deliveries from Millerton Lake to the valley floor. During deliveries, it has swift flows of cold water; between deliveries, it supports shallow ponding along its length. The canal does create numerous ponds and marshes in adjacent areas, including a large seasonal marsh immediately north of the Jamison Ranch, approximately 1.3 miles north of the proposed preserve. No NPT have been documented in the Madera Canal or these adjacent features.

In summary, the proposed preserve presents limited habitat for NPT. The lack of nearby documentations or highly suitable habitat make it unlikely that NPT use the proposed preserve with any frequency.

4.3 Designated Critical Habitat

Critical habitat has not been designated for WSF or NPT. Other designated critical habitat is discussed in the 2023 BA.

5.0 Effects of the Action

5.1 Potential Effects on Western Spadefoot

Because of WSF's habits—including spending most of its life underground and emerging only nocturnally—the number of WSF individuals potentially affected is difficult to accurately determine. For the purpose of analyzing impacts and determining appropriate mitigation, acres of habitat are used as a proxy for the amount of take. **Table 1** summarizes all impacts to (and avoidance of) WSF habitat in the Impact Area, including on-site direct impacts, off-site direct impacts, and indirect impacts. Under the Proposed Action, compensatory mitigation for direct impacts (i.e. habitat conversion by development) to occupied or suitable WSF habitat would be provided at a ratio of three acres of preserved habitat at the proposed preserve for every one acre of conversion in the Impact Area. Direct impacts to low-suitability WSF habitat would be mitigated at a ratio of two-to-one. Indirect impacts to occupied or suitable WSF habitat would be mitigated at a ratio of 1:1, and indirect impacts would be mitigated at a ratio of 0.67:1. **Table 2** summarizes the impact and mitigation acreage and ratios.

Specific causes of direct and indirect impacts are described below, along with descriptions of the effects of avoidance, minimization, and mitigation measures.

Table 1. Summary of All Impacts to Western Spadefoot Habitat

Habitat Class	Disposition	Area (acres)
Suitable (Upland)	Direct Impact	188.504

Habitat Class	Disposition	Area (acres)
Suitable (Upland)	Avoided	17.539
Low Suitability (Upland)	Direct Impact	135.027
Low Suitability (Upland)	Avoided	1.127
Occupied (Breeding)	Avoided	0.632
Suitable (Breeding)	Direct Impact	0.495
Suitable (Breeding)	Avoided	0.224
Low Suitability (Breeding)	Avoided/Modified	1.129
Subtotals by Habitat Suitability		
All Occupied/Suitable Habitat	**Direct Impact**	**188.999**
All Occupied/Suitable Habitat	**Avoided**	**18.395**
All Low-Suitability Habitat	**Direct Impact**	**135.027**
All Low-Suitability Habitat	**Avoided/Modified**	**2.256**
Impact Area Total		**344.677**

Table 2. Summary of Western Spadefoot Impacts, Mitigation, and Mitigation Ratios

	WSF Occupied/ Suitable Habitat (acres)	WSF Low-Suitability Habitat (acres)	Subtotal (acres)
Area Directly Impacted	188.999	135.027	324.026
Direct Impact Mitigation Ratio	3:1	2:1	-
Direct Impact Mitigation Amount	566.997	270.054	837.051
Area Indirectly Impacted	18.395	2.256	20.651
Indirect Impact Mitigation Ratio	1:1	0.67:1	-
Indirect Impact Mitigation Amount	18.395	1.512	19.907
Total Mitigation Acreage (all habitats/impacts)			**857**

5.1.1 Direct Effects

While AMMs have been incorporated to reduce the risks of Project construction, the Project may result in direct mortality of WSF individuals through vehicle strikes, crushing/entombment of animals in burrows, or other construction-related injury or mortality. The Project will fill 0.495 acre of suitable breeding habitat and convert approximately 189.7 acres of presumed-occupied WSF upland habitat, as well as approximately 140.3 acres of low-suitability upland habitat (**Figure 2**). These are direct adverse effects.

5.1.2 Indirect Effects

Eighteen documented WSF breeding pools (totaling 0.632 acre) in the Impact Area will be avoided by the Project and will not be filled. Two of these documented breeding pools (totaling 0.034 acre) will be surrounded by development, with development activities taking place as near as 25 feet from the features. The remnant habitat patches containing these pools will range in size from approximately 0.5 acre to approximately 27 acres. The other documented breeding pools (totaling 0.598 acre, including off-site portions of a pool which straddles the Project Site boundary) will be

avoided by Project development. Following development of the Project, they will be located along the northeast edge of the Project Site. These pools will exist in a strip of open land approximately 250 feet wide for most of its length between the development and Big Dry Creek Dam. The development will be as near as 25 feet from the pools. The current neighboring habitat southwest of the pools, consisting of annual grassland, will be replaced by mixed-use development.

One pond with low suitability for WSF breeding (the agricultural tailwater pond, 1.129 acre) will also be surrounded on two out of three sides by development, with development activities taking place as near as 25 feet. Post-construction, it will exist in an approximately two-acre triangle of land between the development and the Big Dry Creek Dam spillway canal, with the above-mentioned 27-acre undeveloped grassland parcel lying beyond the canal. This pond will also be subject to hydrologic modification, including input of treated runoff from developed areas, resulting in increased duration and regularity of its hydroperiod.

The conversion of the existing grassland to developed area may modify the breeding pools' watersheds or spillways by increasing the amount of impervious surface and redirecting storm runoff. The avoided areas could be subject to introduction of exotic species from the development and could receive reduced seed and pollen input for native plants due to the reduction of nearby buffer lands. They may also be subject to increased human visitation.

Animals in the avoided areas may be subject to increased risk of harm from these indirect effects on their habitat. WSF depend on the ability to migrate between their breeding pools and the upland habitats where adults shelter and forage. The development will reduce the amount of foraging and sheltering habitat available, and interfere with the ability of WSF to move to and from breeding pools. Animals entering the adjacent development may also be at increased risk of harm from humans, pets, vehicles, exposure to chemicals, and other anthropogenic factors.

These changes represent a permanent, indirect, adverse effect on the avoided habitat and the WSF population remaining in it.

5.1.3 Avoidance and Minimization Measures

In order to avoid and/or minimize negative effects to WSF and its habitat, various take avoidance and habitat preservation measures will be implemented, as described above. Implementation of stormwater Best Management Practices (BMPs) under the required Stormwater Pollution Prevention Plan (SWPPP) will reduce the risk of construction runoff impacting the features. Construction barriers and worker training will reduce the risk of unintended entry into and direct impacts to avoided habitats from construction activities. Relocation of adult WSF according to an approved plan will provide an opportunity to salvage some of the existing population's members and genetic diversity, and wildlife exclusion barriers will reduce mortality from animals re-entering the active work area. Speed limits, pipe-capping and trench-covering will reduce mortality of WSF caught within the work area, and trash control will reduce the risk of predators of WSF being attracted to the work site and preying on exposed animals. Avoidance of hazardous materials such as monofilament mesh and pesticides in the work area will further reduce the risk of

unintentional take. Monitoring by qualified biologists will help ensure the above measures are adhered to and provide additional opportunities for take avoidance and salvage.

Following project development, fencing and sensitive resource signage will reduce the severity of indirect impacts to avoided pools from increased human visitation post-construction. The addition of stormwater treatment and redirection into avoided wetlands, combined with the recording of a conservation easement over the avoided areas, will further reduce indirect impacts to the avoided habitats.

5.1.4 Preservation of Western Spadefoot Habitat

The protection of the proposed preserve on the Jamison Ranch will ensure the long-term preservation of approximately 4.4 acres of documented WSF breeding habitat, approximately 47.1 acres of potential WSF breeding habitat, and 804.5 acres of occupied WSF upland habitat in an area targeted for conservation. Implementation and funding of a management and monitoring plan will ensure that the habitat is subject to scientific monitoring and habitat management for the benefit of the species. Preservation of habitat in a large block, connected with other open lands and preserves, provides an opportunity for this wide-ranging species to maintain healthy population sizes and genetic diversity. See the Compensatory Mitigation Plan & Mitigation Climate Change Analysis for additional discussion of this preservation (RCEC 2024).

5.1.5 Conclusion - Effects of Action on Western Spadefoot

The Project will directly fill 0.495 acre of suitable WSF breeding habitat. It will cause negative indirect effects to a further 0.632 acre of documented WSF breeding habitat and 1.129 acre of low-suitability WSF breeding habitat. The Project will also destroy approximately 190 acres of presumed-occupied WSF upland habitat, and approximately 140 acres of low-suitability WSF upland habitat. Based on this, the Project **may affect** and is **likely to adversely affect** western spadefoot. However, the Project incorporates AMMs to reduce the severity of impacts. It also preserves occupied or suitable WSF habitat at a ratio of three acres of preserved habitat for one acre of impacted occupied or suitable habitat, and two acres of preserved habitat for one acre of impacted low-suitability habitat. Based on this, the Project avoids, minimizes, and/or mitigates adverse effects and **contributes to the survival and recovery of this species**.

5.2 Potential Effects on Northwestern Pond Turtle

The Project Site and Property provide only limited and transient NPT habitat, and do not apparently support populations of NPT. NPT is relatively visible during most of its lifecycle, and so direct effects on individuals are more detectable than for secretive or cryptic species such as WSF, CTS, and VPFS. Effects on habitat are summarized in **Table 3**, below, but the analysis of effects on NPT does not use acres as a proxy for individuals, since the habitat appears unoccupied. Specific causes of direct and indirect impacts are described below, along with descriptions of the effects of avoidance, minimization, and mitigation measures.

Table 3. Summary of All Impacts to Northwestern Pond Turtle Habitat

Habitat Class	Disposition	Area (acres)
Potential Terrestrial Habitat	Direct Impact	323.531
Potential Terrestrial Habitat	Avoided	18.666
Low Suitability Aquatic Habitat	Direct Impact	0.435
Low Suitability Aquatic Habitat	Avoided	1.091
Low Suitability Aquatic Habitat	Enhanced	1.129
Total Area		**344.852**

5.2.1 Direct Effects

While AMMs have been incorporated to reduce the risks of Project construction, the Project may result in direct mortality of transient NPT individuals through vehicle strikes, entrapment, harassment, or other construction-related mortality. If it occurred, this would be a direct adverse effect.

The only large and constant populations of NPT documented in the region are distant and separated from the Project Site by many miles of urban and agricultural development. These population centers will not be affected by the Proposed Action. The number of individuals which might move through the Action Area is expected to be low. The rarity of sightings in the vicinity makes a precise prediction impossible, but we estimate that two or fewer individual NPT are likely to be encountered during Project development.

5.2.2 Indirect Effects

The Project will fill 0.435 acre of low-suitability aquatic habitat. The Project will also convert approximately 323.531 acres of upland habitat, through which NPT could potentially move (**Figure 4**). Three low-suitability aquatic habitats in and adjacent to the Project Site (one stock pond, the agricultural tailwater pond, and the outlet channel, totaling 3.203 acre) will be avoided by the Project and will not be filled. These features will be partially surrounded by development, with development activities taking place as near as 25 feet. These features will remain accessible from off-site, but the ability of NPT to move to and from these habitats will be reduced.

The conversion of the existing uplands to developed area may modify avoided features' watersheds or spillways by increasing the amount of impervious surface and redirecting storm runoff. The ponds could be subject to introduction of exotic species from the development and receive reduced seed and pollen input for native plants due to the reduction of nearby buffer lands. They may also be subject to increased human visitation.

NPT entering the avoided areas in the future may be subject to increased risk of harm from these indirect effects on their habitat. NPT attempting to cross through the developed area may be at increased risk of harm from humans, pets, vehicles, exposure to chemicals, and other anthropogenic factors. These potential impacts represent a permanent, indirect, adverse effect on this habitat.

5.2.3 Avoidance and Minimization Measures

In order to avoid and/or minimize negative effects to NPT and its habitat, various take avoidance and habitat preservation measures will be implemented, as described above, and in Section 3.2.1.3.1 of the BA. Implementation of stormwater Best Management Practices (BMPs) under the required Stormwater Pollution Prevention Plan (SWPPP) will reduce the risk of construction runoff impacting the features. Construction barriers and worker training will reduce the risk of unintended entry into and direct impacts to avoided habitats from construction activities. Relocation of NPT according to an approved plan will provide an opportunity to salvage some of the existing population's members and genetic diversity, and wildlife exclusion barriers will reduce mortality from animals re-entering the active work area. Speed limits and trench-covering will reduce mortality of NPT caught within the work area, and trash control will reduce the risk of predators of NPT being attracted to the work site and preying on exposed animals. Avoidance of hazardous materials such as monofilament mesh and pesticides in the work area will further reduce the risk of unintentional take. Monitoring by qualified biologists will help ensure the above measures are adhered to and provide additional opportunities for take avoidance and salvage.

Following project development, fencing and sensitive resource signage will reduce the severity of indirect impacts to avoided habitats from increased human visitation post-construction. The addition of stormwater treatment and redirection into avoided wetlands, combined with the recording of a conservation easement over the avoided areas, will further reduce indirect impacts to the avoided habitats.

5.2.4 Preservation and Enhancement of Northwestern Pond Turtle Habitat

The agricultural tailwater pond, adjacent to the Outlet Channel, will be modified as part of the Project, as described above. Its current hydrology is very irregular, because it is primarily filled by dam releases from Big Dry Creek Dam. These releases occur sporadically based on rainfall and the assessed capacity of the dam. After project implementation, the pond will receive treated stormwater flows from the community, which are more regular and predictable. The Project Proponent is seeking to create a more stable hydroperiod and habitat in the pond, both to enhance its aquatic resource values and to make it a more beautiful feature adjacent to the community. (Note that this enhancement is not intended to provide compensatory mitigation for impacts to jurisdictional aquatic resources). This change, while not conducted for the purpose of NPT habitat enhancement, will nonetheless make the pond more suitable for use by NPT. The Outlet Channel is the most likely movement path from the known occurrence south of the Project Site to Big Dry Creek Reservoir and open lands to the north. If NPT do move along the channel, the avoided and enhanced pond will provide potential habitat along the route.

The protection of the proposed preserve on the Jamison Ranch will ensure the long-term preservation of approximately 857 acres within NPT's historical range. This habitat may not currently be occupied by NPT but may become occupied in the future if habitat enhancements and/or reintroductions are conducted on the proposed preserve or nearby lands. Such

enhancements and/or reintroductions are not currently planned. However, protection of the proposed preserve preserves the opportunity for future re-occupation of this habitat.

5.2.5 Conclusion - Effects of Action on Northwestern Pond Turtle

Habitat on the Project Site appears unoccupied and provides only limited and transient habitat values for NPT. Loss of this habitat is unlikely to cause significant effects on NPT populations. Direct mortality of transient NPT crossing the Project Site is unlikely, but the possibility should not be discounted. This possibility means that the Project **may affect** and is **likely to adversely affect** northwestern pond turtle. However, the Project incorporates AMMs to reduce the likelihood of mortality of NPT. Based on this, the Project avoids, minimizes, and/or mitigates adverse effects to NPT. The estimated impact to two or fewer individual NPT will not significantly affect populations of this species.

6.0 Conclusion

The Proposed Action **may affect, and is likely to adversely affect**, western spadefoot and northwestern pond turtle. The Project incorporates measures which will effectively mitigate this risk and ensure that the survival of neither species is jeopardized over the long term. The Project Proponent is seeking Incidental Take Coverage for these species.

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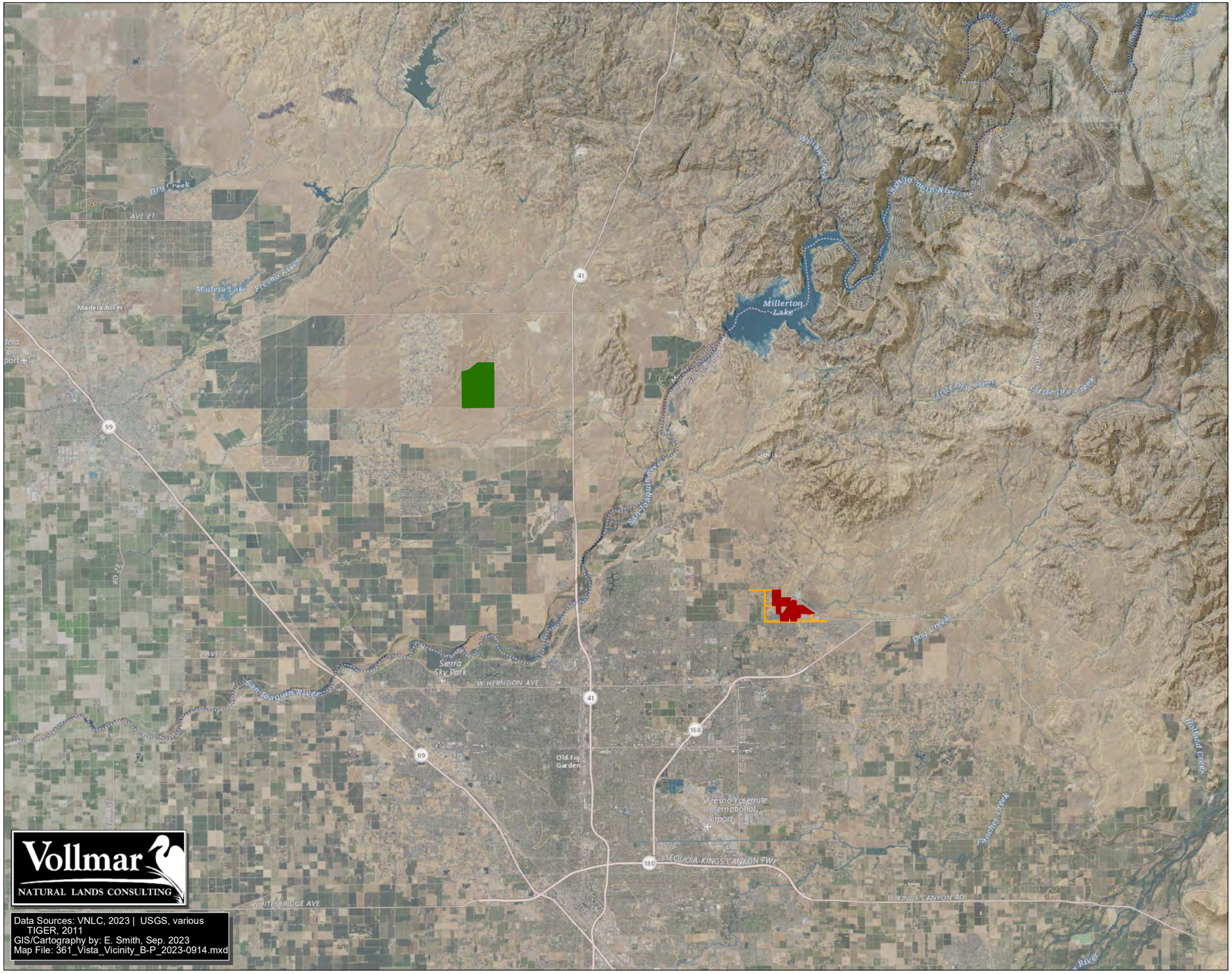
Zeiner, D.C., W.F. Laudenslayer, Jr., K.E. Mayer, and M. White, eds. 1988-1990. California's Wildlife. Vol. I-III. California Department of Fish and Game, Sacramento, California.

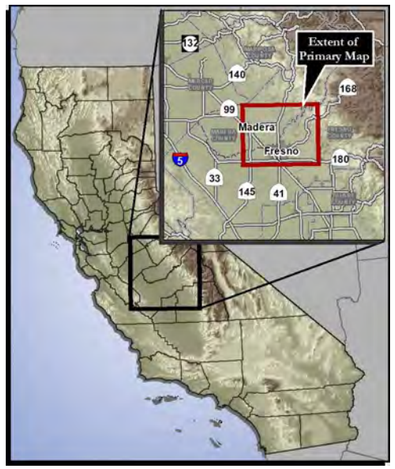
Attachments

Figure 1. Regional Vicinity Map
Figure 2. Western Spadefoot Impacts
Figure 3. Jamison Ranch Site Special-Status Species Occurrences
Figure 4. Northwestern Pond Turtle Potential Habitat Impacts

FIGURE 1
Regional Vicinity Map

Action Area
Fresno and Madera Counties, California





Legend

- Project Site (368 ac.)
- Off-Site Work Area (50 ac.)
- Proposed Preserve (857 ac.)

N
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S

1:200,000

1 inch = approx. 3.2 miles at tabloid layout

0 2.5 5 10 Km

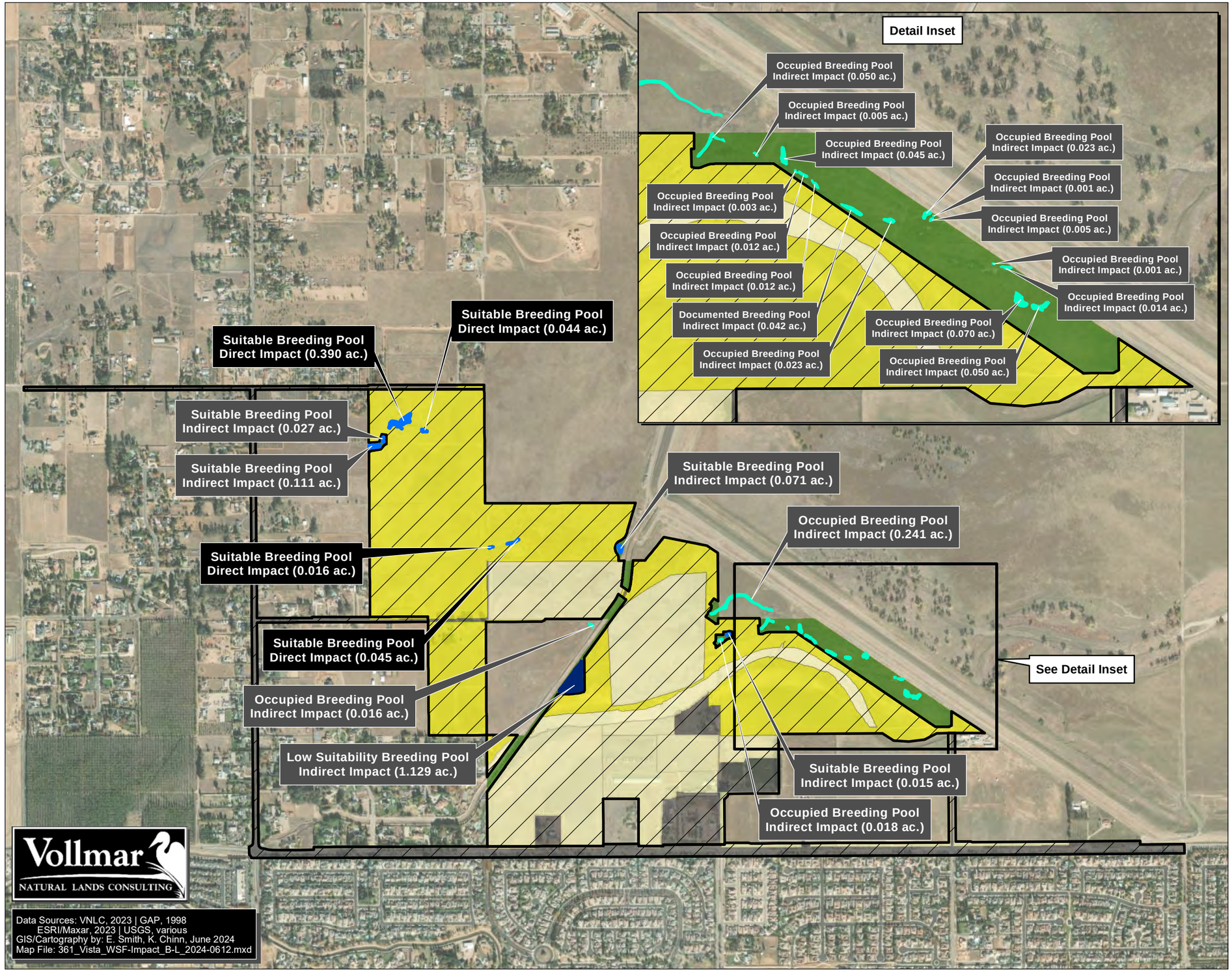
0 1 2 4 Mi

Vollmar
NATURAL LANDS CONSULTING

Data Sources: VNLC, 2023 | USGS, various
TIGER, 2011
GIS/Cartography by: E. Smith, Sep. 2023
Map File: 361_Vista_Vicinity_B-P_2023-0914.mxd

FIGURE 2
Western Spadefoot Impacts

Vista Ranch Development
Fresno County, California

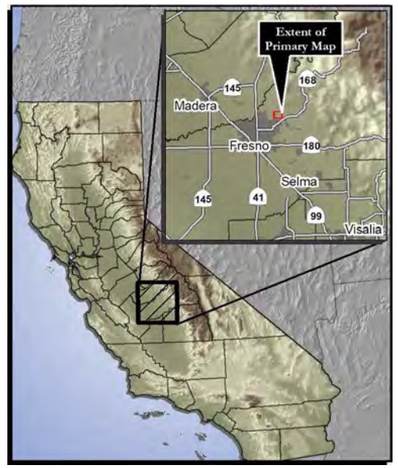


Legend

- Work Area
- Wetland Avoidance Area

Western Spadefoot Habitat

- Present (Breeding)
- Suitable (Breeding)
- Low Suitability (Breeding)
- Suitable (Upland, Direct Impact)
- Low Suitability (Upland, Direct Impact)
- Not Suitable



N
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1:13,500
(1 in. = 1,125 ft. at Tabloid Layout)

0 150 300 600 Meters

0 750 1,500 3,000 Feet

Vollmar NATURAL LANDS CONSULTING

Data Sources: VNLC, 2023 | GAP, 1998
ESRI/Maxar, 2023 | USGS, various
GIS/Cartography by: E. Smith, K. Chinn, June 2024
Map File: 361_Vista_WSF-Impact_B-L_2024-0612.mxd

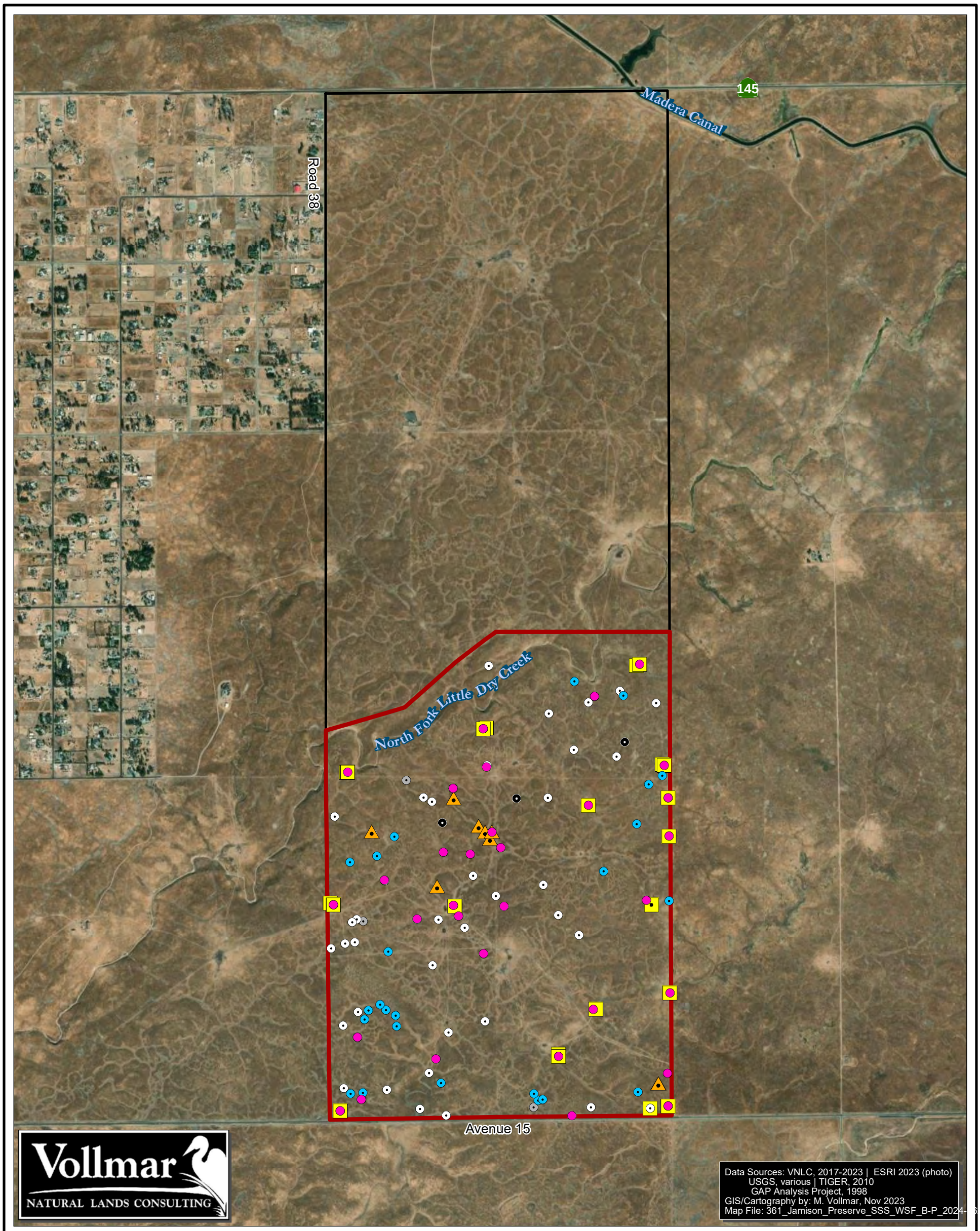


FIGURE 3
Site Special-Status Species Occurrences

Jamison Ranch
Madera County, California

Legend

Documented Special-Status Species Occurrences

- Western Spadefoot (breeding)
- CTS (breeding)
- Vernal Pool Fairy Shrimp
- California Fairy Shrimp
- Vernal Pool Fairy Shrimp and California Fairy Shrimp
- Midvalley Fairy Shrimp
- Succulent Owl's-Clover
- Adobe Navarretia and Hogwallow Starfish
- Burrowing Owl
- Proposed Preserve (857 ac.)
- Jamison Ranch (1,920 ac.)

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1:18,000
1 inch = 1,500 feet

0 200 400 800 Meters
0 750 1,500 3,000 Feet

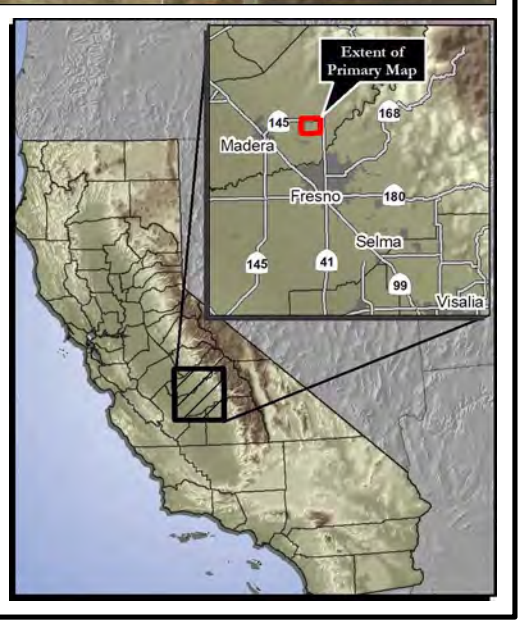
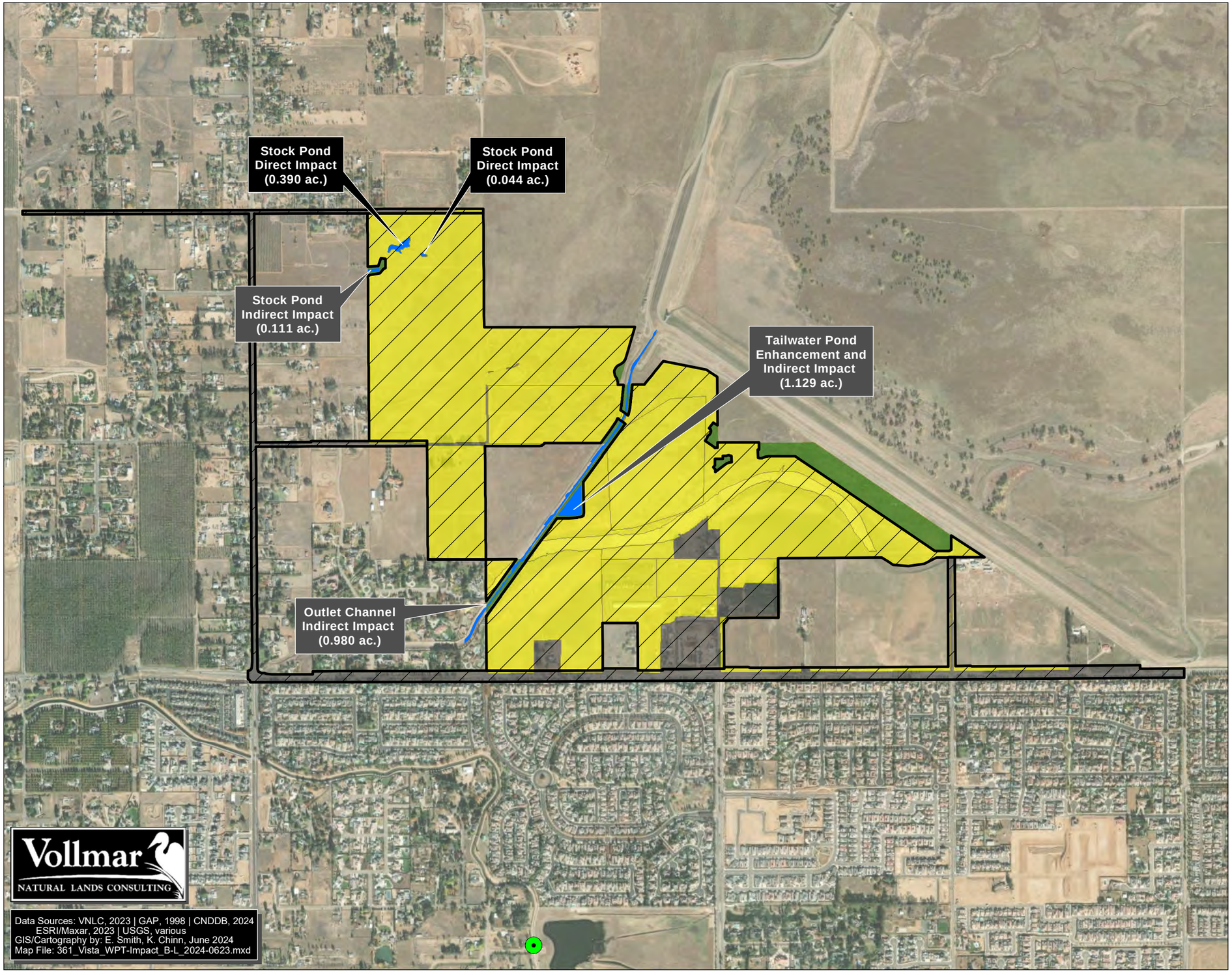


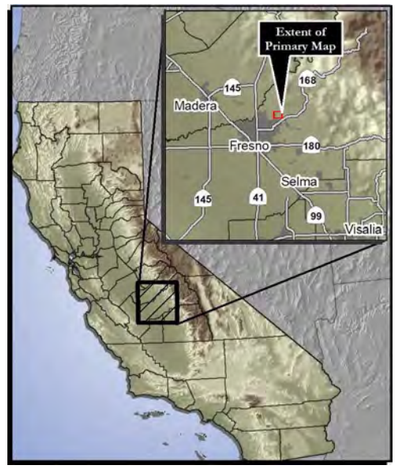
FIGURE 4
Northwestern Pond Turtle Potential Habitat Impacts

Vista Ranch Development
Fresno County, California



Legend

- Northwestern Pond Turtle Locality (CNDDB, 2016)
- Work Area
- Wetland Avoidance Area
- Low-Suitability Aquatic Habitat
- Potential Terrestrial Habitat (Upland, Direct Impact)
- Not Suitable



N
W E
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1:13,500
(1 in. = 1,125 ft. at Tabloid Layout)

0 150 300 600 Meters
0 750 1,500 3,000 Feet

Vollmar NATURAL LANDS CONSULTING

Data Sources: VNLC, 2023 | GAP, 1998 | CNDDB, 2024
ESRI/Maxar, 2023 | USGS, various
GIS/Cartography by: E. Smith, K. Chinn, June 2024
Map File: 361_Vista_WPT-Impact_B-L_2024-0623.mxd

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E.3 - Conceptual Mitigation Plan

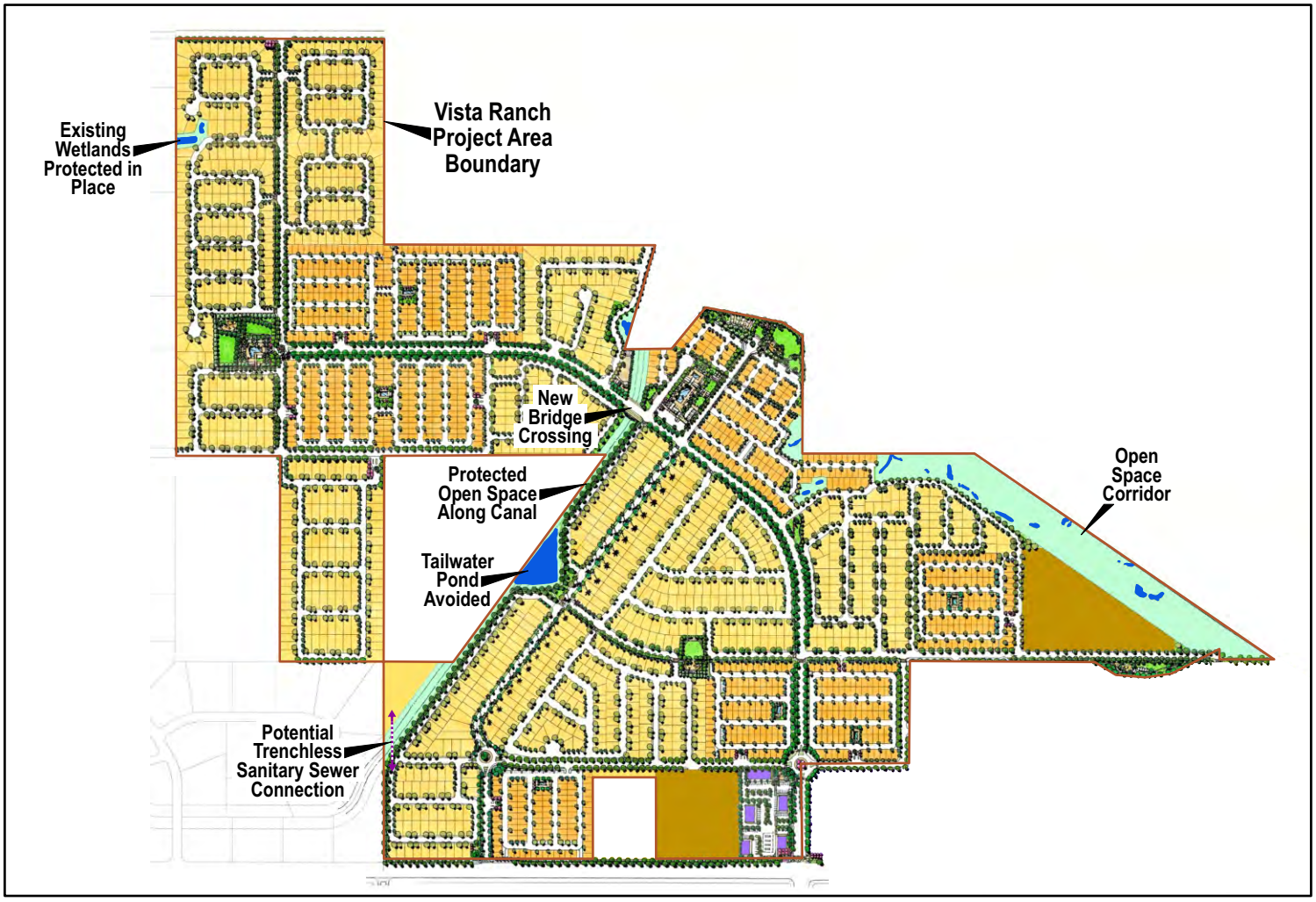
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WILSON HOMES

Vista Ranch Project

Conceptual Mitigation Plan

October 2023



Redtail Consulting
Environment & Community

Vista Ranch Project
Conceptual Mitigation Plan

WILSON HOMES

October 2023

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- Proposed Development 3
- Impacts on Aquatic Resources 4
  - Site Conditions Overview 4
  - Existing Wetlands & Other Waters 5
    - Big Dry Creek Dam Spillway Canal 5
    - Depressional Wetlands 6
    - Stockpond Wetlands 7
    - Agricultural Tailwater Pond 7
  - Wetland Avoidance & Unavoidable Impacts 8

Proposed Compensation for Permanent Impacts 10

- Summary of Compensation Approach 10
- Jamison Ranch Property Overview 10
- Regional Conservation Context 11
- Existing Habitat at Mitigation Site 12
  - Vegetation & Ecological Services 12
    - Vernal Pools 12
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Wilson Premier Homes – Vista Ranch

Conceptual Mitigation Plan

Introduction

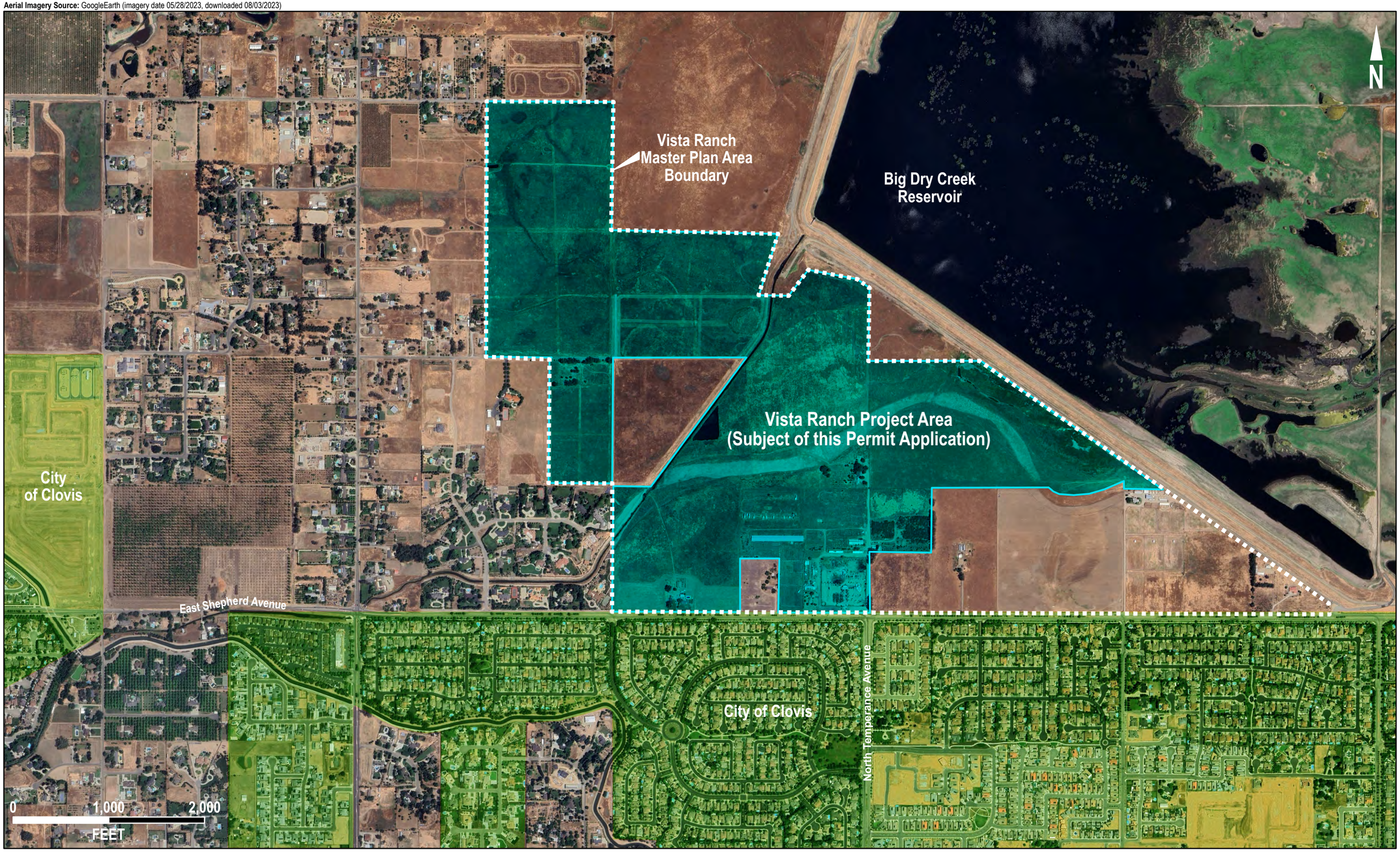
This plan describes the mitigation proposed to compensate for unavoidable impacts on jurisdictional wetlands and waters as a result of constructing the proposed Vista Ranch mixed-use development (project), which would be located immediately north of the current limits of the City of Clovis (City), as shown in Figure 1. The project has been configured to avoid impacts on aquatic resources to the extent feasible but would nonetheless incur a total of approximately 0.495 acre of unavoidable permanent impacts and an additional 0.003 acre of temporary impacts.

The proponent anticipates that mitigation will be required for losses of special-status species habitat, and is proposing to conserve a substantial extent of occupied habitat offsite. This includes high-quality seasonal stream and vernal pool/vernal swale habitat as well as adjacent grasslands. Preservation of aquatic resources at the same location is proposed as offering at least partial compensation for unavoidable project impacts on wetlands and waters. Any impacts not considered adequately compensated by preservation—which the proponent understands may not be accepted for aquatic resources impacts—will be offset by purchase of aquatic resources credits from an agency-approved source.

The following information is presented in this plan.

- Background on the proposed Vista Ranch project's planning context
- A brief overview of the project, including
    - information on existing aquatic resources at the project site
    - avoidance of wetlands/waters incorporated into the design
    - unavoidable impacts on wetland/waters
- A description of the proposed mitigation approach for both temporary and permanent impacts, including
    - an overview of the proposed mitigation site and its regional conservation context
    - information on the extent and quality of habitat at the mitigation site
    - potential compensation ratios that could be achieved through preservation of habitat
    - brief discussion of planning for long-term management of the mitigation site
- A list of references cited

Aerial Imagery Source: GoogleEarth (imagery date 05/28/2023, downloaded 08/03/2023)



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Figure 1. Site Location and Extent
Vista Ranch – Conceptual Mitigation Plan
Wilson Premier Homes

Additional detail on the project is provided in the separately attached *Project Description*, and additional information on aquatic resources at the project site can be found in the project *Delineation of Potential Jurisdictional Aquatic Resources* (Vollmar Natural Lands Consulting 2023a), submitted previously for verification.

Background

The Vista Ranch project site is located at the west edge of an area designated as the Northeast Urban Center by the City of Clovis General Plan (City of Clovis 2014) (Figure 2). This area remains largely undeveloped at present, but at buildout is planned to support

- "a series of urban villages that are distinct but that, taken together, contribute to a common public identity"
- arterial roadways that capitalize on "vistas of the Sierra Nevada and pristine local viewsheds" rather than following a grid pattern
- a "robust non-vehicular circulation system" connecting residential neighborhoods, community centers, parks, schools, and commercial districts

As a first step, an area of 507 acres that is largely within the Northeast Urban Center is proposed for inclusion in the new Vista Ranch Master Plan, which has been drafted (Wilson Premier Homes 2023) but has not yet been adopted by the City. This 507-acre area is referred to here and elsewhere in this application package as the Vista Ranch Master Plan area. The Vista Ranch Master Plan Area is part of a larger (approximately 952-acre) site—about half of which is within the Northeast Urban Center—proposed for incorporation into the City's Sphere of Influence (Figure 2).[1]

The proposed Vista Ranch project site represents a 368-acre portion of the Vista Ranch Master Plan area (Figure 1, Figure 2). The project itself would thus represent the first phase of Master Plan implementation. Development of the remaining 139 acres of the Vista Ranch Master Plan area would be the purview of a separate future project or projects that are not currently being contemplated and may be undertaken by other parties. It is assumed that separate application(s) will be submitted for future development if warranted; this application, and this mitigation proposal, cover only the initial 368-acre Vista Ranch project.

Vista Ranch Project Overview

Goal & Objectives

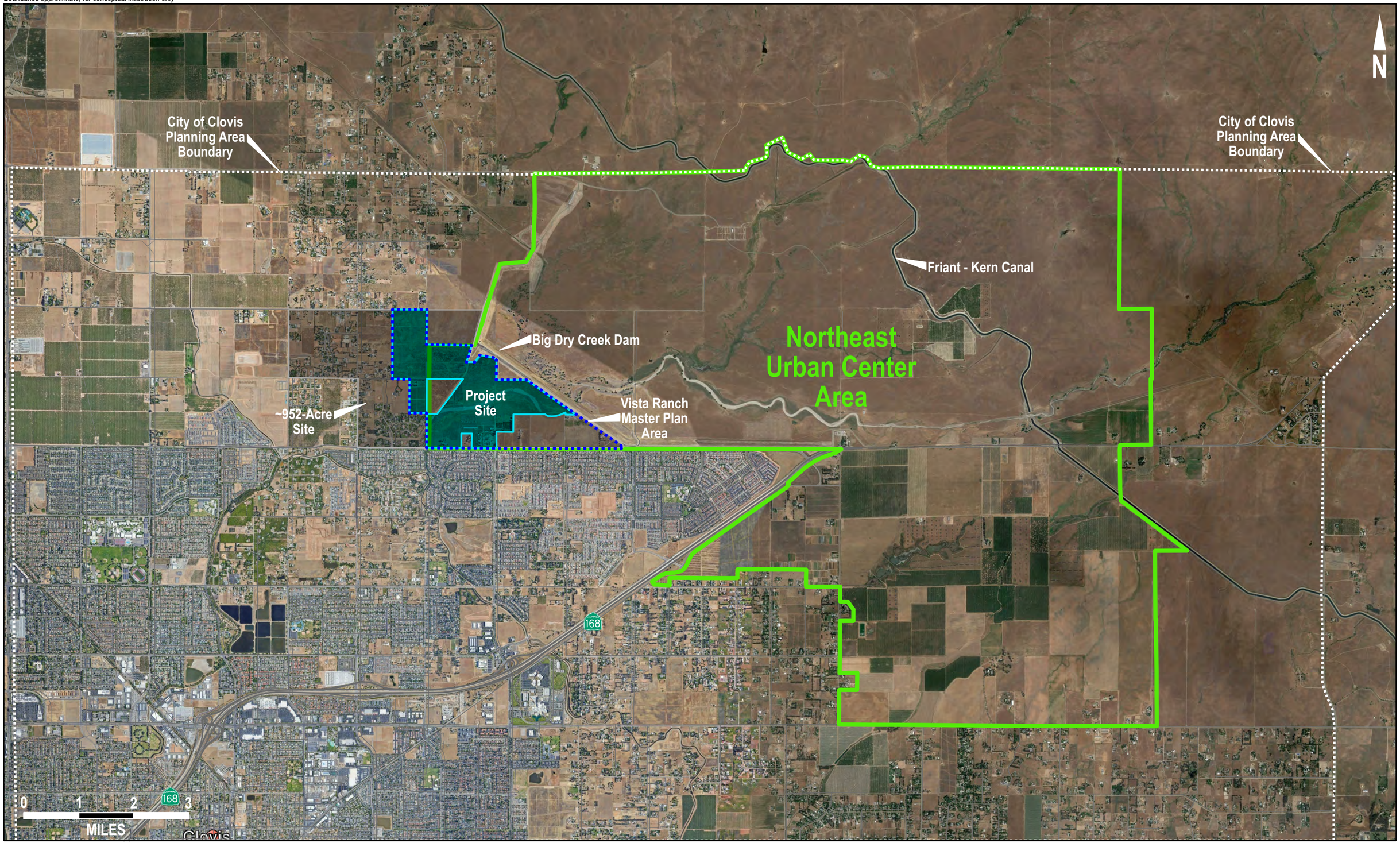
The Vista Ranch project is proposed to accommodate future growth anticipated in the Clovis area.

The primary project objectives are

- expansion of the City's Sphere of Influence to include the entirety of the larger approximately 952-acre site
- completion of the master planning process and annexation of the Vista Ranch Master Plan area to the City of Clovis, bringing it within City limits

[1] The City's Sphere of Influence—not shown on Figure 2—is a smaller subset of its Planning Area.

Map Source: *modified from* City of Clovis (2014)
Aerial Photograph Source: GoogleEarth (imagery date: 06/09/2022, downloaded: 08/22/2023)
Boundaries approximate; for conceptual illustration only



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Environment & Community

Figure 2. Planning Context
Vista Ranch – Conceptual Mitigation Plan
Wilson Premier Homes

- development of a 368-acre portion of the Vista Ranch Master Plan area, including
  - up to 2,718 residential units
  - up to 133,000 square feet of "Gateway" neighborhood commercial and community recreation facilities
  - approximately 43 acres of parks, trails, and open space
  - new public and private roadways providing vehicular and pedestrian access to the project site and surrounding community areas
  - other associated improvements, including water supply, storm drainage, sewer facilities, and electrical, gas, and telecommunications facilities to serve the community

The project will also be developed in consistency with the goals and objectives of the larger Vista Ranch Master Plan and related City entitlements.

Proposed Development

Vista Ranch is planned as a mixed-use development providing up to 2,718 residential units, including both single- and multi-family units at varying densities (Figure 3). Note that the project has been configured to avoid impacts on aquatic resources to the extent feasible while still meeting project objectives, as Figure 3 shows. This is described in more detail in *Wetland Avoidance & Unavoidable Impacts* below.

Vista Ranch is planned to center on a mixed-use village core- area surrounded by higher-density residential development, with lower residential densities toward the edges of the development, transitioning to surrounding rural/agricultural uses. Higher housing densities would also cluster along major circulation corridors and local amenities. Residential areas would offer a variety of housing types and lot sizes to accommodate a range of housing objectives and buyer needs with a goal to ensure housing for a range of families and lifestyles. The village core would provide a Gateway neighborhood commercial center designed to offer local-serving retail and service uses as well as employment opportunities. Community recreation centers would would be provided in several locations (Wilson Premier Homes 2023, Lewis pers. comm.).

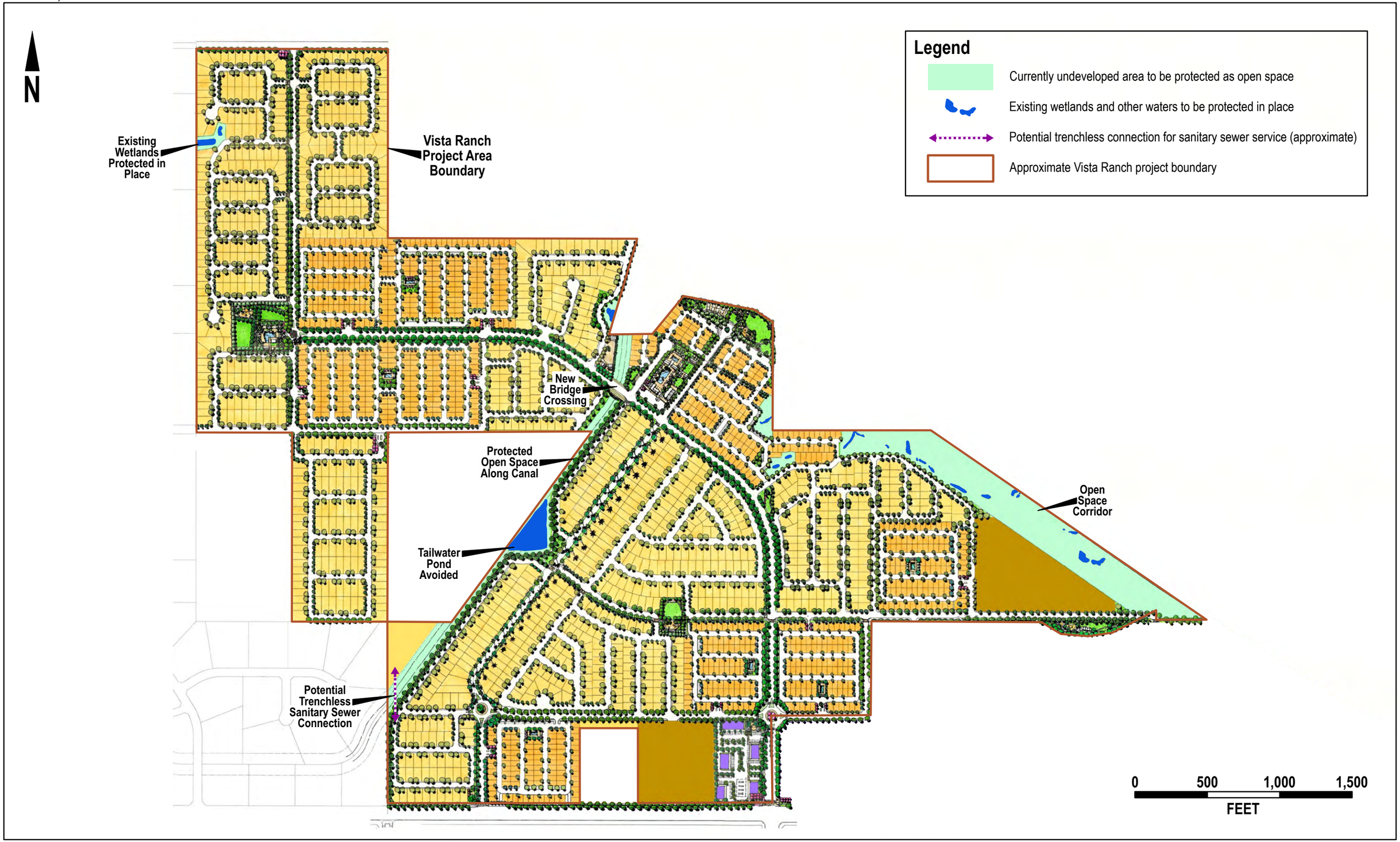
As Figure 1 shows, North Temperance Avenue is the primary roadway providing access to the Vista Ranch site from the south; East Shepherd Avenue bounds the south edge of the site and carries east-west traffic to and from the site.

Within the development, new public and private roadways would provide access and circulation. Public roadways would include sidewalks per City standards, with bike lanes along the major roadways. The City may also require the project to provide for offsite roadway and/or utilities improvements along principal access corridors, including East Behymer Avenue, Fowler Avenue, Perrin Avenue, Locan Avenue, and East Shepherd Avenue (Wilson Premier Homes 2023, Lewis pers. comm.).[2] Transit nodes would be located in the village core and at the largest of the three community recreation centers (Wilson Premier Homes 2023).

To provide an internal connection between the east and west portions of the development, a new bridge would be constructed across the canal downstream of the Big Dry Creek Dam spillway (see Figure 3). As discussed

[2] Offsite roadway/utility improvements are not included within the project boundary as shown in Figures 1 – 3, since the extent of potential City requirements is not yet known. The anticipated maximum extent of offsite work was, however, included in the area surveyed for potential jurisdictional waters, and was found not to support potentially jurisdictional resources (Vollmar Natural Lands Consulting 2023a).

Source: *modified from* Wilson Premier Homes 2023
For illustration only



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Figure 3. Vista Ranch Schematic Development Layout
Vista Ranch – Conceptual Mitigation Plan
Wilson Premier Homes

and illustrated in the separately attached *Project Description*, the bridge is planned as a clearspan structure (Figure 4). The bridge abutments would be outside the Ordinary High Water Mark (OHWM) and the bridge length is being planned such that temporary disturbance below OWHM would be minimized.[3] Detailed design for the bridge would be coordinated with the Fresno Metropolitan Flood Control District (FMFCD) as the canal owner/operator and the City (Building Official/City Engineer) as the local floodplain manager, to ensure that the bridge conforms to FMFCD's operational needs and is consistent with applicable Federal Emergency Management Agency (FEMA) and City requirements for flood protection.[4]

Planning also includes an extensive trail system to provide neighborhood connectivity as well as safe and convenient access from residential areas to community amenities and commercial uses. As noted above, the northeastern edge of the project site would be preserved as open space, including wetlands to be avoided plus a minimum 25-foot-wide protective buffer. Smaller areas of open space would protect additional wetlands elsewhere within the development, and an existing agricultural tailwater pond that is being treated as a state- and federally jurisdictional feature would also be avoided and protected with a 25-foot-wide buffer (Figure 3). Multiple public parks and trails totaling approximately 20 acres and offering a variety of recreational opportunities would be dispersed throughout the development. Private parks would also be provided, including mini-parks and/or community pools in medium high– and very high–density gated neighborhoods (Wilson Premier Homes 2023).

As illustrated in the separately attached *Project Description*, development of the Vista Ranch project is expected to be phased over about 10 years. The central portions of the project would be completed in the first 5 years. Construction of outlying phases, including the bridge over the Big Dry Creek Dam spillway canal, would begin in Year 5. Bridge construction would be completed in Year 5, and the remainder of the outlying phases would be built out in Years 5 – 10. All project activities for which Clean Water Act Section 404 authorization is requested are expected to be complete within the first 5 years of the project.

Impacts on Aquatic Resources

Site Conditions Overview

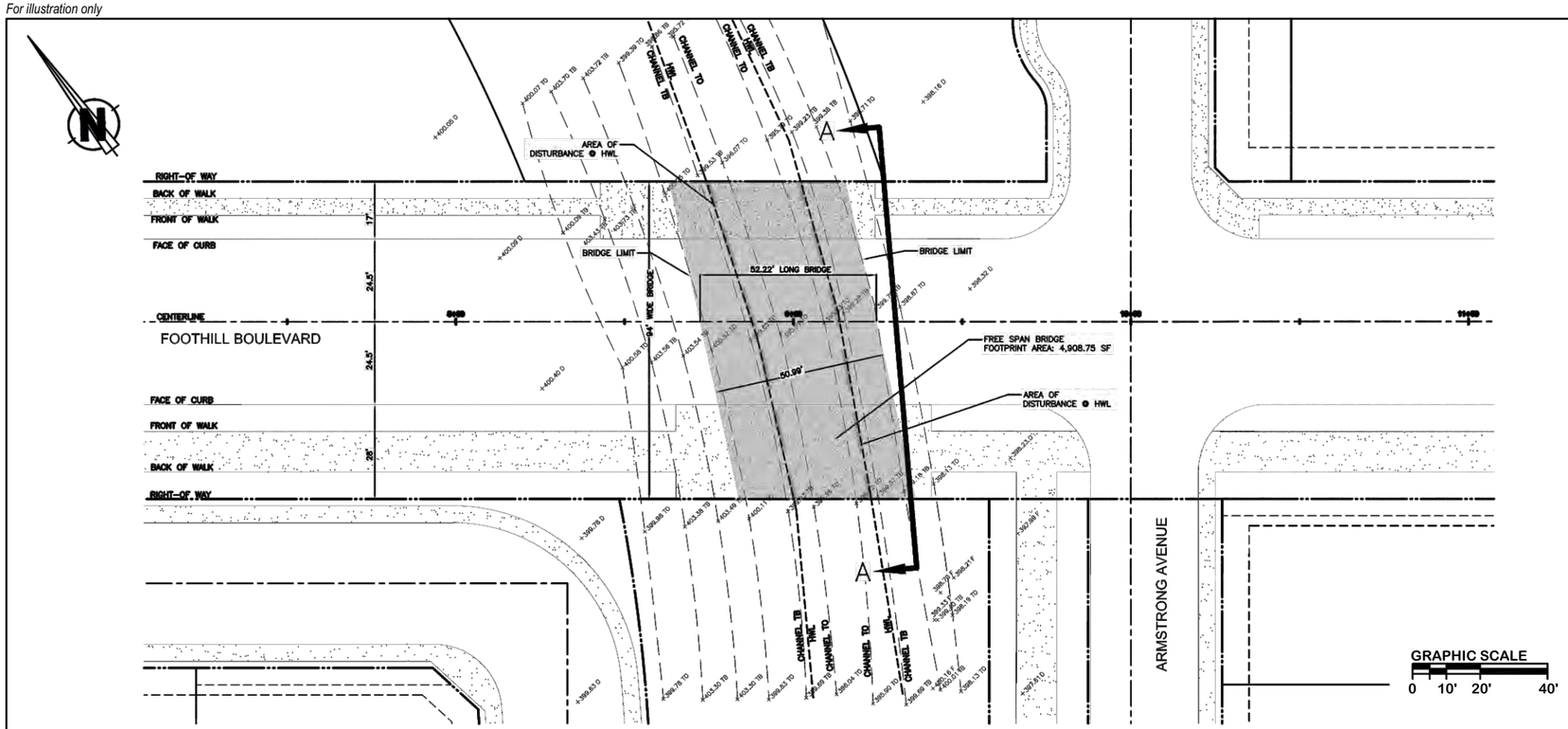
The project site is bordered to the south and west by suburban residential development and to the northwest by more open rural residential development (Figure 1, Figure 2, Figure 5). To the northeast, the site abuts open rangeland and the Big Dry Creek Dam and Reservoir, which are flood control structures operated by the FMFCD. The site is bisected by a constructed canal fed by the Big Dry Creek Dam spillway (Figures 1, 2, 3). When the dam was constructed, the natural Dry Creek drainage was re-routed into the reservoir basin; flow now exits via the spillway and is conveyed via the canal to rejoin the Creek about 2,500 feet below the spillway. The truncated and abandoned channel of Dry Creek remains a conspicuous feature in the east-central portion of the site, but no longer conveys flow, all of which has been re-routed via the Reservoir, Dam, spillway, and canal (Vollmar Natural Lands Consulting 2023a) (Figure 5). The remnant Creek channel exhibits intermittent stream geomorphology but lacks an OHWM. It does not have hydric soils and supports only upland vegetation (Vollmar pers. comms., Vollmar Natural Lands Consulting 2023a).

Site topography is level to gently rolling, with elevations ranging from about 380 to 413 feet above mean sea level. The most pronounced slopes are in the northwest portion of the site. Site soils appear to lack intact claypan or hardpan, which likely contributes to relatively rapid infiltration throughout much of the site, with a

[3] See additional discussion in *Wetland Avoidance & Unavoidable Impacts* section below.

[4] Although the majority of the project site is outside the 100-year floodplain, current FEMA flood hazard mapping accessible via the National Flood Hazard Layer online GIS tool shows the corridor along the canal as within Zone A (Federal Emergency Management Agency *n.d.*).

Source: *modified from* Harbour & Associates 2023b
For illustration only





VICINITY MAP

N.T.S.

BRIDGE FOOTPRINT

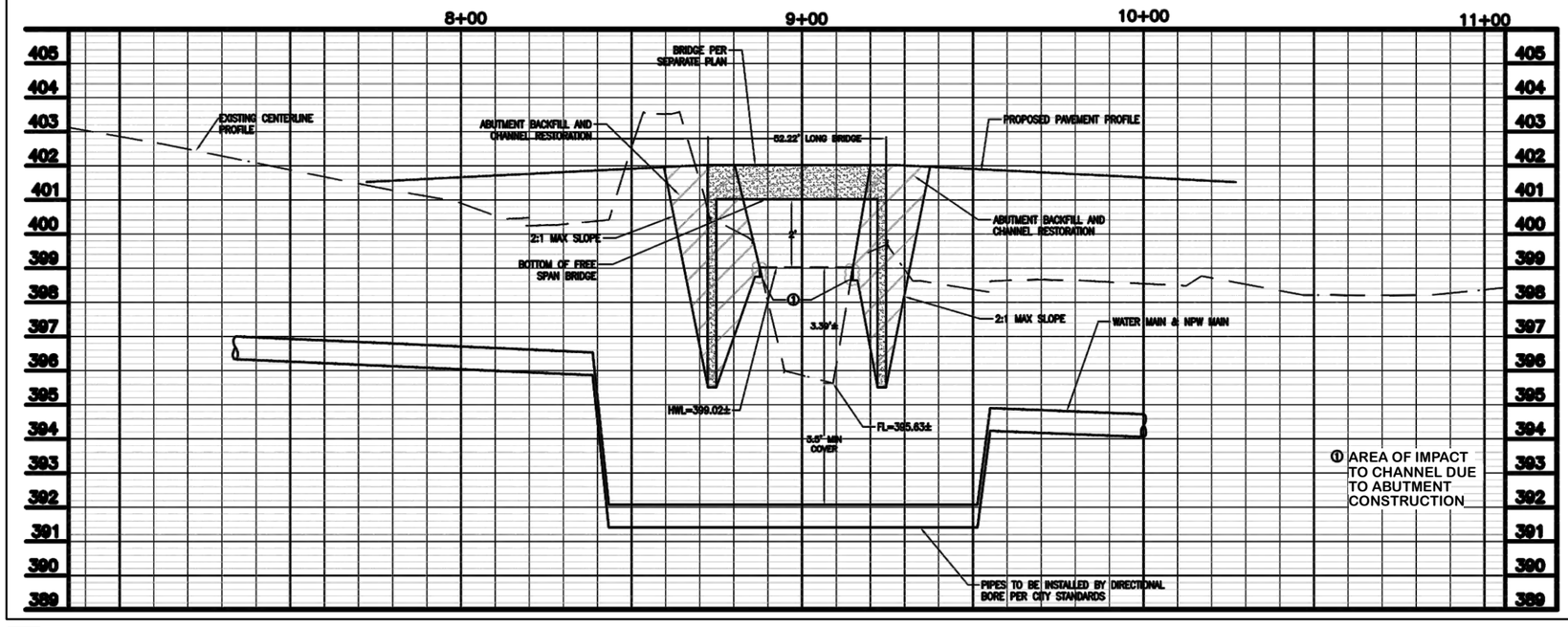
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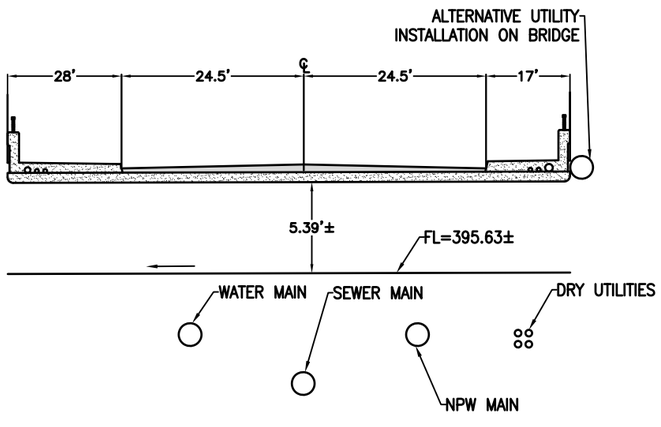
NOTES

1. THE PROPOSED PROJECT ANTICIPATES ONE CROSSING OF THE BIG DRY CREEK SPILLWAY, TO PROVIDE CIRCULATION AND CONNECTION TO UTILITIES FROM PROPERTIES NORTH OF SPILLWAY TO THE SOUTH OF THE SPILLWAY.

2. IN ORDER TO MINIMIZE IMPACTS TO WATERS, THE PROPOSED BRIDGE CONSTRUCTION WILL CONSIST OF A SPANNED BRIDGE, (CONSPAN ARCHED BRIDGE) WITH ABUTMENTS LOCATED JUST OUTSIDE OF THE HIGH WATER AREA. ABUTMENTS WILL BE CONSTRUCTED OUTSIDE OF THE WETLAND AREA, HOWEVER, SOME TEMPORARY CONSTRUCTION IMPACTS WILL OCCUR TO FACILITATE THE INSTALLATION OF THE ABUTMENTS. ANY DISTURBED AREA WILL BE REPLACED IN KIND. THE ANTICIPATED AREA OF DISTURBANCE WILL BE APPROXIMATELY 130.68 SQUARE FEET OR 0.003 ACRES.

3. CHANNEL STABILIZATION MAY BE REQUIRED ADJACENT TO AND AROUND BRIDGE.





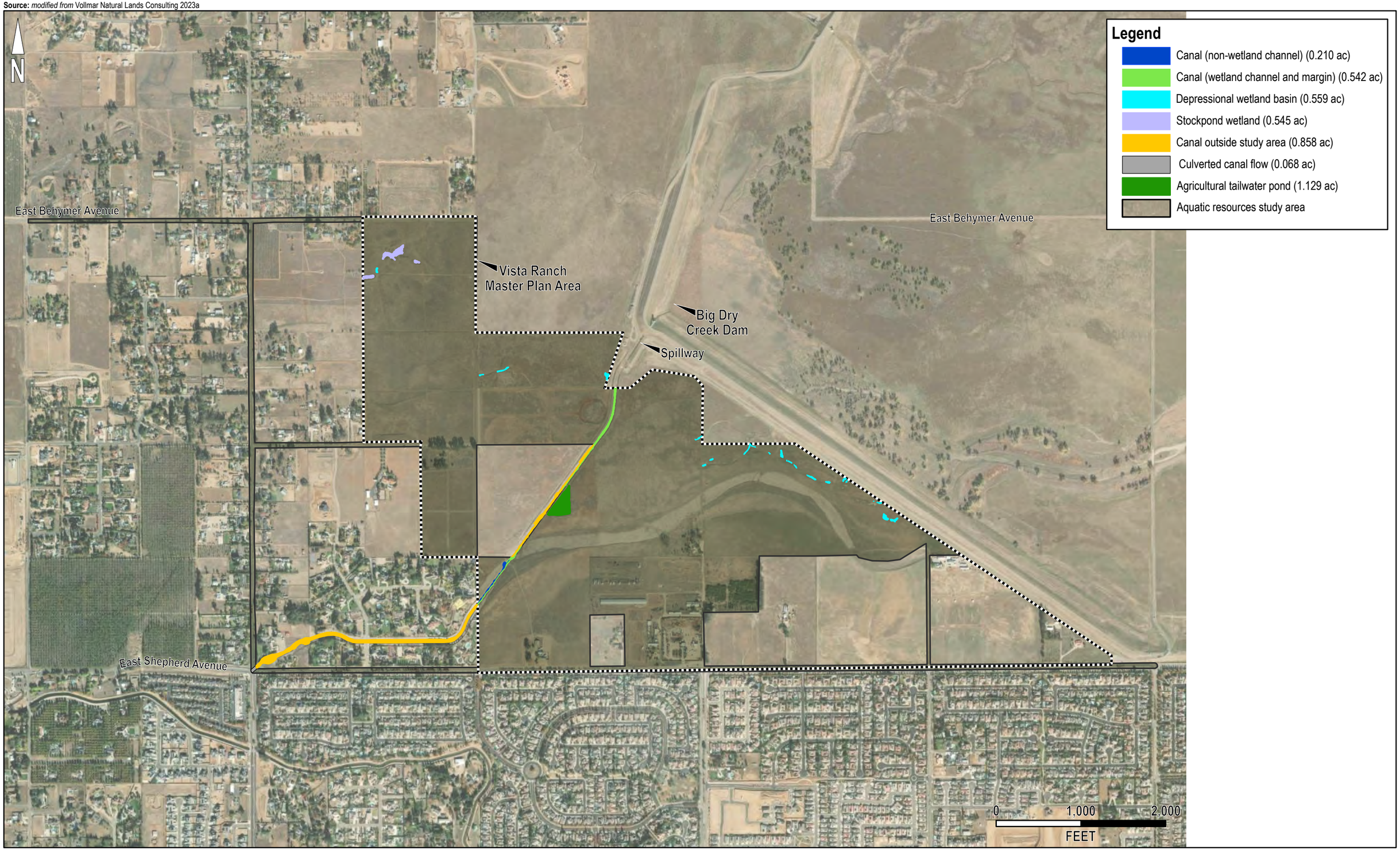
SECTION A–A

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Figure 4. Vista Ranch Bridge Concept
Vista Ranch – Conceptual Mitigation Plan
Wilson Premier Homes

Source: *modified from* Vollmar Natural Lands Consulting 2023a



Redtail Consulting
Environment & Community

Figure 5. Aquatic Resources on Vista Ranch Project Site
Vista Ranch – Conceptual Mitigation Plan
Wilson Premier Homes

correspondingly low rate of wetland formation even within some depressional features (Vollmar Natural Lands Consulting 2023a).

The majority of the site is non-native annual grassland and degraded pasture land (Figure 5). The northeast and southeast portions of the site appear not to be grazed at present, and grasslands there support a mixture of primarily non-native annual grasses and herbs including invasive weeds. Scattered depressional wetlands are present within the grasslands, especially along the northeast edge of the site, where they occupy a series of what appear to be remnant floodplain swales north of the remnant Dry Creek channel. Three created stockponds and small depressional wetlands are also present within the grasslands in the northwest portion of the site (Vollmar Natural Lands Consulting 2023a).

The central portion of the site was graded for flood irrigation several decades ago, although flood irrigation is not practiced at this time. This area is divided into several pastures with cross fencing and is at least intermittently used for grazing. It supports degraded pasture with disturbed, ruderal vegetation dominated by non-native grasses and herbs including invasive weeds. Scattered rural/agricultural development features are also present. Current grazing use appears to be light, leading to build-up of thatch and residual dry matter. A triangular pond located adjacent to the canal was apparently constructed in uplands to capture and allow reuse of irrigation water although it also has a culverted connection to the canal (Vollmar Natural Lands Consulting 2023a).

Existing Wetlands & Other Waters

A total of 3.053 acres of potentially jurisdictional waters has been mapped on the project site (Figure 5). This includes 1.646 acres of wetlands and 0.278 acre of other waters (canal) (Vollmar Natural Lands Consulting 2023a). The agricultural tailwater pond mentioned above (1.129 acres; Vollmar Natural Lands Consulting 2023a) is also being treated as a potentially jurisdictional feature for project planning purposes. All of these features are described in more detail below, beginning with open water and wetlands within the canal downstream of the Big Dry Creek Dam. Additional information on wetlands and waters at the project site is provided in the separately submitted project *Delineation of Potential Jurisdictional Aquatic Resources* (Vollmar Natural Lands Consulting 2023a).

Big Dry Creek Dam Spillway Canal

The canal is a constructed feature with a largely straight plan view and a roughly trapezoidal cross section.

The southern portion of the canal has been delineated as a non-wetland channel. At the time the jurisdictional habitat delineation was conducted for the project (late spring – early summer 2023), it showed a conspicuous lack of vegetation, and its steeply eroded banks suggested that any vegetation previously present may have been washed out in the winter's heavy rains (Vollmar Natural Lands Consulting 2023a).

The canal channel provides minimal habitat value, largely because its sandy soils and lack of vegetation allow moisture to infiltrate rapidly or evaporate when water is not being actively released at the Dam spillway. The temporary nature of flows prevents the establishment of any fish species, as well as most aquatic invertebrates. During dam releases, high flows likely flush any fish or invertebrates that might otherwise attempt to use this habitat. Birds and mammals may gain some use from the availability of drinking water during dam releases. The lack of vegetation or any other source of channel roughness greatly reduces opportunities for natural water quality improvements or other ecosystem services from this habitat (Smith pers. comm.[b]).

Significant portions of the canal also support wetlands, including segments of wetland channel and fringing wetlands along the channel margin (Figure 5). Vegetation in these areas is dominated by wetland plants

including burhead (*Echinodorus berteroi*), rough cocklebur (*Xanthium strumarium*), tall flatsedge (*Cyperus eragrostris*), and common spikerush (*Eleocharis macrostachya*).

The wetland portions of the canal and its fringing wetland margins provide some habitat value. Like the non-wetland channel described above, the hydroperiod of wetland channel reaches is restricted almost entirely to the period of Dam releases, preventing the establishment of fish. However, the presence of vegetation on the channel bottom provides slightly increased moisture retention, allowing this area to provide some sheltering habitat for invertebrates and amphibians. Birds or mammals may also forage here, though watering opportunities are still very limited. The vegetation in this area likely provides minor water quality improvements locally and downstream. However, the type of vegetation in this channel—relatively small-statured plants at low density—is not well suited to providing significant water quality improvements, carbon sequestration, or other ecosystem services that might be provided by larger, denser marshland plants (Smith pers. comm.[b]).

Depressional Wetlands

Depressional wetlands occupying natural basins and topographic lows (totaling 0.559 acre) are scattered throughout the portions of the site that have not experienced significant grading, with concentrations along the northeast site margin and in the northwest (Figure 5). Some appear to occupy remnant floodplain swales. No wetlands are present in the central portion of the site where there is more history of past grading (Vollmar Natural Lands Consulting 2023a).

Common dominant vegetation within the delineated depressional wetland basins includes common lippia (*Phyla nodiflora*), swamp picklegrass (*Crypsis schoenoides*), and saltgrass (*Distichlis spicata*). Common subdominant species include Mediterranean barley (*Hordeum marinum* ssp. *gussoneanum*), common vernal pool allocarya (*Plagiobothrys stipitatus* var. *micranthus*), coyote thistle (*Eryngium castrense*), hyssop loosestrife (*Lythrum hyssopifolia*), and Italian rye grass (*Festuca perennis*). The wetland delineation team observed that as the basins dried following the heavy winter rains of 2023, many showed reduced vegetation cover and were colonized by upland species such as pigweed amaranth (*Amaranthus albus*), common sunflower (*Helianthus annuus*), seaside heliotrope (*Heliotropium curassavicum*), lamb's quarter's (*Chenopodium album*), alkali mallow (*Malvella leprosa*), and puncture vine (*Tribulus terrestris*) (Vollmar Natural Lands Consulting 2023a).

Because most of the site soils are developed on highly permeable alluvium, the depressional wetlands generally have a shorter hydroperiod than typical vernal pools in the project region. They support some generalist vernal pool species at low densities (e.g., common vernal pool allocarya and coyote thistle), but the vegetation is more typified by generalist seasonal wetland plants. Rare vernal pool plants are not expected to occur in these wetlands (Smith pers. comm.[b]).

The depressional wetlands provide potential habitat for vernal pool wildlife, including vernal pool fairy shrimp (*Branchinecta lynchi*) (federally listed as Threatened; no state status). Western spadefoot (*Spea hammondii*) (no federal status; California Species of Special Concern) has been documented as breeding in several of these features, and all of them provide potential habitat for western spadefoot. The largest and deepest of these features—which extends off the project site and onto neighboring U.S. Bureau of Reclamation property adjacent to the Big Dry Creek Dam—supports breeding California tiger salamander (*Ambystoma californiense*) (state- and federally listed as Threatened). This feature is underlain by the San Joaquin loam, a hardpan-developing soil, which likely accounts for its longer hydroperiod and greater ability to support special-status species. Two other depressional wetlands on the site that are also located on San Joaquin loam substrate provide additional areas of potential California tiger salamander breeding habitat (Smith pers. comm.[b]).

In addition to these special-status species, the depressional wetlands provide potential habitat value for a variety of generalist wetland invertebrates, birds, reptiles, and mammals. However, the relatively short hydroperiod and generalist-dominated vegetation community means that this value is lower than would be expected for a typical vernal pool in the region. Additionally, because the depressional wetlands are (highly) seasonal and lack surface connectivity to other waters, they provide little to no water quality service or carbon sequestration, although they likely make a limited contribution to groundwater infiltration (Smith pers. comm.[b]).

Stockpond Wetlands

Three stockponds totaling 0.545 acre are located in the northwest portion of the site, where they cluster with naturally formed depressional wetlands (Figure 5). They are dominated by a mixture of obligate and facultative wetland plant species, including common spikerush, burhead, and curly dock (*Rumex crispus*). The upper rim of one of the ponds also supports some additional wetland plant species such as coyote thistle, hyssop loosestrife, and Mediterranean barley (Vollmar Natural Lands Consulting 2023a). The stockponds are created features rather than natural vernal pools; their hydrology and soils are not conducive to development of vernal pool vegetation communities or to support of vernal pool specialist invertebrates (Smith pers. comm.[b]).

Two of the stockponds provide documented California tiger salamander breeding habitat, and a third provides potential breeding habitat for the species. All of them also provide potential habitat for western spadefoot, as well as for generalist wildlife, including other amphibians, birds, mammals, reptiles, and invertebrates (Smith pers. comm.[b]).

Because the stockponds are seasonal and lack surface connections to other waters, they provide little to no water quality service or carbon sequestration. However, they provide moderate groundwater infiltration service (Smith pers. comm.[b]).

Agricultural Tailwater Pond

A large (1.129 acres) agricultural tailwater pond is located in the central portion of the site adjacent to the outer toe of the berm bordering the Big Dry Creek Dam Spillway canal (Figure 5). Based on historic topographic maps and aerial photographs, it appears to have been constructed in the 1950s when this portion of the site was graded for flood irrigation, to enable capture and recirculation/reuse of irrigation water from irrigated pastures on the site. The pond also has a culvert connection to the spillway canal. The purpose of the culvert is uncertain although it was probably intended to allow excess irrigation water to drain to the canal (Vollmar Natural Lands Consulting 2023a).

Flood irrigation is no longer conducted on the site, but the pond likely still receives stormflow from the graded field areas via remnant tailwater ditches (Vollmar Natural Lands Consulting 2023a). It may also receive input from the canal via the culvert connection when flows are released at the spillway (Smith pers. comm.[d]).

The pond was fully inundated in 2023's heavy winter rains and remained ponded at least four feet deep in June when fieldwork was conducted for the jurisdictional habitat delineation (Vollmar Natural Linds Consulting 2023a). At this time, prolonged ponding had enabled establishment of a narrow (approximately three-foot-wide) band of wetland vegetation around the rim of the pond. The remainder of the pond was open water in June 2023 (Vollmar Natural Lands Consulting 2023a).

Interestingly, although studies in June 2023 documented hydric soils at the pond, a previous investigation mapped this area as annual grassland lacking both wetland soils and wetland vegetation (ECORP Consulting 2023, Vollmar Natural Lands Consulting 2023a). As of the 2023 surveys, vegetation fringing the pond was

characterized by northern water plantain (*Alisma triviale*), burhead, common spikerush, and hyssop loosestrife (Vollmar Natural Lands Consulting 2023b).

The pond provides habitat for wildlife, including breeding amphibians, aquatic reptiles, waterfowl, and mammals. As of 2023, western toad (*Anaxyrus boreas*) appeared to be breeding there, but 2023 surveys did not detect California tiger salamander (Vollmar Natural Lands Consulting 2023b).[5] While the pond does retain water long enough to allow California tiger salamander to breed in some years, its variable hydrology—well outside the normal range for Central Valley wetland systems, and likely the result of intermittent input from Dam releases—greatly reduces its habitat value (Vollmar Natural Lands Consulting 2023b, Smith pers. comm.[c]).

Due to its variable hydrology and uncertain ponding period, the pond is not expected to provide significant water quality or carbon capture services. However, the same factors considered likely to be responsible for year-to-year differences in ponding duration—i.e., unpredictable input from spillway releases via the canal—mean that it intermittently provides a small increase in flood protection to downstream waters, as well as contributing to groundwater recharge (Smith pers. comm.[c]).

Wetland Avoidance & Unavoidable Impacts

As noted above, the project development layout has been configured to avoid wetland impacts to the extent feasible while still achieving project objectives (Figure 3). This includes the following.

- Leaving a belt of open space along the northeast project boundary undeveloped, protecting the chain of depressional wetlands within remnant floodplain swales in this area
- Protecting additional wetlands in smaller open space areas throughout the development
- Avoiding and protecting the agricultural tailwater pond in the central portion of the project site
- Establishing a protected open space corridor along the FMFCD canal where it bisects the project site; the "canal corridor" open space boundaries would coincide with FMFCD's existing easement limits where an easement is in place
- Using a clearspan bridge to link the east and west portions of the new development across the canal. A clearspan bridge is substantially more expensive to construct than the City-standard box culvert bridge, but was selected because it will enable meaningful reduction of impacts on the canal. Wet and dry utilities would connect between the east and west portions of the development via the new bridge and/or via trenchless installation beneath the spillway canal
- Connecting sanitary sewer service across the canal to existing City of Clovis infrastructure via a trenchless installation

The open space belt at the northeast project boundary would be approximately 250 feet wide for most of its length, which provides an approximately 25-foot-wide buffer between the most westerly wetlands and the closest developed feature. Other open space areas have also been configured to provide a minimum 25-foot-wide buffer around depressional wetlands and the agricultural tailwater pond. Post-and-cable fencing and informational signage is proposed to discourage entry into the open space areas.

[5] Protocol-level surveys were not conducted in 2023; however, California tiger salamander was notably present in other features onsite at this time, and was not detected in the pond (Vollmar Natural Lands Consulting 2023b).

The total footprint of unavoidable impacts on wetlands and other waters of the United States is expected to be 0.498 acre. A total of 0.495 acre of wetlands would be removed (graded and/or filled) for project construction. An additional ~0.003 acre of wetland channel in the FMFCD canal would be temporarily impacted for construction of the new bridge. Because of the cost differential between a clearspan structure and the standard box culvert crossing, the length of the bridge must be minimized to render it practicable. Thus, although the abutments would be located outside the OHWM limit and there would thus be no permanent loss of wetlands or waters at the bridge crossing, minor temporary disturbance below OHWM is expected to be necessary to restore the canal banks to their pre-project configuration following construction.

Table 1 itemizes these unavoidable project impacts in more detail. Impacts are broken down two ways in the table: first by type of aquatic resource, and second by the federally listed species affected, since impacts on federally listed species were an important driver for the approach to compensate for all project impacts. Unless noted otherwise in the table, impact acreages reflect direct impacts as a result of development construction. Acreages are rounded to three decimal places/four significant figures for simplicity; more precise acreages are given in the project *Biological Assessment* (Vollmar Natural Lands Consulting 2023b).

Table 1. Vista Ranch Project Impacts

Impact	Acres Impacted	
	Permanent Loss	Temporary Disturbance
Impacts by Aquatic Resource Type		
Wetlands (total)	0.495	0
Canal, wetland channel and fringing wetland margin	0	0.003
Depressional wetland basin	0.061	0
Stockpond	0.434	0
Other waters (canal, non-wetland channel)	0	0
Impacts by Species		
California tiger salamander, total	332.0*	0
Documented breeding habitat	0.390	0
Documented breeding habitat (avoided and protected in place; long-term indirect habitat impact due to surrounding development and loss of overall connectivity)	0.369	0
Suitable breeding habitat, presumed occupied	0.105	0
Low-suitability breeding habitat (avoided and protected in place; long-term indirect habitat impact due to surrounding development and loss of overall connectivity)	1.129	0
Suitable upland habitat, presumed occupied	189.7	0
Low-suitability upland habitat	140.3	0
Vernal pool fairy shrimp, total	0.806	0
Suitable wetland habitat, presumed occupied (direct loss)	0.061	0
Suitable wetland habitat, presumed occupied (avoided and protected in place; long-term indirect habitat impact due to surrounding development and loss of overall connectivity)	0.745	0

Note:
* Total reflects rounded acreages below; when unrounded figures are used, impacts on California tiger salamander habitat total 331.93 acres (see Vollmar Natural Lands Consulting 2023b). Impacts on California tiger salamander breeding habitat include acreages within the Vista Ranch project site as well as suitable aquatic (breeding) habitat within the standard 250-foot U.S. Fish and Wildlife Service indirect impacts buffer.

Source: Vollmar Natural Lands Consulting 2023b

Compensation for these unavoidable impacts is addressed in the next two sections, beginning with permanent impacts.

Proposed Compensation for Permanent Impacts

Summary of Compensation Approach

Wilson Premier Homes proposes to provide compensatory mitigation for losses of federally listed species habitat on a portion of the 1,920-acre Jamison Ranch property (Property), which lies in Madera County about 15 miles northwest of the project site, and—like the project site—is south of the Fresno River, a key boundary from the species perspective (Figure 6). The Property also offers opportunities to offset losses of aquatic resources.

Conservation of lands on the Property is expected to create a substantial preserve offering a connective mosaic of high-quality vernal pool/swale, stream, and annual grassland habitat that is currently documented as supporting at least thirteen special-status species, including those affected by the Vista Ranch project (Vollmar Natural Lands Consulting 2021, Smith pers. comm.[b]). Preservation of documented breeding habitat for California tiger salamander, vernal pool fairy shrimp, and western spadefoot, along with adjacent upland habitat, will be proposed as compensation for unavoidable project impacts on these species.

Preservation of aquatic resources on the Property, including vernal pools, vernal swales, and functional seasonal stream corridor, is also proposed as providing at least partial compensation for unavoidable project impacts on wetlands and waters. Because of the quality, extent, and functionality of the habitat available for preservation, the hope is that full compensation for the project's impacts on aquatic resources can be achieved at the Property. If this is not considered acceptable—and the proponent understands that it may not be—a 1:1 purchase of aquatic resources credits from an agency-approved source is proposed in addition to substantive preservation at the Property. As of this writing, no approved mitigation banks serving the project area are offering aquatic resources credits. It is therefore assumed that any needed credits would be purchased from the National Fish and Wildlife Foundations (NFWF's) Sacramento District California In-Lieu Fee Program, which offers both vernal pool and generalized aquatic resources credits.

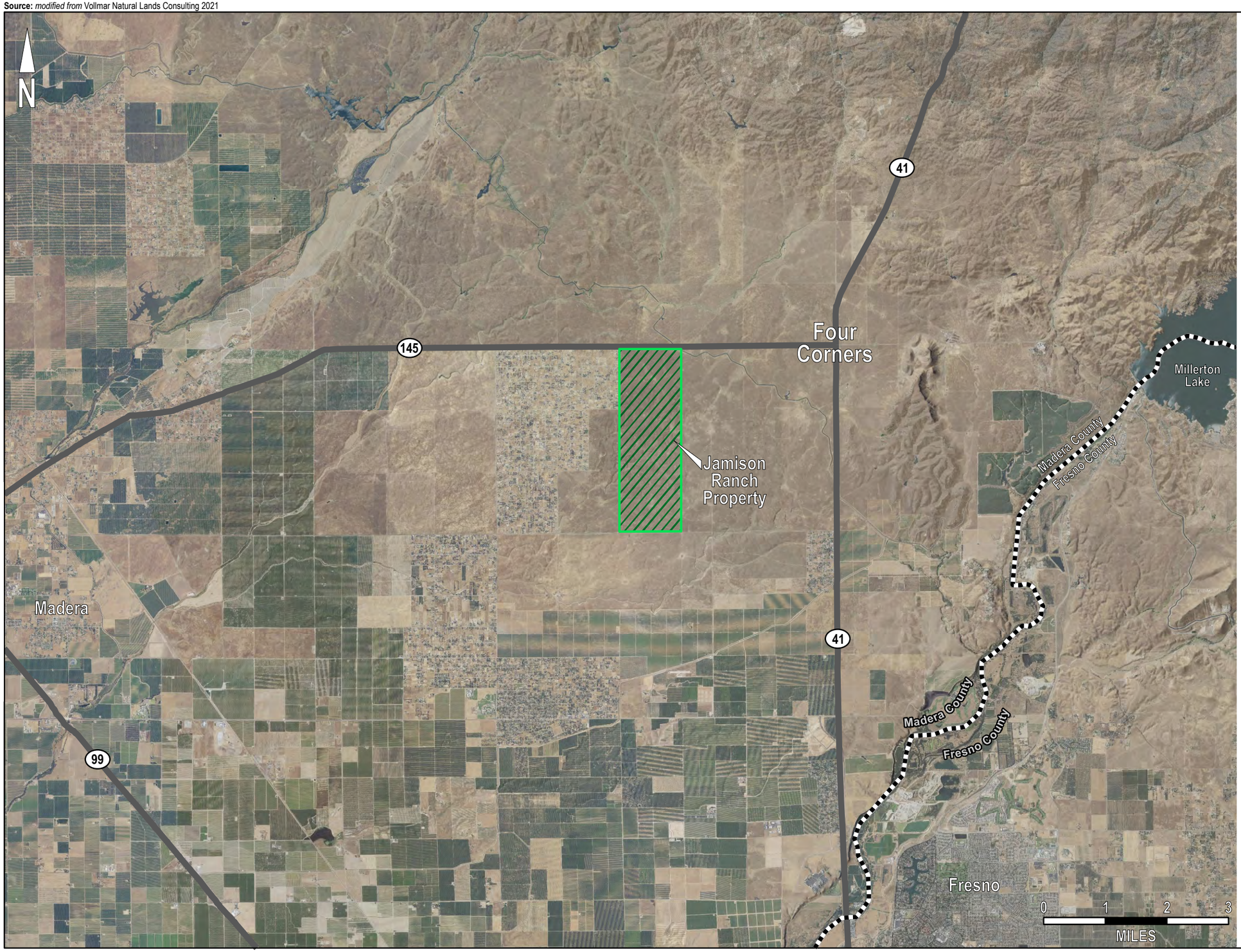
Final preservation acreages, and any credit purchases, will reflect input from the U.S. Army Corps of Engineers (Corps), U.S. Fish and Wildlife Service (Service), Central Valley Regional Water Quality Control Board (RWQCB), and California Department of Fish and Wildlife (DFW). The extent and location of preserved lands within the Property will also be developed in consultation with the agencies, since the preserve will need to be configured to (1) maximize long-term habitat functionality to support affected species and (2) provide long-term protection for aquatic resources functions, values, and services.

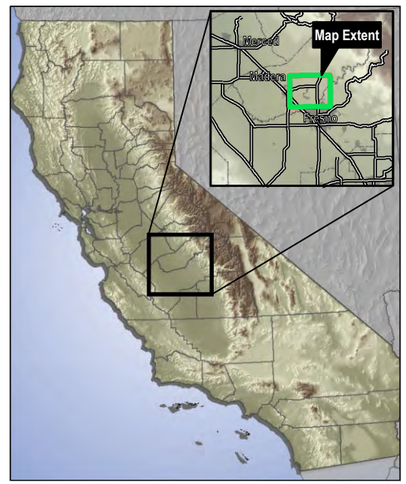
Jamison Ranch Property Overview

The Property consists almost entirely of undeveloped rangeland; other than fences, the only existing development is a set of corrals in the northwest portion of the site. The few existing roads on the Property, currently used for site access and management, are ungraded and unimproved (dirt surface). The Property supports an estimated 130 acres of vernal pool and swale habitat as well as 2.7 acres (12,166 linear feet) of seasonal stream corridor; the remaining approximately 1,787 acres are upland grassland (Vollmar Natural Lands Consulting 2021, Smith pers. comm.[a]).[6] Because of its undeveloped condition and the habitat resources it offers, the Property was previously identified as a potential conservation bank site planned to offer credits for

[6] Acreages are approximate, based on field and GIS review. The team plans to conduct a formal delineation of potential jurisdictional habitat per the Corps Arid West protocol in fall 2023. California Rapid Assessment Method (CRAM) evaluations of wetlands on the Property and at the Vista Ranch site are also planned for fall 2023.

Source: *modified from* Vollmar Natural Lands Consulting 2021





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Figure 6. Jamison Ranch Property Location
Vista Ranch – Conceptual Mitigation Plan
Wilson Premier Homes

purchase (e.g., Vollmar Natural Lands Consulting 2021). With the exception of a 5-acre core that encompasses the ranch corrals plus a surrounding 100-foot-wide buffer, the entirety of the Property could be conserved and dedicated for mitigation (Figure 7).

Extensive studies were conducted at the Property from 2017 through 2023, beginning in conjunction with the landowner's initial planning to create a commercial mitigation bank at the site. Based on these studies, the site appears to be an excellent candidate for conservation.

Soils on the Property are predominantly loamy alluvium assigned to the Cometa soil series, and are generally underlain by a restrictive hardpan at a depth of 20 – 30 inches, contributing to a seasonally perched water table (Vollmar Natural Lands Consulting 2021). This is conducive to wetland formation and persistence, and contrasts with soils at the Vista Ranch site, which are unusually permeable for vernal pool settings in the region.

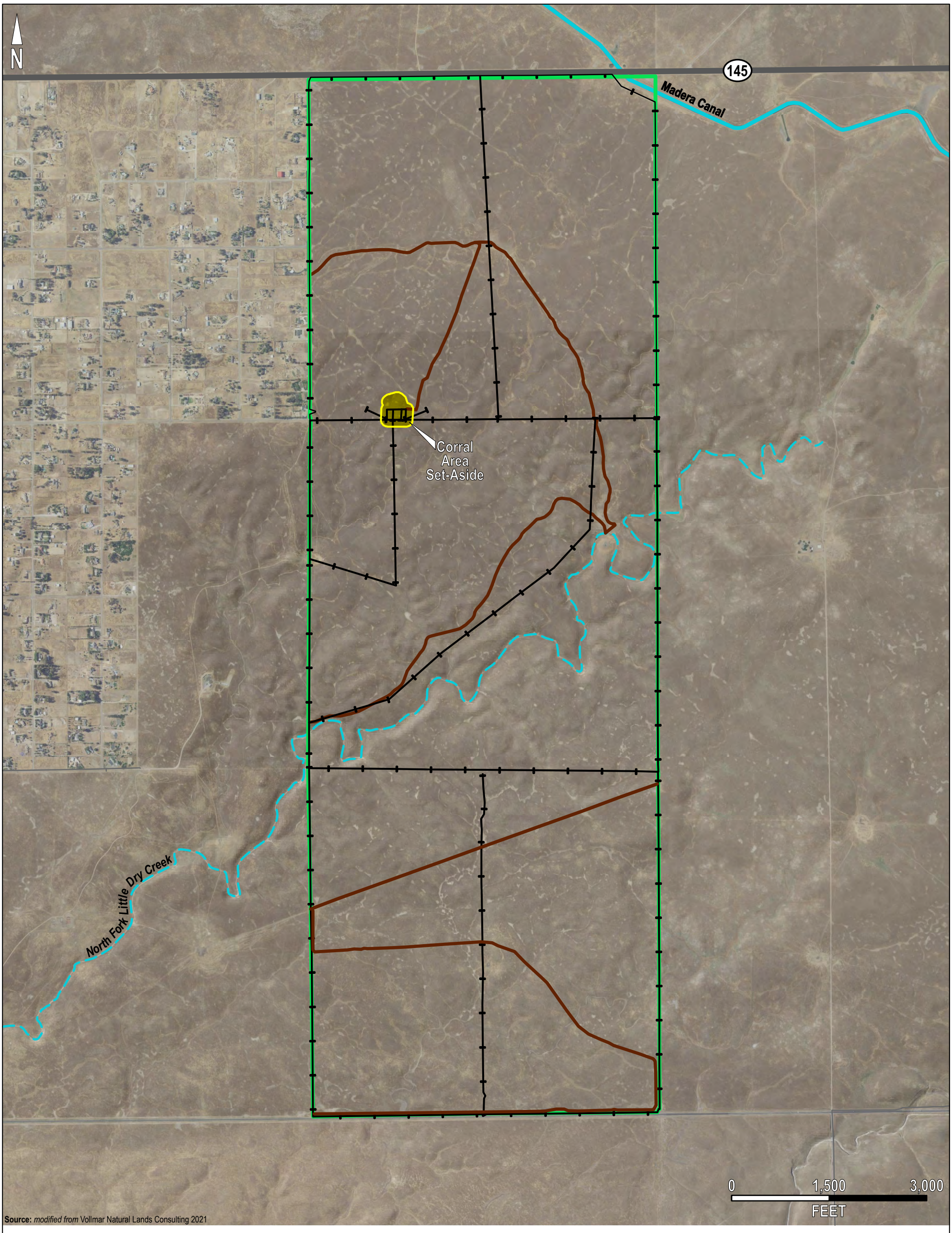
Both aquatic and upland habitat at the Property is in good condition; together, the project's aquatic and upland resources provide a functional, interconnected habitat mosaic—and, unlike many vacant Central Valley lands, the Property has not been cultivated. Historically, it supported low- to moderate-intensity cattle grazing and except for the immediate corral area has not been developed or subjected to other ground disturbance. Past grazing use is not considered a deficit in this context; moderate cattle grazing is generally beneficial for the management of vernal pool grasslands, since it reduces thatch and controls invasive weeds, helping to maintain vernal pool hydrology and facilitating the establishment and persistence of native forbs—and vegetation observed within the vernal pools and other wetlands on the Property is indeed reflective of healthy conditions, featuring a moderate cover of predominantly native forbs and grasses. Like most San Joaquin Valley grassland habitats, the Property's uplands are dominated by introduced annual grasses, but invasive weeds were generally found to be absent (Vollmar Natural Lands Consulting 2021).

Regional Conservation Context

As noted above, the Property is located south of the Fresno River and thus is appropriately situated to compensate for California tiger salamander and western spadefoot impacts at the Vista Ranch site. Moreover, Madera County has one of the lowest proportions of protected vernal pool habitat among California's Central Valley counties coupled with expanding development, and therefore has a strong need for additional protection (Vollmar Natural Lands Consulting 2017).

The Property's specific location also makes it appealing for conservation. It lies within the Madera Core Recovery Area defined in the Service's 2005 *Recovery Plan for Vernal Pool Ecosystems of California and Southern Oregon* and also within Service-designated Critical Habitat for vernal pool fairy shrimp, which is known to be present at the site.[7] It is also in close proximity to designated Critical Habitat for California tiger salamander. At the same time, located near the intersection of SR 145 and SR 41, it is central to Madera County's Four Corners area, which supports an approximately 33,000-acre block of contiguous vernal pool habitat but is under intensive development pressure from numerous proposed and approved projects. With only about 4,200 acres of the Four Corners vernal pool habitat conserved to date, conservation of the Property has the potential to make a significant contribution to vernal pool recovery in this area (Vollmar Natural Lands Consulting 2021).

[7] Much of the Vista Ranch site also lies within the Madera Core Recovery Area (Vollmar Natural Lands Consulting 2023b). However, as noted elsewhere, soils at the Vista Ranch site are generally less conductive to vernal pool formation and persistence than those at the Jamison Ranch Property.



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Figure 7. Potential Preservation Lands at Jamison Ranch Property
Vista Ranch – Conceptual Mitigation Plan
Wilson Premier Homes

The proposed mitigation will also add to a growing network of preserves in the Four Corners region. As Figure 8 shows, the 765-acre Fenston Ranch preserve adjoins the Property to the east, the 3,602-acre McKinney Ranch preserve is approximately 2 miles to the west, and the 198-acre Caltrans Mitigation Bank Madera Pools preserve is approximately 1.5 miles southeast. The Upper and Lower Jamison Ranch Preserves together form an additional 2,269-acre conservation area approximately 4.8 miles east of the Property, and the 403-acre HOG Hills conservation easement is situated approximately 4.9 miles west of the Property. Numerous public preserved lands are also present in the area (Figure 8). Additional lands adjacent to the east and west edges of the Property have been proposed as mitigation preserves, and may eventually be preserved, further enlarging the size of the preserved habitat block (U.S. Army Corps of Engineers 2023).

Although the proposed mitigation site is located in a different subwatershed from the Vista Ranch project site (USGS HUC-8 18040007, Upper Chowchilla – Upper Fresno vs. USGS HUC-8 18030009, Upper Dry), it is hoped that the opportunity to preserve extensive and valuable aquatic resources in the context of a functional habitat mosaic will outweigh the mitigation site's out-of-watershed location. This is particularly the case as conservation of vernal pools and related habitat in Madera County is an identified priority, and these resources are considered at risk due to expanding development in the region, as noted above (e.g., U.S. Fish and Wildlife Service 2005, Vollmar Natural Lands Consulting 2021).

Existing Habitat at Mitigation Site

Overall, the Property provides a robust network of vernal pool/swale complexes and upland annual grassland habitat, crosscut by the southwest-flowing channel of North Fork Little Dry Creek (unrelated to the Dry Creek located on the project site). As identified above, preliminary mapping identified a high density of naturally occurring wetlands (roughly 6.8% cover), estimated to comprise approximately 130 acres of vernal pools, vernal swales, and ephemeral streams as well as approximately 2.7 acres (approximately 12,166 linear feet) of seasonal stream habitat. The remainder of the Property supports upland annual grassland. Within that context, natural topographic diversity supports a range of pool types. This is evidenced by the diversity of special-status plant and wildlife species known to be present, each of which typically has a unique niche (Vollmar Natural Lands Consulting 2021, Smith pers. comm.[b]).

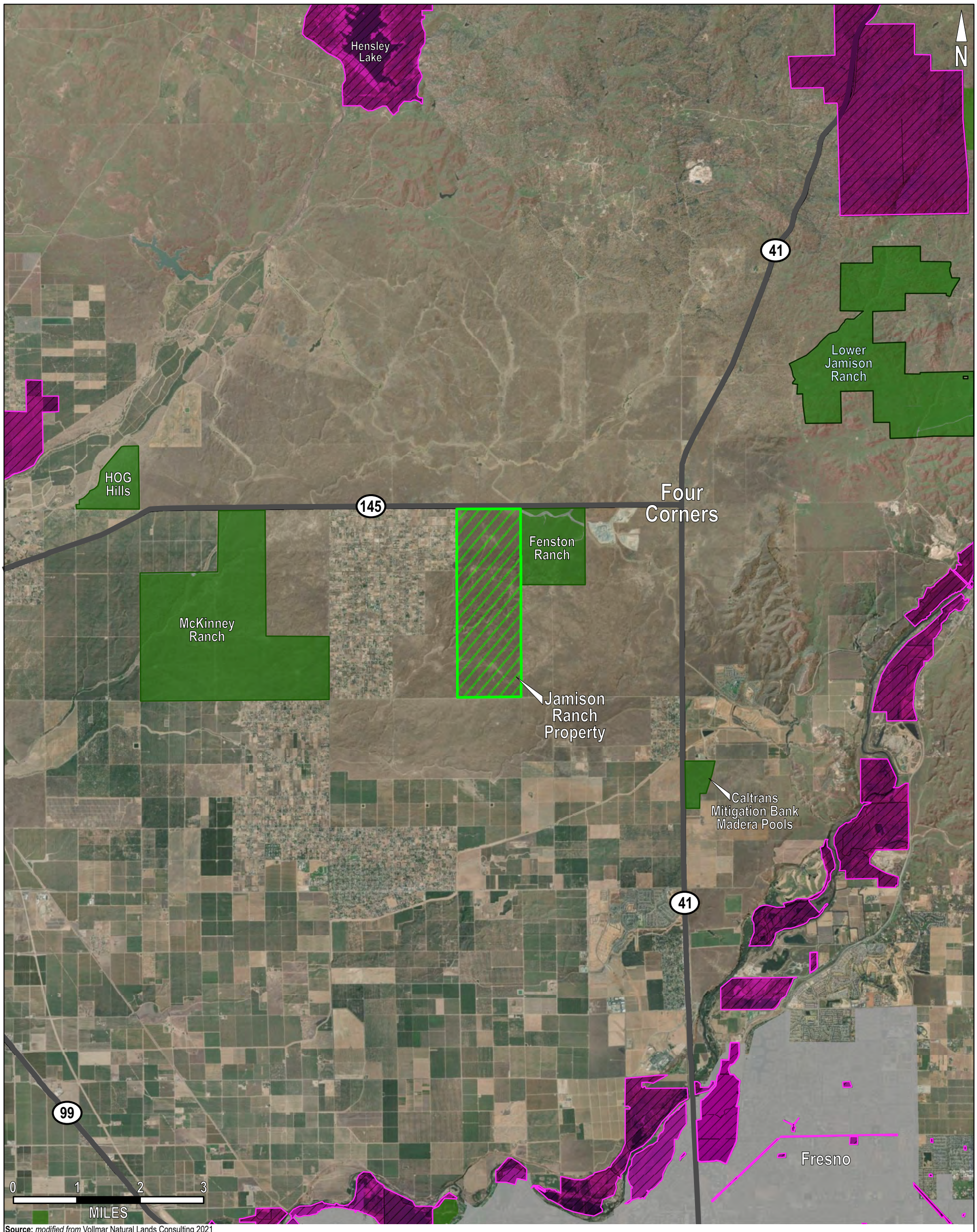
Mean annual precipitation at the Property is approximately 13.4 inches, with the majority falling as rain during the winter months (December – March). Pools generally begin to fill with the onset of heavy rains in the late fall and winter and dry down during the spring. The pools vary in size and depth; the larger and deeper pools typically have a longer hydroperiods while the smaller and shallower pools typically have shorter hydroperiods. There is also high degree of hydrologic connectivity between pools, either via surface swales or subsurface flow (Vollmar Natural Lands Consulting 2021).

Individual habitat types are discussed in more detail in the sections that follow.

Vegetation & Ecological Services

Vernal Pools

Vernal pools are common throughout the Property, and are fairly evenly distributed within level to rolling topography. They are dominated by native vernal pool indicator plants such as coyote thistle, Fremont's goldfields (*Lasthenia fremontii*), common vernal pool allocarya, and annual hairgrass (*Deschampsia danthonioides*). The vernal pools also support generalist wetland species such as Mediterranean barley and Italian ryegrass (*Festuca perennis*) (Vollmar Natural Lands Consulting 2021).



Source: *modified from* Vollmar Natural Lands Consulting 2021

Legend

- Jamison Ranch Property
- Private and single-user preserved lands
- Public preserved lands
- Incorporated urban lands
- State highway

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Figure 8. Conservation Lands in Vicinity of Jamison Ranch Property
Vista Ranch – Conceptual Mitigation Plan
Wilson Premier Homes

The vernal pools support multiple special-status vernal pool species including California tiger salamander, western spadefoot, vernal pool fairy shrimp, midvalley fairy shrimp (*B. mesovallensis*), California linderiella (*Linderiella occidentalis*)[8], and succulent owl's-clover (*Castilleja campestris* var. *succulenta*) (federally listed as Threatened, state-listed as Endangered, CRPR 1B.2). They also provide habitat for a suite of other more common invertebrates, amphibians, reptiles, birds, and mammals (Smith pers. comm.[b]).

As small ephemeral features with limited surface connectivity to other waters, individual vernal pools are not expected to provide regionally important water quality or carbon sequestration services (Smith pers. comm.[b]); their value in these areas lies in their extent and collective impact. They also contribute individually and collectively to groundwater infiltration, another value increased by their substantial extent on the Property.

Vernal Swales

Vernal swales are low-lying, topographically indistinct areas that can be differentiated from ephemeral drainages based on their lack of clearly defined bed and bank geomorphology and an associated OHWM. On the Property, these features generally support at least 20% cover of vernal pool indicator species associated with shallow ponding, such as meadowfoam (*Limnanthes* spp.), with lesser percentages of generalist wetland species such as Mediterranean barley and Italian ryegrass. Vernal swales commonly provide a hydrologic connection between vernal pools and are thus fundamental to the overall ecological function of vernal pool complexes (Vollmar Natural Lands Consulting 2021).

Like the vernal pools, the vernal swales provide habitat for multiple common invertebrates, amphibians, reptiles, birds, and mammals. Some of the swales also offer low areas where ponding is extended; these are suitable to support various special-status vernal pool species, including western spadefoot, vernal pool fairy shrimp, midvalley fairy shrimp, and California linderiella (Smith pers. comm.[b]).

As vegetated drainages with surface connectivity, the vernal swales provide important water quality services to downstream aquatic habitats (Smith pers. comm.[b]) as well as contributing to groundwater recharge.

Ephemeral Drainages

Ephemeral drainages are small channels with some bed and bank development that convey rain run-off for a short period following storm events and often retain isolated ponded areas throughout the rainy season. They typically support flow for only 1 – 2 weeks after heavy rains, and because of their relatively short active period, channel development is less marked than in seasonal streams, although they display characteristics of an OHWM. On the Property, these features typically support a mix of vernal pool indicator plants and generalist seasonal wetland plants (Vollmar Natural Lands Consulting 2021).

The ephemeral drainages provide habitat for both generalist and vernal pool–specialist species; their habitat value for special-status species in particular is likely similar to that of annual grasslands, described below (Smith pers. comm.[b]).

Like the other aquatic resources on the Property, the ephemeral drainages contribute to groundwater recharge. Where they are vegetated, they also provide water quality services to downstream aquatic habitats (Smith pers. comm.[b]) and some carbon sequestration.

[8] Neither midvalley fairy shrimp nor California linderiella has formal federal or state status, but both are treated as special-status species by DFW.

Seasonal Stream

North Fork Little Dry Creek is a tributary of Little Dry Creek. The downstream reaches of Little Dry Creek have been significantly channelized and are largely managed as agricultural ditches, but the Creek continues to function as a minor tributary of the San Joaquin River via the Chowchilla Canal, which flows northwest on the valley floor some 13 miles west of Madera (Smith pers. comm.[b]).

Within the Property, North Fork Little Dry Creek occupies a meandering channel incised tens of feet below the dominant land surface. Much of the stream channel is sandy-bottomed and lightly vegetated. Most of the stream dries relatively early in the spring, but relatively deep and long-lasting pools in many of the meanders hold water until early summer. These pools support significant aquatic vegetation such as white water crowfoot (*Ranunculus aquatilis*) (Smith pers. comm.[b]).

California tiger salamander is documented as breeding in the Creek, particularly in the deeper pools. The stream also provides habitat for small fish that may migrate in from downstream, and for other amphibians, birds, mammals, reptiles, and invertebrates. In addition, the steep sides of the incised channel provide vertical walls that are used by Western Burrowing Owl (*Athene cunicularia*) (U.S. Fish and Wildlife Service Bird of Conservation Concern, state Species of Special Concern) and other wildlife for nesting (Smith pers. comm.[b]).

Due to overall light vegetation cover, North Fork Little Dry Creek likely provides minor water quality services to downstream waters and limited carbon sequestration. However, the sandy bottom enables infiltration contributing to groundwater recharge (Smith pers. comm.[b]). Longer pooling periods in the meander areas amplify this benefit.

Grasslands

The grasslands on the Property occur on gently rolling topography, allowing the development of a mosaic of different vegetation reflecting minor, localized differences in soil moisture. Typical vegetation consists of Mediterranean barley, Italian ryegrass, soft chess brome (*Bromus hordeaceus*), and slender wild oats (*Avena barbata*), with a mix of associated grasses and forbs (Smith pers. comm.[b]).

The grasslands provide documented habitat for multiple special-status species, including California tiger salamander, western spadefoot, Swainson's Hawk (*Buteo swainsoni*) (no federal status; state-listed as Threatened), Golden Eagle (*Aquila chrysaetos*) (federally protected by Bald and Golden Eagle Protection Act; state Fully Protected, state Watch List species), Ferruginous Hawk *(B. regalis*) (no federal status; DFW Watch List species), Western Burrowing Owl, and American badger (*Taxidea taxus*) (no federal status; state Species of Special Concern). In addition, many more common wildlife species depend on the grassland. Predator species in particular—such as the raptors listed above, American badger, and coyote (*Canis latrans*)—are dependent on large uninterrupted grasslands like those on the Property and surrounding lands (Smith pers. comm.[b]).

The grasslands provide direct support to aquatic resources onsite at the Property and downstream. They are expected to contribute to carbon sequestration, their intact vegetation helps to control erosion, benefitting downstream water quality, and—as undeveloped permeable surfaces—they also permit infiltration contributing to groundwater recharge.

Special-Status Species Use

As mentioned above, the Property is located within designated Critical Habitat for vernal pool fairy shrimp and is in close proximity to Critical Habitat for California tiger salamander.

Based on California Natural Diversity Database (CNDDB) records and surveys conducted onsite from 2017 through 2021, at least thirteen special-status species are known to be present on the Property (Vollmar Natural Lands Consulting 2021, Smith pers. comm.[b]).[9] These are

- succulent owl's-clover
- hogwallow starfish (*Hesperevax caulescens*) (CRPR 2B.3)
- adobe navarretia (*Navarretia nigelliformis* ssp. *nigelliformis*) (CRPR 4.2)
- vernal pool fairy shrimp
- midvalley fairy shrimp
- California linderiella
- California tiger salamander (breeding and upland)
- western spadefoot (breeding and upland)
- Swainson's Hawk (foraging)
- Western Burrowing Owl (wintering/nesting)
- Golden Eagle (foraging)
- Ferruginous Hawk (wintering)
- American badger

The Property also offers suitable movement and foraging habitat for San Joaquin kit fox (*Vulpes macrotis mutica*) (federally listed as Endangered, state-listed as Threatened), although the species has not been documented on the site (Smith pers. comm.[b]).

Aquatic habitats onsite support succulent owl's-clover, the three vernal pool branchiopods, and breeding California tiger salamander and western spadefoot. Western Burrowing Owl nests in the steep, incised sides of the North Fork Little Dry Creek drainage. Grasslands offer upland resources for both California tiger salamander and western spadefoot, as well as opportunities for Western Burrowing Owl, Swainson's Hawk, Golden Eagle, Ferruginous Hawk, and American badger. Occasional clay flats provide habitat for hogwallow starfish and adobe navarretia (Vollmar Natural Lands Consulting 2021; Smith pers. comm.[b], pers. comm.[d]).

Figure 9 shows documented special-status species use at the Property; for comparison, Figure 10 shows documented special-status species use at and adjacent to the proposed Vista Ranch site. Figure 11 shows special-status species use in the region around the Jamison Ranch Property, to provide additional mitigation planning context.

Wetland Function/Value at Project Site & Proposed Mitigation Site

California Rapid Assessment Method (CRAM) evaluations were conducted at the Vista Ranch project site and on the Jamison Ranch Property in late September 2023 in order to weigh the comparative ecological function and value of impacted wetlands and waters and those proposed for preservation/compensation. At both

[9] Scientific name and status are given here only for the species not mentioned previously in the habitat descriptions above.

N

145

Madera Canal

Road 38

Jamison Ranch
Property Boundary

North Fork Little Dry Creek

0 1,500 3,000
FEET

Source: data from field surveys by Vollmar Natural Lands Consulting, 2017 – 2021

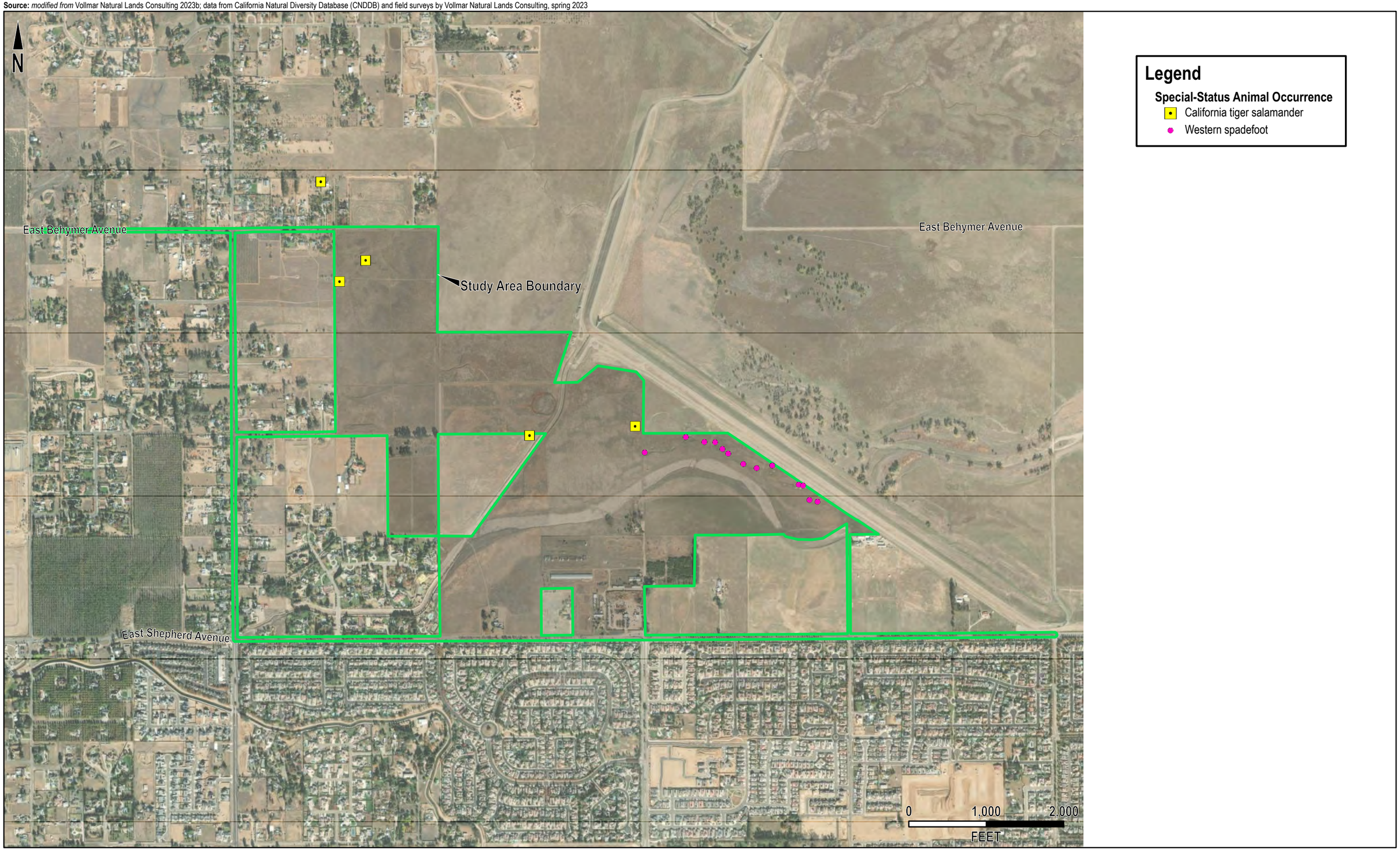
Legend

- Burrowing Owl
- California tiger salamander (breeding)
- Western spadefoot (breeding)
- Vernal pool fairy shrimp
- California fairy shrimp
- Vernal pool fairy shrimp + California fairy shrimp
- Midvalley fairy shrimp
- Succulent owl's-clover
- Adobe navarretia + hogwallow starfish

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Figure 9. Special-Status Species Occurrences at Jamison Ranch Property
Vista Ranch – Conceptual Mitigation Plan
Wilson Premier Homes

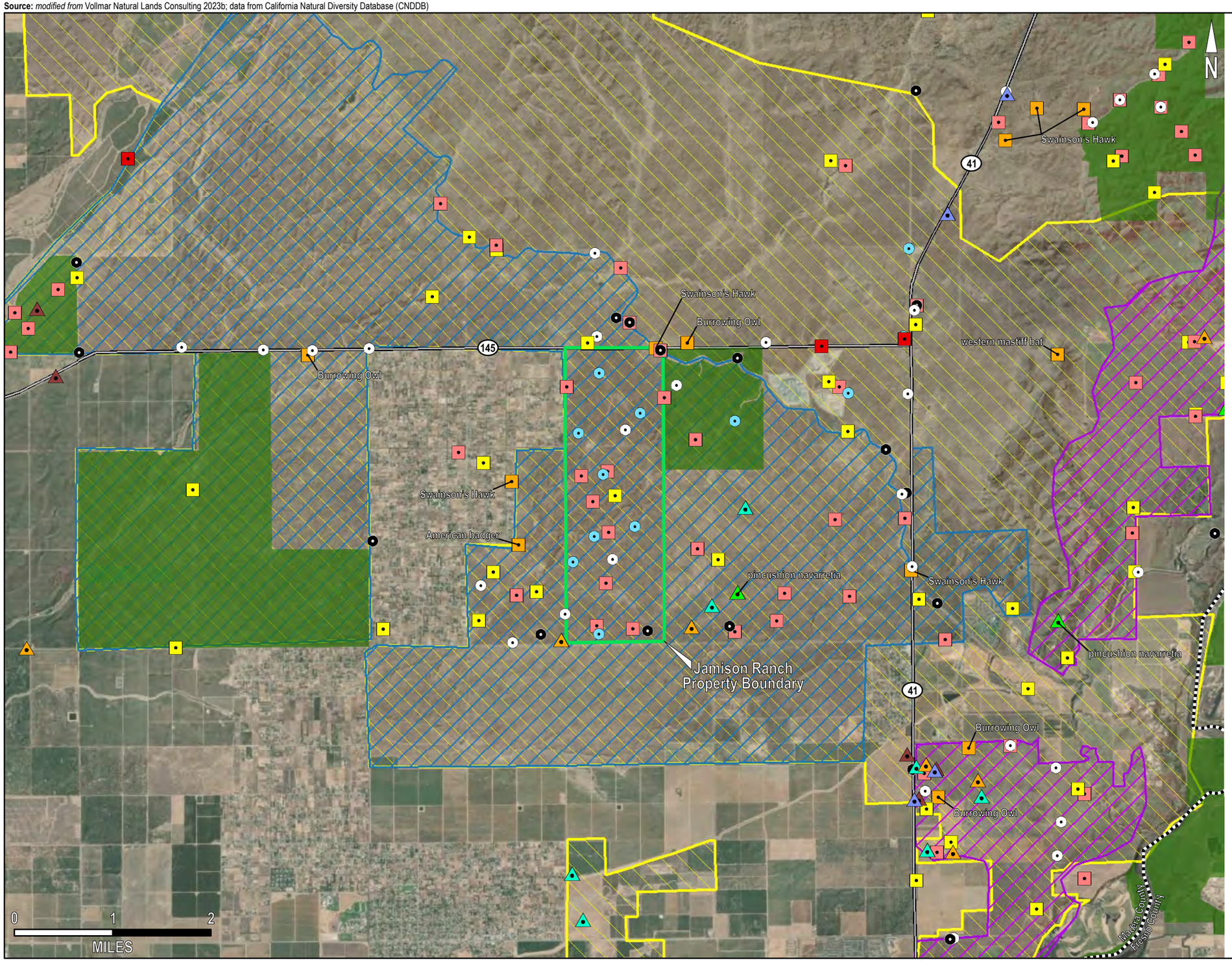
Source: *modified from* Vollmar Natural Lands Consulting 2023b; data from California Natural Diversity Database (CNDDB) and field surveys by Vollmar Natural Lands Consulting, spring 2023



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Figure 10. Special-Status Species Occurrences at Vista Ranch Site
Vista Ranch – Conceptual Mitigation Plan
Wilson Premier Homes

Source: *modified from* Vollmar Natural Lands Consulting 2023b; data from California Natural Diversity Database (CNDDB)



Legend

USFWS-designated vernal pool Madera Core Recovery Area

Designated Critical Habitat
- California tiger salamander
- Vernal pool fairy shrimp

Special-Status Animal Occurrence
- California tiger salamander
- Tricolored Blackbird
- Western spadefoot
- Vernal pool fairy shrimp
- California fairy shrimp
- Midvalley fairy shrimp
- Other special-status animal

Special-Status Plant Occurrence
- Succulent owl's-clover
- San Joaquin Valley Orcutt grass
- Hairy Orcutt grass
- Spiny-sepaled button-celery
- Other special-status plant

Symbols
- County boundary
- Public or preserved land
- Highway

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Figure 11. Special-Status Species Occurrences in Jamison Ranch Property Region
Vista Ranch – Conceptual Mitigation Plan
Wilson Premier Homes

locations, a range of features distributed across the site was evaluated, with the goal of capturing the diversity of resources present and arriving at an approximate sitewide characterization. Locations of the evaluated features are shown in Figures 12 and 13. Assessment methods followed the current CRAM Field Books for depressional wetlands, riverine Wetlands, and vernal pool systems (California Wetlands Monitoring Workgroup 2013a, 2013b, 2020).

CRAM field worksheets for all features evaluated are presented in Appendix A (Vista Ranch Site) and Appendix B (Jamison Ranch). Table 2 summarizes the results for each feature by wetland attribute; the feature's index score is the average of the four attribute-specific scores.

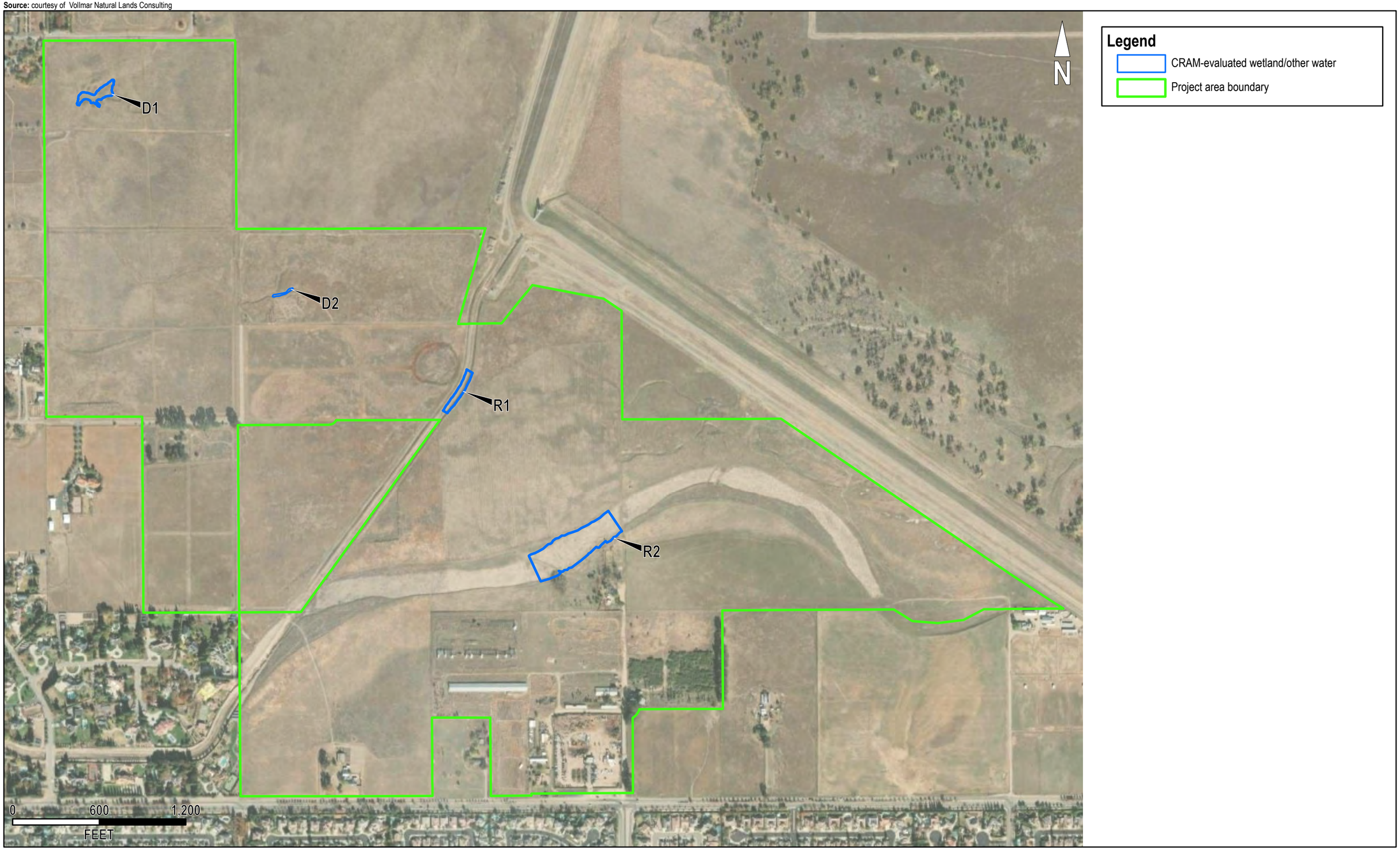
Table 2. CRAM Assessment Scores – Project Site and Jamison Ranch Property

Feature	Score by Wetland Attribute				Index Score
	Buffer & Landscape	Hydrology	Physical Structure	Biotic Structure	
Vista Ranch Site					
Depressional Wetland					
D1	47.88	83.33	50	41.67	56
D2	47.88	58.33	62.5	41.67	53
Riverine					
R1	45.4	66.67	37.5	66.67	54
R2	36	75	25	25	40
Jamison Ranch Property					
Vernal Pool					
VPS1	87.5	100	75	66.67	82
VPS2	87.5	100	83.33	54.17	81
VPS3	87.5	100	91.67	87.5	92
VPS4	87.5	100	75	70.83	83
Riverine					
J-R1	93.3	100	50	44.44	72
J-R2	93.3	83.33	37.5	44.44	65

The range of scores in each category, and the range of index scores, is from 25 to 100. Generally, scores of 25 – 50 are considered Poor, 50 – 75 is condered Fair", and scores greater than 75 are considered Good. Based on CRAM calibration studies, there is 90% confidence that the index score for one assessment area is significantly greater than another if the score is ≥ 7 points different. Similarly, there is 90% confidence that an assessment area is in Fair ecological condition if its overall score is ≥ 55 (i.e., 5 points above the Poor/Fair threshold of 50) (California Wetlands Monitoring Workgroup 2019).

A statewide validation study of the CRAM Depressional Wetland Module found index scores ranging from 31 to 96, with a median score of 60 (Central Coast Wetlands Working Group 2017a). A similar study of the Vernal Pool Systems Module found index scores ranging from 55 to 92, with a median score of 75 (Central Coast Wetlands Working Group 2017b). The Riverine Module underwent validation in 2007 (Stein et al. 2007). Exact ranges and medians were not published, but the distribution was generally similar to the other validated modules.

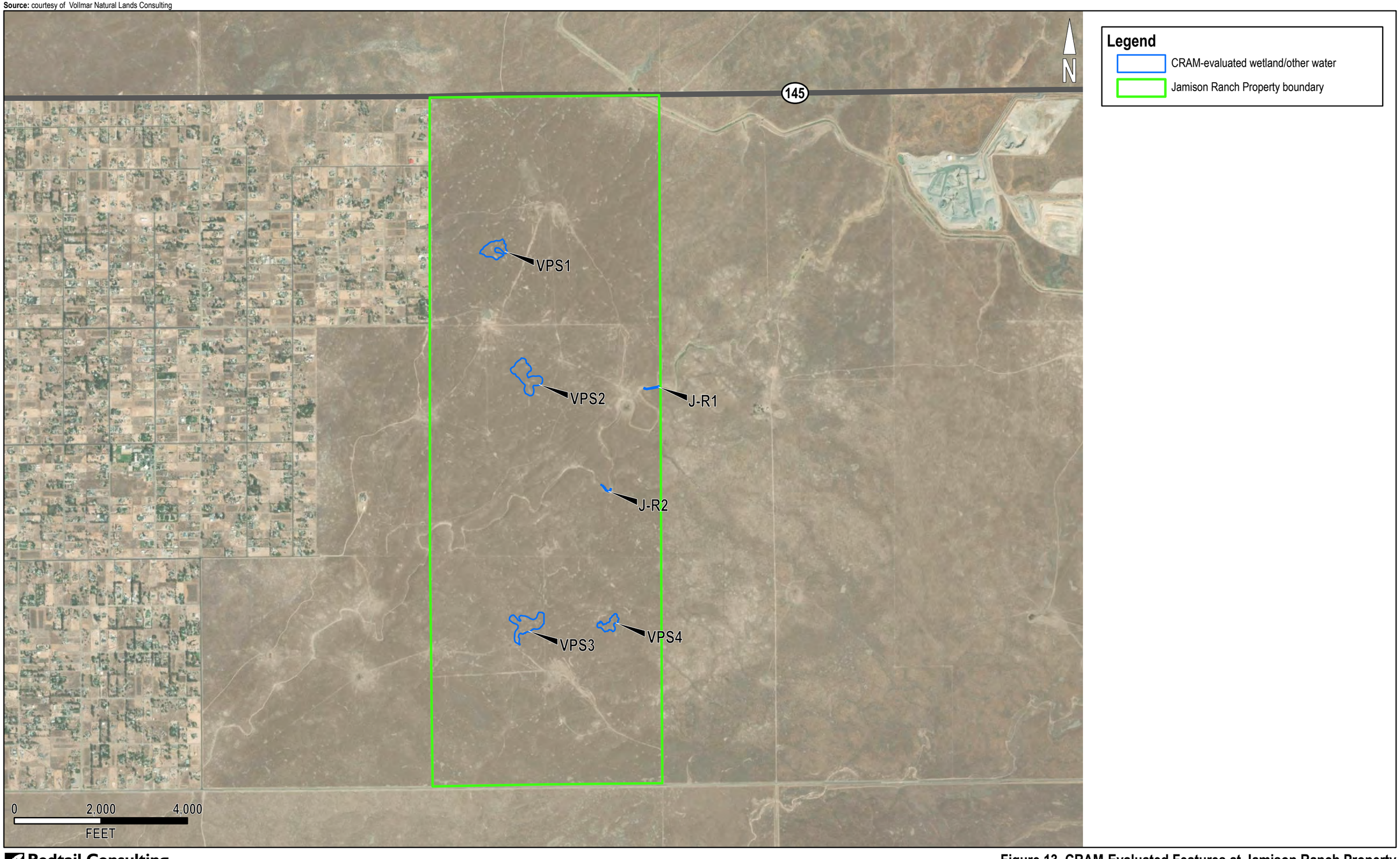
Source: courtesy of Vollmar Natural Lands Consulting



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Figure 12. CRAM-Evaluated Features at Vista Ranch Site
Vista Ranch – Conceptual Mitigation Plan
Wilson Premier Homes

Source: courtesy of Vollmar Natural Lands Consulting



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Figure 13. CRAM-Evaluated Features at Jamison Ranch Property
Vista Ranch – Conceptual Mitigation Plan
Wilson Premier Homes

At the project site, Assessment Area D1 consists of the largest stock pond proposed for fill as part of the project (Figure 12). This feature was selected as having potentially the highest wetland habitat values of the stock ponds and depressional wetlands, based on its large size and relatively long hydroperiod. Assessment Area D2 is a centrally located depressional wetland in a swale, also planned for fill. This feature is more representative of the smaller wetlands on the project site, both those that would be filled and those that would be avoided. Assessment Areas D1 and D2 received scores of 56 and 53 respectively. These scores are below the statewide median value; both are on the edge of being significantly below the median and of being considered in Poor condition.

At the Jamison Ranch Property, four assessment areas were chosen for vernal pool systems, in order to give a sense of the range of habitat values across the large site (Figure 13). Assessment Areas VPS-1 and VPS-2 are located in the northern half of the property while VPS-3 and VPS-4 are located within the proposed preserve (discussed in more detail below). Scores for these assessment areas ranged from 81 to 92. Three out of four of these scores are significantly above the statewide median value for vernal pool systems, with the fourth being only one point away from being significantly above. All fall well within the range of Good condition.

At the project site, Assessment Area R1 begins at the location of the proposed clearspan bridge over the spillway canal and extends 100 meters downstream. This location was selected per CRAM guidelines to allow for evaluation of the area of maximum impact from the bridge. Assessment Area R2 is a centrally located and representative reach of the abandoned former Dry Creek channel. Assessment areas R1 and R2 received overall scores of 54 and 40 respectively. The score of 54 is just inside the threshold for Poor condition, and the score of 40 represents Poor condition.[10]

At the Jamison Ranch Property, Assessment Area J-R1 is located near the eastern (upstream) end of the Property, beginning just below the confluence of an unnamed ephemeral tributary with North Fork Little Dry Creek and extending 100 meters downstream. This location is outside of the proposed preserve, but was selected per CRAM guidelines as representative of the stream on the Property. Assessment Area J-R2 is located within the proposed preserve, in an area representative of the relatively steep-banked meanders present along many reaches of North Fork Little Dry Creek on the Property.Reaches J-R1 and J-R2 received scores of 72 and 65 respectively. Although far from an ideal condition, these values are in the Fair condition range, and significantly above the scores of the impacted reaches.

Potential Mitigation Ratios

The sections that follow briefly discuss compensation ratios that could be achieved via preservation of habitat at the Property. Federally listed species habitat is addressed first, since it represents the primary driver on the overall compensation approach. This information is intended to represent a starting point for discussion and further planning; as identified above, final preservation acreages and the configuration of the preserved area will be determined in consultation with Corps, RWQCB, Service, and DFW staff to maximize long-term habitat functionality and benefits to both aquatic resources and species affected by the project. However, it is assumed that the majority of the North Fork Little Dry Creek stream corridor would be included in the preserve, since this would help ensure that no future adverse effects to overall stream function and services are incurred on the

[10] As noted in Appendix A, CRAM evaluation of the abandoned former channel is arguably inappropriate since it lacks both wetland soils and vegetation and has been truncated from sources of upstream flow, and thus is neither a wetland nor an active stream channel at present. This feature was chosen for evaluation as a means of further examining the initial assessment that it provides little or no riparian/wetland value. Interestingly, as Table 3 shows, it received a score of 75 for the Hydrology attribute, due to the geomorphic stability of the (no longer functional) channel, and its direct connection to overland flow via low banks and a lack of natural levees. This higher single-attribute score elevated the feature's overall score, and the overall score of 40 should probably be considered as overestimating the truncated channel's actual function and value.

Property. It is also the proponent's intent to develop a preserve configuration that enables other future purchasers to use the remaining parts of the Property not involved in Vista Ranch compensation—that is, the configuration of the Vista Ranch mitigation preserve must support long-term functionality, but it must also allow for other future preserves with similar function and value.

The overview of potential compensation below is based on studies to date. Aquatic resources ratios in particular may be refined by additional work slated for fall 2023, including a formal delineation of potentially jurisdictional habitat at the Jamison Ranch Property per the Corps' Arid West protocol, and further consideration of CRAM assessments of wetland function/value at both the Property and the Vista Ranch site; it is anticipated that final compensation ratios will take into account the range of function and value offered by areas impacted at the Vista Ranch site and the values offered by both aquatic and upland habitats at the Property.

Federally Listed Species Habitats

The project would result in the direct loss of 0.390 acre of California tiger salamander breeding habitat that is known to be occupied based on spring 2023 surveys and 0.105 acre of suitable breeding habitat that is also of good quality and presumed to be occupied based on the species' presence onsite. An additional 0.369 acre of California tiger salamander breeding habitat that is known to be occupied based on spring 2023 surveys and CNDDB records would experience long-term indirect impacts due to surrounding development and loss of overall connectivity; this is also expected to be treated as a loss, along with 1.129 acres of low-suitability breeding habitat that is considered less likely to be occupied (Vollmar Natural Lands Consulting 2023b).[11] A further 0.236 acre of documented California tiger salamander breeding habitat is located offsite—and thus outside the area of direct disturbance—but within the Service's standard 250-foot buffer for indirect impacts and is also proposed for compensation via preservation at the Jamison Ranch Property. The project would also result in the direct loss of 0.061 acre of onsite vernal pool fairy shrimp habitat, plus long-term indirect impacts on another 0.734 acre onsite due to surrounding development and loss of overall connectivity, which is also expected to be treated as a loss (Vollmar Natural Lands Consulting 2023b).

The abundance of aquatic resources on the Jamison Ranch Property (estimated 130 acres of vernal pool/vernal swale habitat and 2.7 acres/12,166 linear feet of seasonal stream, including documented California tiger salamander breeding habitat) would allow compensation at a substantive ratio for both losses of California tiger salamander breeding habitat and vernal pool fairy shrimp habitat. Similarly, with almost 1,790 acres of suitable grassland habitat available for preservation and project-related losses of suitable/presumed occupied upland habitat for California tiger salamander at 189.7 acres, assessments to date suggest that compensation at ratios of 2:1 – 3:1 could easily be achieved at the Property, depending on agency input. Compensation at lower ratios for the additional 140.3 acres of impact on low-suitability upland habitat for California tiger salamander could also be provided. This is itemized further in the project *Biological Assessment* (Vollmar Natural Lands Consulting 2023b), which proposes compensation at 3:1 for known occupied and suitable California tiger salamander habitat and 2:1 for low-suitability California tiger salamander habitat. Because of the comparative acreages at the impact and mitigation sites and the configuration of the proposed preservation area, this would translate to a mitigation ratio of just over 73:1 for vernal pool fairy shrimp habitat (Vollmar Natural Lands Consulting 2023b).

Based on analysis conducted for the *Biological Assessment*, it is anticipated—subject to further agency input—that the preserve will encompass approximately 857 acres, beginning at the south boundary of the Property and

[11] The 1.129-acre indirect loss represents the agricultural tailwater pond in the center of the site (Figure 5). The pond would be avoided and protected in place by the project but would be surrounded on three sides by development when the project is complete, and is therefore expected to be treated as a loss of habitat by the Service and DFW although it does not represent a loss to aquatic resources on the site.

extending north to include most of the North Forth Little Dry Creek stream corridor (Figure 14). Table 3 summarizes habitat acreages within the preserve boundary shown on Figure 14.

Table 3. Approximate Areas Proposed for Preservation by Habitat Type

Habitat Type	Extent
Annual grassland	795.4 ac
Documented California tiger salamander breeding pool (documented or presumed vernal pool fairy shrimp habitat)	3.2 ac
Other vernal pool or swale (documented or presumed vernal pool fairy shrimp habitat)*	55.8 ac
North Fork Little Dry Creek**	1.3 ac / 7,449 lf
Ephemeral drainage	1.3 ac
Total California tiger salamander habitat	854.4 ac
Total vernal pool fairy shrimp habitat	59.0 ac
Total area preserved	857.0 ac

Notes:

* As identified elsewhere, comprehensive wetland mapping has not been conducted on the Property; this is planned for fall 2023. Area of vernal pools and swales is estimated based on percent land cover on the 20% of the ranch that has been mapped. All California tiger salamander habitat identified as documented has been mapped.

** California tiger salamander larvae have been documented repeatedly in North Fork Little Dry Creek. However, based on discussions with DFW, this analysis does not treat the Creek as breeding habitat for the species.

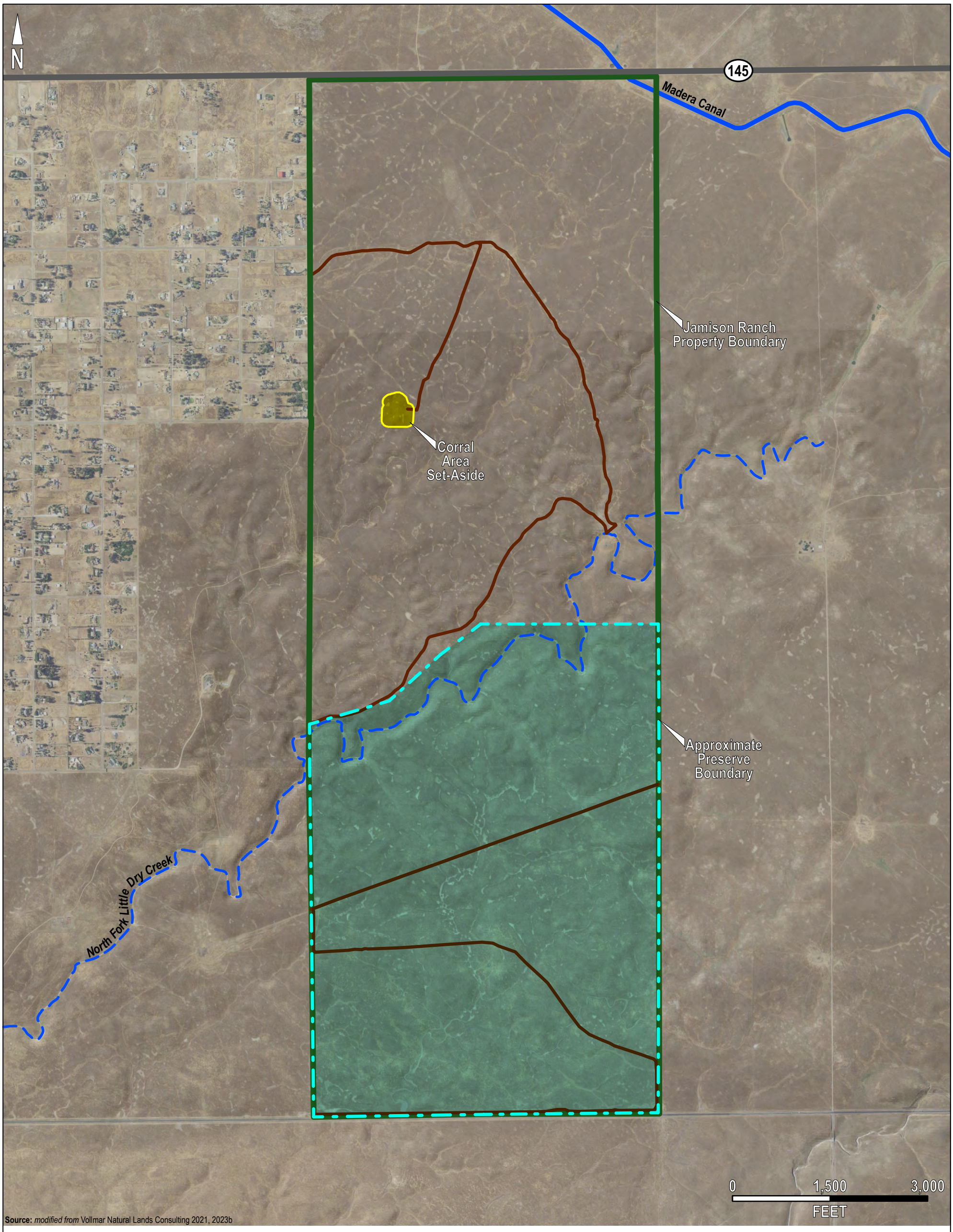
Source: Vollmar Natural Lands Consulting 2023b

Aquatic Resources

The project is expected to result in the permanent loss of 0.495 acre of wetland habitat. The tentative preserve area shown on Figure 14 includes 59 acres of vernal pool/vernal swale habitat, translating to a ratio of 119:1 (preserved:impacted) for losses of wetland habitat at the Vista Ranch site. Additionally, as currently proposed, the Jamison Ranch preserve would include the two vernal pool complexes that received the highest overall CRAM scores—VPS3 with a score of 92 and VPS4 with a score of 83, both significantly higher than the mid-50's scored by the impacted wetlands. In view of the high ratio anticipated, the comparative value of the preserved habitat, its location within a functional, good-quality habitat mosaic, and the fact that it is situated in an area prioritized for aquatic resources preservation, it is hoped that preservation can be accepted as full compensation for project-related wetland losses.

As discussed in more detail above, any impacts not considered adequately compensated through preservation are proposed for compensation at a 1:1 ratio via credit purchase from an agency-approved source (anticipated to be NFWF's Sacramento District In-Lieu Fee Program). Credit purchase is proposed at a 1:1 ratio due to the added value that would be provided over the long term by preservation of extensive aquatic habitat at the Property.

The project would not result in permanent impacts on other waters of the United States, represented on the Vista Ranch project site by non-wetland channel in the FMFCD canal; this would be avoided due to the bridge's location over wetland channel and its clearspan configuration. However, as Figure 14 shows, the majority of the North Fork Little Dry Creek seasonal stream corridor on the Property (estimated at 1.3 acres/7,449 linear feet; Vollmar Natural Lands Consulting 2023b) is assumed to be preserved, along with some 1.3 acres (18,990 linear feet; Vollmar Natural Lands Consulting 2023b) of ephemeral drainages, providing an additional substantive net benefit as a result of the project. As noted above, CRAM scores for North Fork Little Dry Creek are rated as Fair, but are significantly higher than those at the Vista Ranch project site.



Source: *modified from* Vollmar Natural Lands Consulting 2021, 2023b

Legend

- State highway
- Canal
- Seasonal stream
- Existing ranch road / doubletrack
- Property boundary (1,920 ac total)
- Corral area set-aside (5 ac); remaining 1,915 ac available for preservation
- Approximate extent of preserve; see discussion in text

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Figure 14. Jamison Ranch Property Tentative Preserve Boundary
Vista Ranch – Conceptual Mitigation Plan
Wilson Premier Homes

Additional Considerations

Because of the extent of habitat available at the Property, it may be possible—and could be beneficial on multiple fronts—to establish a preserve area that exceeds the mitigation needs of the Vista Ranch project. "Excess" preservation acreage could be dedicated to provide mitigation credits saleable for future projects undertaken by others in the Vista Ranch Master Plan area. In this case, some involvement by the City of Clovis could be desirable. Alternately, excess preservation acreage could perhaps be used to offset impacts of the proponent's future projects in other Central Valley locations. Various options may be worth exploring from both conservation and financial perspectives as planning moves ahead.

Long-Term Protection & Management

The portion of the Property dedicated for mitigation will be placed under a conservation easement to preclude future development and to control use and management of the preserved lands. The easement holder is tentatively expected to be the Sierra Foothill Conservancy.

The proponent intends to develop a *Long-Term Management Plan* for the site, which will

- define necessary management activities and the range of acceptable methods
- lay out a monitoring process and criteria for routine assessments of site health, and
- establish an adaptive management approach—including triggers for management intervention/corrective action—to ensure that habitat on the site remains in good condition and that aquatic resources and upland functions and values are preserved

A *Grazing Plan* will also be put in place as a step-down from the overall *Long-Term Management Plan*. All of the preserve documents are assumed to be subject to review and approval by the Corps, Service, RWQCB, and DFW.

Establishment of the preserve on the Property will also include funding an endowment to pay for species habitat monitoring and management in perpetuity.

Proposed Compensation for Temporary Impacts

The only temporary impacts anticipated would be the very small area of wetland channel disturbance (~0.003 acre) associated with construction of the new bridge over the FMFCD canal. Following bridge construction, any disturbed areas within the canal channel will be restored to their pre-project configuration and appropriately stabilized. If vegetation has been removed, damaged, or disturbed by construction, the area will be revegetated in an appropriate palette of native species. Disturbed and revegetated areas in the channel will be monitored annually for 5 years to ensure recovery to the pre-project reference condition. Remedial measures will be undertaken if revegetation appears to be unsuccessful (i.e., is not meeting interim success criteria). The revegetaion planting palette and monitoring protocols and criteria are expected to be subject to review and approval by the Corps, Service, RWQCB, and DFW.

No compensation for temporal impacts during vegetation recovery at the bridge site is proposed, due to the limited habitat value provided by the canal channel and the fact that a substantial extent of wetland habitat and 1.3 acres (7,449 linear feet) of seasonal stream channel is assumed to be preserved in perpetuity and managed for habitat value at the Jamison Ranch Property.

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Appendix A

CRAM Assessment Worksheets, Vista Ranch Site

Basic Information Sheet: Depressional Wetlands

Assessment Area Name: Vista D-1

Project Name: Vista Ranch Project

Assessment Area ID #: D-1

Project ID #: 361 **Date:** 9/27/23

Assessment Team Members for This AA

A. Merrill, E. Smith

AA Category:

☐Pre-Restoration ☐Post-Restoration ☐Pre-Mitigation ☐Post-Mitigation

☒Pre-Impact ☐ Post-Impact ☐ Training ☐ Ambient

☐Reference ☐ Other:

Origin of Wetland (if known):

☒ Natural system ☐ Artificial system

Type of Management (if known):

☐waterfowl/birds ☐ amphibians ☐ general wildlife ☐ sediment ☐ water quality ☐ stormwater ☐water supply (agriculture) ☐water supply (livestock) ☒ not managed ☐ other:

Which best describes the type of depressional wetland?

☐freshwater marsh ☐alkaline marsh ☐brackish marsh

☒other (specify): Herbaceous seasonal wetland, not characterized by vernal pool plants

AA Encompasses:

☒entire wetland ☐portion of the wetland

Which best describes the hydrologic state of the wetland at the time of assessment?

☐ponded/inundated ☐saturated soil, but no surface water ☒dry

What is the apparent hydrologic regime of the wetland?

Perennially flooded systems contain surface water year-round, *seasonally flooded* depressional wetlands are defined as supporting surface water for 4-11 months of the year (in > 5 out of 10 years.) *Temporarily flooded* depressional wetlands possess surface water between 2 weeks and 4 months of the year.

☐perennially flooded ☐ seasonally flooded ☒ temporarily flooded

Does your wetland connect with the floodplain of a nearby stream? ☐ yes ☒ no

(system subject to overbank flow, a dammed stream does not count)

Does the wetland have a defined or undefined <u>outlet</u>? ☒ defined ☐ undefined

Does the wetland have a defined or undefined <u>inlet</u>? ☒ defined ☐ undefined

Are the inlet and outlet at the same location? ☐ yes ☒ no

Is the topographic basin of the wetland ☒ distinct **or** ☐ indistinct **?**

An *indistinct* topographic basin is one that lacks obvious boundaries between wetland and upland. Examples of such features are seasonal, depressional wetlands in very low-gradient landscapes.

Site Location Description and Land Use:
The AA consists of feature S-2 in the wetland delineation for Vista Ranch, prepared by VNLC, August 2023. The feature is located near the northwestern tip of the site. It is a semi-natural depression, which receives and contributes some flow to a swale flowing from the northeast to the southwest. The feature presently has no land use—it shows signs of prior modification, likely to provide stock water, but no stock currently graze the site. The site is planned for a mixed-use development.

Comments:
The AA and its surroundings are relatively ruderal due to lack of management.

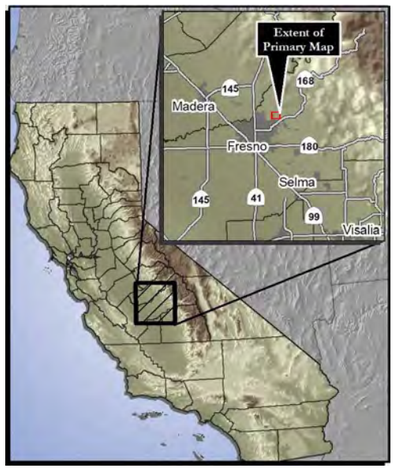
CRAM AA
Locations Map

Vista Ranch Development
Fresno County, California

D1
D2
R1
R2

Legend

Project Site (368 ac.)



Vollmar
NATURAL LANDS CONSULTING

Data Sources: VNLC, 2023 | USDA-WSS, 2023
ESRI/Maxar, 2023 | USGS, various | GAP, 2023
GIS/Cartography by: E. Smith, Sep. 2023
Map File: 361_Vista_AP_B-L_2023-0914.mxd

N
W E
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1:7,200
(1 in. = 600 feet. at Tabloid Layout)

0 50 100 200 Meters
0 300 600 1,200 Feet

Photos with Descriptions



Looking east from west end of AA, 36.879890, -119.678636



Looking south from north end of AA, 36.880104, -119.678061



Looking north from south end of AA, 36.879751, -119.678262



Looking west from east end of AA, 36.879933, -119.677953

Scoring Sheet: Depressional Wetlands

AA Name: Vista D1				**Date:** 9/27/23	
Attribute 1: Buffer and Landscape Context (pp. 8-15)				**Comments**	
Aquatic Area Abundance Score (D)		Alpha. D	Numeric 3		
Buffer:					
Buffer submetric A: Percent of AA with Buffer	Alpha. A	Numeric 12			
Buffer submetric B: Average Buffer Width	A	12			
Buffer submetric C: Buffer Condition	C	6			
Raw Attribute Score = D+[C x (A x B)^{½}]^{½}			11.49	**Final Attribute Score = (Raw Score/24) x 100**	47.88
Attribute 2: Hydrology (pp. 16-21)					
Water Source		Alpha. B	Numeric 9	Upstream homes have potential groundwater/surface link along swale	
Hydroperiod		A	12		
Hydrologic Connectivity		B	9	Soil has been mounded along 10% of edge creating steep bank.	
Raw Attribute Score = sum of numeric scores			30	**Final Attribute Score = (Raw Score/36) x 100**	83.33
Attribute 3: Physical Structure (pp. 22-28)					
Structural Patch Richness		Alpha. C	Numeric 6		
Topographic Complexity		C	6		
Raw Attribute Score = sum of numeric scores			12	**Final Attribute Score = (Raw Score/24) x 100**	50
Attribute 4: Biotic Structure (pp. 29-39)					
Plant Community Composition (based on submetrics A-C)					
Plant Community submetric A: Number of plant layers	Alpha. D	Numeric 3			
Plant Community submetric B: Number of Co-dominant species	D	3			
Plant Community submetric C: Percent Invasion	D	3			
Plant Community Composition Metric *(numeric average of submetrics A-C)*			3		
Horizontal Interspersion		B	9		
Vertical Biotic Structure		D	3		
Raw Attribute Score = sum of numeric scores			15	**Final Attribute Score = (Raw Score/36) x 100**	41.67
Overall AA Score (average of four final Attribute Scores)				**56**	



361_CRAM_Vista_A-P_2023-0927.xd

Worksheet for Aquatic Area Abundance Metric (Method 1)

Percentage of Transect Lines that Contains Aquatic Area of Any Kind	
Segment Direction	Percentage of Transect Length That is an Aquatic Feature
North	0
South	0
East	0
West	0
Average Percentage of Transect Length That Is an Aquatic Feature	0

Percent of AA with Buffer: 100 **%**

Worksheet for calculating average buffer width of AA

Line	**Buffer Width (m)**
A	113
B	126
C	250
D	250
E	250
F	250
G	250
H	121
Average Buffer Width ***Round to the nearest whole number (integer)***	201



361_CRAM_Vista_A-P_2023-0927.xd

Structural Patch Type Worksheet for Depressional Wetlands

Check each type of patch that is observed in the AA and use the total number of observed patches in Table 15.

STRUCTURAL PATCH TYPE (circle for presence)	**Depressional**
Minimum Patch Size	**3 m^2**
Abundant wrack or organic debris in channel, on floodplain, or across depressional wetland plain	**1**
Animal mounds and burrows	**1**
Bank slumps or undercut banks in channels or along shoreline	**1**
Cobbles and Boulders	**1**
Concentric or parallel high water marks	**1**
Filamentous macroalgae or algal mats	**(1)**
Islands (mostly above high-water)	**1**
Large woody debris	**1**
Non-vegetated flats or bare ground (sandflats, mudflats, gravel flats, etc.)	**1**
Open water	**1**
Plant hummocks and/or sediment mounds	**1**
Soil cracks	**(1)**
Standing snag(s) (1 or more at least 3 m tall)	**1**
Submerged vegetation	**1**
Swales on floodplain or along shoreline	**(1)**
Variegated, convoluted, or crenulated foreshore (instead of broadly arcuate or mostly straight)	**(1)**
Woody vegetation in water	**1**
Total Possible	**17**
No. Observed Patch Types (enter here and use in Table 15 below)	**4**

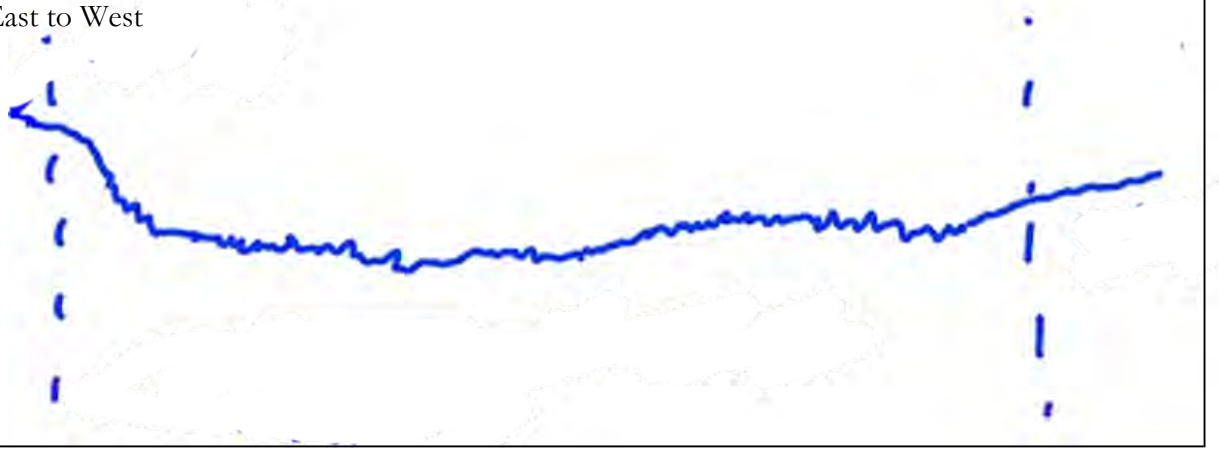
Worksheet for AA Topographic Complexity

At two locations in the AA, make a sketch of the profile from the AA boundary to AA boundary. Try to capture the major topographic features, slopes and intervening micro-topographic relief. Based on these sketches and the profiles in Figure 7, choose a description in Table 17 that best describes the overall topographic complexity of the AA.

North to South



East to West



Plant Community Metric Worksheet 2 of 8: Co-dominant species richness
(A dominant species represents ≥10% *relative* cover)

** Combine the counts of co-dominant species from all layers to identify the total species count. Each plant species is only counted once when calculating the Number of Co-dominant Species and Percent Invasion submetric scores, regardless of the numbers of layers in which it occurs.*

Floating or Canopy-forming	Invasive?	Short (<0.5 m)	Invasive?
		Crypsis schoenoides	
		Hordeum marinum ssp. *gussoneanum*	✓
		Epilobium brachycarpum	
Medium (0.5 – 1.5 m)	**Invasive?**	**Tall (1.5 – 3.0 m)**	**Invasive?**
Very Tall (>3.0 m)	**Invasive?**		
		Total number of co-dominant species for all layers combined (enter here and use in Table 19)	3
		Percent Invasion *Round to the nearest whole number (integer)* (enter here and use in Table 19)	33

Horizontal Interspersion Worksheet

Use the spaces below to make a sketch of the AA in plan view, outlining the major plant zones (this should take no longer than 10 minutes). Assign names to the zones and record them on the right. Based on the sketch, choose a single profile from Figure 8 that best represents the AA overall.



Assigned zones:

1) HORMAR

2) EPIBRA

3) CRYSCH

4) POGDOV

5)

6)

Wetland disturbances and conversions Worksheet

Has a major disturbance occurred at this wetland?	Yes	No		
If yes, was it a flood, fire, landslide, or other?	flood	fire	landslide	other
If yes, then how severe is the disturbance?	likely to affect site next 5 or more years	likely to affect site next 3-5 years	likely to affect site next 1-2 years	
Has this wetland been converted from another type? If yes, then what was the previous type?	depressional	vernal pool	vernal pool system	
	non-confined riverine	confined riverine	bar-built estuarine	
	perennial saline estuarine	perennial non-saline estuarine	wet meadow	
	lacustrine	seep or spring	playa	

Stressor Checklist Worksheet

HYDROLOGY ATTRIBUTE (WITHIN 50 M OF AA)	Present	Significant negative effect on AA
Point Source (PS) discharges (POTW, other non-stormwater discharge)		
Non-point Source (Non-PS) discharges (urban runoff, farm drainage)		
Flow diversions or unnatural inflows		
Dams (reservoirs, detention basins, recharge basins)		
Flow obstructions (culverts, paved stream crossings)		
Weir/drop structure, tide gates		
Dredged inlet/channel		
Engineered channel (riprap, armored channel bank, bed)		
Dike/levees		
Groundwater extraction		
Ditches (borrow, agricultural drainage, mosquito control, etc.)		
Actively managed hydrology		
Comments		

PHYSICAL STRUCTURE ATTRIBUTE (WITHIN 50 M OF AA)	Present	Significant negative effect on AA
Filling or dumping of sediment or soils **(N/A for restoration areas)**		
Grading/ compaction **(N/A for restoration areas)**	✓	✓
Plowing/Discing **(N/A for restoration areas)**	✓	✓
Resource extraction (sediment, gravel, oil and/or gas)		
Vegetation management		
Excessive sediment or organic debris from watershed		
Excessive runoff from watershed		
Nutrient impaired (PS or Non-PS pollution)		
Heavy metal impaired (PS or Non-PS pollution)		
Pesticides or trace organics impaired (PS or Non-PS pollution)		
Bacteria and pathogens impaired (PS or Non-PS pollution)		
Trash or refuse		
Comments		
Soil piled up along edges, steepening banks		
Plow marks lightly affecting plant species		

BIOTIC STRUCTURE ATTRIBUTE (WITHIN 50 M OF AA)	Present	Significant negative effect on AA
Mowing, grazing, excessive herbivory (within AA)		
Excessive human visitation		
Predation and habitat destruction by non-native vertebrates (e.g., *Virginia opossum* and domestic predators, such as feral pets)		
Tree cutting/sapling removal		
Removal of woody debris		
Treatment of non-native and nuisance plant species		
Pesticide application or vector control		
Biological resource extraction or stocking (fisheries, aquaculture)		
Excessive organic debris in matrix (for vernal pools)		
Lack of vegetation management to conserve natural resources	✓	✓
Lack of treatment of invasive plants adjacent to AA or buffer	✓	✓
Comments		
No vegetation management leaves invasives covering high percent of wetland and surrounding area		

BUFFER AND LANDSCAPE CONTEXT ATTRIBUTE (WITHIN 500 M OF AA)	Present	Significant negative effect on AA
Urban residential	✓	✓
Industrial/commercial		
Military training/Air traffic		
Dams (or other major flow regulation or disruption)		
Dryland farming		
Intensive row-crop agriculture		
Orchards/nurseries	✓	
Commercial feedlots		
Dairies		
Ranching (enclosed livestock grazing or horse paddock or feedlot)		
Transportation corridor	✓	
Rangeland (livestock rangeland also managed for native vegetation)	✓	
Sports fields and urban parklands (golf courses, soccer fields, etc.)		
Passive recreation (bird-watching, hiking, etc.)		
Active recreation (off-road vehicles, mountain biking, hunting, fishing)		
Physical resource extraction (rock, sediment, oil/gas)		
Biological resource extraction (aquaculture, commercial fisheries)		
Comments		

Basic Information Sheet: Depressional Wetlands

Assessment Area Name: Vista D-2

Project Name: Vista Ranch Project

Assessment Area ID #: D-2

Project ID #: 361 **Date:** 9/27/23

Assessment Team Members for This AA

A. Merrill, E. Smith

AA Category:

☐Pre-Restoration ☐Post-Restoration ☐Pre-Mitigation ☐Post-Mitigation

☒Pre-Impact ☐ Post-Impact ☐ Training ☐ Ambient

☐Reference ☐ Other:

Origin of Wetland (if known):

☒ Natural system ☐ Artificial system

Type of Management (if known):

☐waterfowl/birds ☐ amphibians ☐ general wildlife ☐ sediment ☐ water quality ☐ stormwater ☐water supply (agriculture) ☐water supply (livestock) ☒ not managed ☐ other:

Which best describes the type of depressional wetland?

☐freshwater marsh ☐alkaline marsh ☐brackish marsh

☒other (specify): Herbaceous seasonal wetland, not characterized by vernal pool plants

AA Encompasses:

☒entire wetland ☐portion of the wetland

Which best describes the hydrologic state of the wetland at the time of assessment?

☐ponded/inundated ☐saturated soil, but no surface water ☒dry

What is the apparent hydrologic regime of the wetland?

Perennially flooded systems contain surface water year-round, *seasonally flooded* depressional wetlands are defined as supporting surface water for 4-11 months of the year (in > 5 out of 10 years.) *Temporarily flooded* depressional wetlands possess surface water between 2 weeks and 4 months of the year.

☐perennially flooded ☐ seasonally flooded ☒ temporarily flooded

Does your wetland connect with the floodplain of a nearby stream? ☐ yes ☒ no

(system subject to overbank flow, a dammed stream does not count)

Does the wetland have a defined or undefined <u>outlet</u>? ☒ defined ☐ undefined

Does the wetland have a defined or undefined <u>inlet</u>? ☒ defined ☐ undefined

Are the inlet and outlet at the same location? ☐ yes ☒ no

Is the topographic basin of the wetland ☒ distinct **or** ☐ indistinct **?**

An *indistinct* topographic basin is one that lacks obvious boundaries between wetland and upland. Examples of such features are seasonal, depressional wetlands in very low-gradient landscapes.

Site Location Description and Land Use:
The AA consists of feature DWB-22 in the wetland delineation for Vista Ranch, prepared by VNLC, August 2023. The feature is located near the center of the northwestern portion of the site. It is a semi-natural depression. The feature is a deep pool in a shallow swale, which has been hydrologically enhanced by tire ruts running the length of the swale. The feature presently has no land use. The site is planned for a mixed-use development.

Comments:
The tire ruts provide additional depth, but also "depth zones", giving this relatively small, ruderal, unmanaged feature a surprisingly high topographic complexity score.

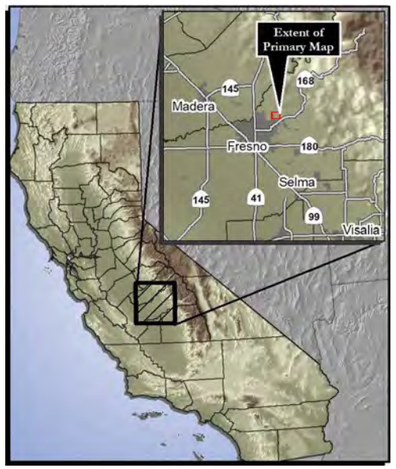
CRAM AA
Locations Map

Vista Ranch Development
Fresno County, California

D1
D2
R1
R2

Legend

Project Site (368 ac.)



Vollmar
NATURAL LANDS CONSULTING

Data Sources: VNLC, 2023 | USDA-WSS, 2023
ESRI/Maxar, 2023 | USGS, various | GAP, 2023
GIS/Cartography by: E. Smith, Sep. 2023
Map File: 361_Vista_AP_B-L_2023-0914.mxd

N
W E
S

1:7,200
(1 in. = 600 feet. at Tabloid Layout)

0 50 100 200 Meters
0 300 600 1,200 Feet

Photos with Descriptions



Looking north from south edge of AA, 36.876114, -119.673886



Looking east from west end of AA, 36.876084 -119.674118



Looking south from north edge of AA, 36.876201 -119.673782



Looking west from east end of AA, 36.876235 -119.673630

Scoring Sheet: Depressional Wetlands

AA Name: Vista D2			**Date:** 9/27/23	
Attribute 1: Buffer and Landscape Context (pp. 8-15)				**Comments**
Aquatic Area Abundance Score (D)		Alpha. D	Numeric 3	
Buffer:				
Buffer submetric A: Percent of AA with Buffer	Alpha. A	Numeric 12		
Buffer submetric B: Average Buffer Width	A	12		
Buffer submetric C: Buffer Condition	C	6		
Raw Attribute Score = $D+[C \times (A \times B)^{1/2}]^{1/2}$			13.39	**Final Attribute Score = (Raw Score/24) x 100** 47.88
Attribute 2: Hydrology (pp. 16-21)				
Water Source		Alpha. C	Numeric 6	Dam upslope and one flow channel to S.E. affects site haydrology
Hydroperiod		B	9	Dam releases affect rate and timing
Hydrologic Connectivity		C	6	Steep banks from ruts decrease hydro connectivity
Raw Attribute Score = sum of numeric scores			21	**Final Attribute Score = (Raw Score/36) x 100** 58.33
Attribute 3: Physical Structure (pp. 22-28)				
Structural Patch Richness		Alpha. D	Numeric 3	None present
Topographic Complexity		A	12	
Raw Attribute Score = sum of numeric scores			15	**Final Attribute Score = (Raw Score/24) x 100** 62.50
Attribute 4: Biotic Structure (pp. 29-39)				
Plant Community Composition (based on submetrics A-C)				
Plant Community submetric A: Number of plant layers	Alpha. D	Numeric 3		
Plant Community submetric B: Number of Co-dominant species	D	3		
Plant Community submetric C: Percent Invasion	A	12		
Plant Community Composition Metric *(numeric average of submetrics A-C)*			6	
Horizontal Interspersion		C	6	
Vertical Biotic Structure		D	3	
Raw Attribute Score = sum of numeric scores			15	**Final Attribute Score = (Raw Score/36) x 100** 41.67
Overall AA Score (average of four final Attribute Scores)				**53**



361_CRAM_Vista_A-P_2023-0927.xd

Worksheet for Aquatic Area Abundance Metric (Method 1)

Percentage of Transect Lines that Contains Aquatic Area of Any Kind	
Segment Direction	Percentage of Transect Length That is an Aquatic Feature
North	0
South	4.32
East	0
West	0
Average Percentage of Transect Length That Is an Aquatic Feature	1.08

Percent of AA with Buffer: 100 **%**

Worksheet for calculating average buffer width of AA

Line	**Buffer Width (m)**
A	250
B	250
C	250
D	250
E	250
F	250
G	250
H	250
Average Buffer Width ***Round to the nearest whole number (integer)***	250

CRAM AA D2
Buffer Map

Vista Ranch
Fresno County, California



361_CRAM_Vista_A-P_2023-0927.xd

Structural Patch Type Worksheet for Depressional Wetlands

Check each type of patch that is observed in the AA and use the total number of observed patches in Table 15.

STRUCTURAL PATCH TYPE (circle for presence)	**Depressional**
Minimum Patch Size	**3 m^2**
Abundant wrack or organic debris in channel, on floodplain, or across depressional wetland plain	**1**
Animal mounds and burrows	**1**
Bank slumps or undercut banks in channels or along shoreline	**1**
Cobbles and Boulders	**1**
Concentric or parallel high water marks	**1**
Filamentous macroalgae or algal mats	**1**
Islands (mostly above high-water)	**1**
Large woody debris	**1**
Non-vegetated flats or bare ground (sandflats, mudflats, gravel flats, etc.)	**1**
Open water	**1**
Plant hummocks and/or sediment mounds	**1**
Soil cracks	**1**
Standing snag(s) (1 or more at least 3 m tall)	**1**
Submerged vegetation	**1**
Swales on floodplain or along shoreline	**1**
Variegated, convoluted, or crenulated foreshore (instead of broadly arcuate or mostly straight)	**1**
Woody vegetation in water	**1**
Total Possible	**17**
No. Observed Patch Types (enter here and use in Table 15 below)	0

Worksheet for AA Topographic Complexity

At two locations in the AA, make a sketch of the profile from the AA boundary to AA boundary. Try to capture the major topographic features, slopes and intervening micro-topographic relief. Based on these sketches and the profiles in Figure 7, choose a description in Table 17 that best describes the overall topographic complexity of the AA.

North to South



East to West



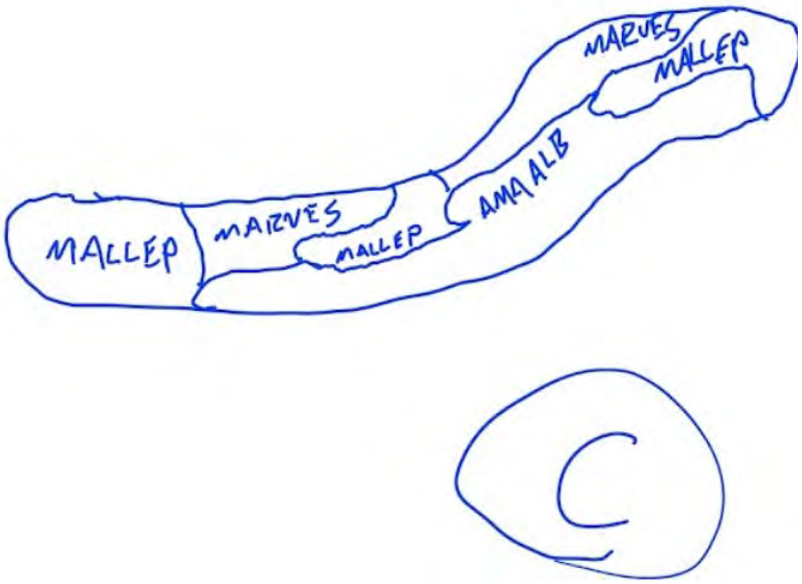
Plant Community Metric Worksheet 2 of 8: Co-dominant species richness
(A dominant species represents ≥10% *relative* cover)

** Combine the counts of co-dominant species from all layers to identify the total species count. Each plant species is only counted once when calculating the Number of Co-dominant Species and Percent Invasion submetric scores, regardless of the numbers of layers in which it occurs.*

Floating or Canopy-forming	Invasive?	Short (<0.5 m)	Invasive?
		Malvella leprosa	
		Amaranthus albus	
		Marsilea vestita	
Medium (0.5 – 1.5 m)	**Invasive?**	**Tall (1.5 – 3.0 m)**	**Invasive?**
Very Tall (>3.0 m)	**Invasive?**		
		Total number of co-dominant species for all layers combined (enter here and use in Table 19)	3
		Percent Invasion *Round to the nearest whole number (integer)* (enter here and use in Table 19)	0

Horizontal Interspersion Worksheet

Use the spaces below to make a sketch of the AA in plan view, outlining the major plant zones (this should take no longer than 10 minutes). Assign names to the zones and record them on the right. Based on the sketch, choose a single profile from Figure 8 that best represents the AA overall.



Assigned zones:

1) AMAALB

2) MARVES

3) MALLEP

4)

5)

6)

Wetland disturbances and conversions Worksheet

Has a major disturbance occurred at this wetland?	Yes	No		
If yes, was it a flood, fire, landslide, or other?	flood	fire	landslide	other
If yes, then how severe is the disturbance?	likely to affect site next 5 or more years	likely to affect site next 3-5 years	likely to affect site next 1-2 years	
Has this wetland been converted from another type? If yes, then what was the previous type?	depressional	vernal pool	vernal pool system	
	non-confined riverine	confined riverine	bar-built estuarine	
	perennial saline estuarine	perennial non-saline estuarine	wet meadow	
	lacustrine	seep or spring	playa	

Stressor Checklist Worksheet

HYDROLOGY ATTRIBUTE (WITHIN 50 M OF AA)	Present	Significant negative effect on AA
Point Source (PS) discharges (POTW, other non-stormwater discharge)		
Non-point Source (Non-PS) discharges (urban runoff, farm drainage)		
Flow diversions or unnatural inflows		
Dams (reservoirs, detention basins, recharge basins)		
Flow obstructions (culverts, paved stream crossings)		
Weir/drop structure, tide gates		
Dredged inlet/channel		
Engineered channel (riprap, armored channel bank, bed)		
Dike/levees		
Groundwater extraction		
Ditches (borrow, agricultural drainage, mosquito control, etc.)		
Actively managed hydrology		
Comments		

PHYSICAL STRUCTURE ATTRIBUTE (WITHIN 50 M OF AA)	Present	Significant negative effect on AA
Filling or dumping of sediment or soils **(N/A for restoration areas)**		
Grading/ compaction **(N/A for restoration areas)**	✓	✓
Plowing/Discing **(N/A for restoration areas)**		
Resource extraction (sediment, gravel, oil and/or gas)		
Vegetation management		
Excessive sediment or organic debris from watershed		
Excessive runoff from watershed		
Nutrient impaired (PS or Non-PS pollution)		
Heavy metal impaired (PS or Non-PS pollution)		
Pesticides or trace organics impaired (PS or Non-PS pollution)		
Bacteria and pathogens impaired (PS or Non-PS pollution)		
Trash or refuse		
Comments		

BIOTIC STRUCTURE ATTRIBUTE (WITHIN 50 M OF AA)	Present	Significant negative effect on AA
Mowing, grazing, excessive herbivory (within AA)		
Excessive human visitation		
Predation and habitat destruction by non-native vertebrates (e.g., *Virginia opossum* and domestic predators, such as feral pets)		
Tree cutting/sapling removal		
Removal of woody debris		
Treatment of non-native and nuisance plant species		
Pesticide application or vector control		
Biological resource extraction or stocking (fisheries, aquaculture)		
Excessive organic debris in matrix (for vernal pools)		
Lack of vegetation management to conserve natural resources	✓	✓
Lack of treatment of invasive plants adjacent to AA or buffer	✓	✓
Comments		

BUFFER AND LANDSCAPE CONTEXT ATTRIBUTE (WITHIN 500 M OF AA)	Present	Significant negative effect on AA
Urban residential	✓	
Industrial/commercial		
Military training/Air traffic		
Dams (or other major flow regulation or disruption)	✓	✓
Dryland farming		
Intensive row-crop agriculture		
Orchards/nurseries		
Commercial feedlots		
Dairies		
Ranching (enclosed livestock grazing or horse paddock or feedlot)		
Transportation corridor		
Rangeland (livestock rangeland also managed for native vegetation)		
Sports fields and urban parklands (golf courses, soccer fields, etc.)		
Passive recreation (bird-watching, hiking, etc.)		
Active recreation (off-road vehicles, mountain biking, hunting, fishing)		
Physical resource extraction (rock, sediment, oil/gas)		
Biological resource extraction (aquaculture, commercial fisheries)		
Comments		

Basic Information Sheet: Riverine Wetlands

Assessment Area Name: Vista R-1	
Project Name: Jamison	
Assessment Area ID #: R1	
Project ID #: 361	**Date:** 9/27/2023
Assessment Team Members for This AA:	
A. Merrill, E. Smith	
Average Bankfull Width: 5.63 m	
Approximate Length of AA (10 times bankfull width, min 100 m, max 200 m)**:** 100 m	
Upstream Point Latitude: 36.874643	**Longitude:** -119.669492
Downstream Point Latitude: 36.873870	**Longitude:** -119.670075
Wetland Sub-type: ☒ Confined ☐ Non-confined	
AA Category: ☐ Restoration ☐ Mitigation ☐ Impacted ☐ Ambient ☐ Reference ☐ Training ☒ Other: Pre-impact	
Did the river/stream have flowing water at the time of the assessment? ☒ yes (very minimal flow) ☐ no	
What is the apparent hydrologic flow regime of the reach you are assessing? The hydrologic flow regime of a stream describes the frequency with which the channel conducts water. *Perennial* streams conduct water all year long, whereas *ephemeral* streams conduct water only during and immediately following precipitation events. *Intermittent* streams are dry for part of the year, but conduct water for periods longer than ephemeral streams, as a function of watershed size and water source. ☒ perennial ☐ intermittent ☐ ephemeral Hydrology is entirely controlled by dam releases	

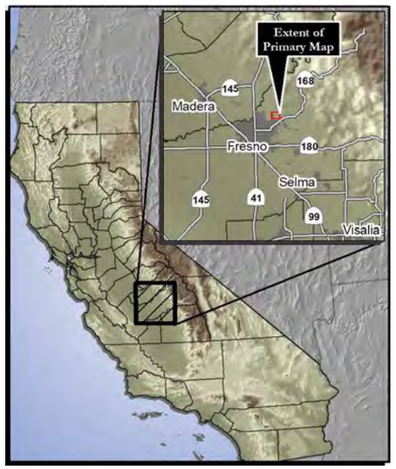
CRAM AA
Locations Map

Vista Ranch Development
Fresno County, California

D1
D2
R1
R2

Legend

Project Site (368 ac.)



Vollmar
NATURAL LANDS CONSULTING

Data Sources: VNLC, 2023 | USDA-WSS, 2023
ESRI/Maxar, 2023 | USGS, various | GAP, 2023
GIS/Cartography by: E. Smith, Sep. 2023
Map File: 361_Vista_AP_B-L_2023-0914.mxd

N
W E
S

1:7,200
(1 in. = 600 feet. at Tabloid Layout)

0 50 100 200 Meters
0 300 600 1,200 Feet

Photos and Descriptions:



Looking downstream from top of AA, 36.874609, -119.669421



Looking upstream from bottom of AA, 36.873838, -119.670025



Looking west from east-center edge of AA, 36.874205, -119.669662



Looking east from west-center edge of AA, 36.874256, -119.669803

Site Location Description:

The AA is located along the ditch which receives releases from the Big Dry Creek Dam spillway. This ditch eventually empties back into the Big Dry Creek channel, making this feature the de facto channel of Big Dry Creek. The top of the AA is located at the upstream edge of the location of a planned clear-span bridge to serve the planned project. The ditch is confined by artificial levees. To the east of the ditch lies a former irrigated pasture, which is still leveled and heavily grazed.

Comments:

While Big Dry Creek above the dam has a relatively large channel with significant fluvial geomorphology and a moderate cover of willows and cottonwoods the AA lacks any natural fluvial geomorphology or woody riparian vegetation. This is apparently due to management, either by the grazing operators or the dam operator. The ditch is moderately to heavily vegetated with large perennial marsh vegetation, giving it a relatively high biotic structure score.

Scoring Sheet: Riverine Wetlands

AA Name: Vista R1				**Date:** 9/27/2023	
Attribute 1: Buffer and Landscape Context (pp. 11-19)				**Comments**	
Stream Corridor Continuity (D)		Alpha. D	Numeric 3	Dam interrupts corridor	
Buffer:					
Buffer submetric A: Percent of AA with Buffer	Alpha. B	Numeric 9		Irrigated pasture to east	
Buffer submetric B: Average Buffer Width	A	12			
Buffer submetric C: Buffer Condition	C	6		Heavy firebreask disking, ruderal veg	
Raw Attribute Score = $D+[C \times (A \times B)^{1/2}]^{1/2}$			10.90	**Final Attribute Score = (Raw Score/24) x 100**	45.4
Attribute 2: Hydrology (pp. 20-26)					
Water Source		Alpha. C	Numeric 6	Dam controls flow	
Channel Stability		A	12		
Hydrologic Connectivity		C	6		
Raw Attribute Score = sum of numeric scores			24	**Final Attribute Score = (Raw Score/36) x 100**	66.67
Attribute 3: Physical Structure (pp. 27-33)					
Structural Patch Richness		Alpha. D	Numeric 3		
Topographic Complexity		C	6		
Raw Attribute Score = sum of numeric scores			9	**Final Attribute Score = (Raw Score/24) x 100**	37.50
Attribute 4: Biotic Structure (pp. 34-41)					
Plant Community Composition (based on sub-metrics A-C)					
Plant Community submetric A: Number of plant layers	Alpha. B	Numeric 9			
Plant Community submetric B: Number of Co-dominant species	B	9			
Plant Community submetric C: Percent Invasion	B	9		Wild oats, Bermuda grass	
Plant Community Composition Metric *(numeric average of submetrics A-C)*			9		
Horizontal Interspersion		C	6		
Vertical Biotic Structure		B	9		
Raw Attribute Score = sum of numeric scores			24	**Final Attribute Score = (Raw Score/36) x 100**	66.67
Overall AA Score (average of four final Attribute Scores)				**54**	



361_CRAM_Vista_A-P_2023-0927.xd

Worksheet for Stream Corridor Continuity Metric for Riverine Wetlands

Lengths of Non-buffer Segments For Distance of 500 m Upstream of AA		**Lengths of Non-buffer Segments For Distance of 500 m Downstream of AA**	
Segment No.	Length (m)	Segment No.	Length (m)
1	153.3	1	187.6
2	133.7	2	117.1
3	132.3	3	
4		4	
5		5	
Upstream Total Length	419.3	Downstream Total Length	304.7

Percent of AA with Buffer Worksheet

In the space provided below make a quick sketch of the AA, or perform the assessment directly on the aerial imagery; indicate where buffer is present, estimate the percentage of the AA perimeter providing buffer functions, and record the estimate amount in the space provided.

Percent of AA with Buffer: 65 **%**

Worksheet for calculating average buffer width of AA

Line	**Buffer Width (m)**
A	35
B	14
C	250
D	250
E	250
F	250
G	250
H	250
Average Buffer Width ***Round to the nearest integer***	194



361_CRAM_Vista_A-P_2023-1004b.xd

Worksheet for Assessing Channel Stability for Riverine Wetlands

Condition	Field Indicators (check all existing conditions)
Indicators of Channel Equilibrium	☒The channel (or multiple channels in braided systems) has a well-defined bankfull contour that clearly demarcates an obvious active floodplain in the cross-sectional profile of the channel throughout most of the AA. ☐Perennial riparian vegetation is abundant and well established along the bankfull contour, but not below it. ☐There is leaf litter, thatch, or wrack in most pools (if pools are present). ☐The channel contains embedded woody debris of the size and amount consistent with what is naturally available in the riparian area. ☒There is little or no active undercutting or burial of riparian vegetation. ☐If mid-channel bars and/or point bars are present, they are not densely vegetated with perennial vegetation. ☐Channel bars consist of well-sorted bed material (smaller grain size on the top and downstream end of the bar, larger grain size along the margins and upstream end of the bar). ☐There are channel pools, the spacing between pools tends to be regular and the bed is not planar throughout the AA ☐The larger bed material supports abundant mosses or periphyton.
Indicators of Active Degradation	☐The channel is characterized by deeply undercut banks with exposed living roots of trees or shrubs. ☐There are abundant bank slides or slumps. ☐The lower banks are uniformly scoured and not vegetated. ☐Riparian vegetation is declining in stature or vigor, or many riparian trees and shrubs along the banks are leaning or falling into the channel. ☐An obvious historical floodplain has recently been abandoned, as indicated by the age structure of its riparian vegetation. ☐The channel bed appears scoured to bedrock or dense clay. ☐Recently active flow pathways appear to have coalesced into one channel (i.e. a previously braided system is no longer braided). ☐The channel has one or more knickpoints indicating headward erosion of the bed.
Indicators of Active Aggradation	☐There is an active floodplain with fresh splays of coarse sediment (sand and larger that is not vegetated) deposited in the current or previous year. ☐There are partially buried living tree trunks or shrubs along the banks. ☐The bed is planar (flat or uniform gradient) overall; it lacks well-defined channel pools, or they are uncommon and irregularly spaced. ☐There are partially buried, or sediment-choked, culverts. ☐Perennial terrestrial or riparian vegetation is encroaching into the channel or onto channel bars below the bankfull contour. ☐There are avulsion channels on the floodplain or adjacent valley floor.
Overall	**☒ Equilibrium** **☐ Degradation** **☐ Aggradation**

Riverine Wetland Entrenchment Ratio Calculation Worksheet

The following 5 steps should be conducted for each of 3 cross-sections located in the AA at the approximate midpoints along straight riffles or glides, away from deep pools or meander bends. An attempt should be made to place them at the top, middle, and bottom of the AA.				
Steps	**Replicate Cross-sections** ⟶	**TOP**	**MID**	**BOT**
1 Estimate bankfull width.	This is a critical step requiring familiarity with field indicators of the bankfull contour. Estimate or measure the distance between the right and left bankfull contours.	6.01	5.70	5.18
2: Estimate max. bankfull depth.	Imagine a level line between the right and left bankfull contours; estimate or measure the height of the line above the thalweg (the deepest part of the channel).	0.71	0.46	0.62
3: Estimate flood prone depth.	Double the estimate of maximum bankfull depth from Step 2.	1.42	.92	1.24
4: Estimate flood prone width.	Imagine a level line having a height equal to the flood prone depth from Step 3; note where the line intercepts the right and left banks; estimate or measure the length of this line.	7.22	7.74	7.22
5: Calculate entrenchment ratio.	Divide the flood prone width (Step 4) by the bankfull width (Step 1).	1.20	1.36	1.39
6: Calculate average entrenchment ratio.	Calculate the average results for Step 5 for all 3 replicate cross-sections. Enter the average result here and use it in Table 13a or 13b.			1.32

Structural Patch Type Worksheet for Riverine wetlands

Circle each type of patch that is observed in the AA and enter the total number of observed patches in Table below. In the case of riverine wetlands, their status as confined or non-confined must first be determined (see page 6) to determine with patches are expected in the system (indicated by a "1" in the table below). Any feature onsite should only be counted once as a patch type. If a feature appears to meet the definition of more than one patch type (i.e. swale and secondary channel) the practitioner should choose which patch type best illustrates the feature. Not all features at a site will be patch types.

**Please refer to the CRAM Photo Dictionary at www.cramwetlands.org for photos of each of the following patch types.*

STRUCTURAL PATCH TYPE (circle for presence)	**Riverine (Non-confined)**	**Riverine (Confined)**
Minimum Patch Size	**3 m^2**	**3 m^2**
Abundant wrackline or organic debris in channel, on floodplain	**1**	**1**
Bank slumps or undercut banks in channels or along shoreline	**1**	**1**
Cobbles and/or Boulders	**1**	**1**
Debris jams	**1**	**1**
Filamentous macroalgae or algal mats	**1**	**1**
Large woody debris	**1**	**1**
Pannes or pools on floodplain	**1**	**N/A**
Plant hummocks and/or sediment mounds	**1**	**1**
Point bars and in-channel bars	**1**	**1**
Pools or depressions in channels (wet or dry channels)	**1**	**1**
Riffles or rapids (wet or dry channels)	**1**	**1**
Secondary channels on floodplains or along shorelines	**1**	**N/A**
Standing snags (at least 3 m tall)	**1**	**1**
Submerged vegetation	**1**	**N/A**
Swales on floodplain or along shoreline	**1**	**N/A**
Variegated, convoluted, or crenulated foreshore (instead of broadly arcuate or mostly straight)	**1**	**1**
Vegetated islands (mostly above high-water)	**1**	**N/A**
Total Possible	**17**	**12**
No. Observed Patch Types (enter here and use in Table 14 below)		**0**

Worksheet for AA Topographic Complexity

At three locations along the AA, make a sketch of the profile of the stream from the AA boundary down to its deepest area then back out to the other AA boundary. Try to capture the benches and the intervening micro-topographic relief. To maintain consistency, make drawings at each of the stream hydrologic connectivity measurements, always facing downstream. Include the water level, an arrow at the bankfull contour, and label the benches. Based on these sketches and the profiles in Figure 10, choose a description in Table 16 that best describes the overall topographic complexity of the AA.

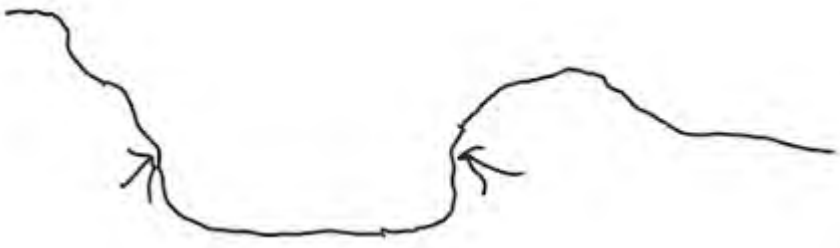
Profile 1



Profile 2



Profile 3



Plant Community Metric Worksheet: Co-dominant species richness for Riverine wetlands
(A dominant species represents ≥10% *relative* cover)

Special Note:

** Combine the counts of co-dominant species from all layers to identify the total species count. Each plant species is only counted once when calculating the Number of Co-dominant Species and Percent Invasion submetric scores, regardless of the numbers of layers in which it occurs.*

Floating or Canopy-forming (non-confined only)	**Invasive?**	**Short (<0.5 m)**	**Invasive?**
Lemna sp., but not counted because		*Eleocharis macrostachya*	
Stream is confined		*Cynodon dactylon*	✓
		Phylla nodiflora	
		Croton setiger	
Medium (0.5-1.5 m)	**Invasive?**	**Tall (1.5-3.0 m)**	**Invasive?**
Xanthium strumarium		*Typha latifolia*	
Avena fatua	✓	*Xanthium strumarium*	
Echinodorus berteroi			
Very Tall (>3.0 m)	**Invasive?**	**Total number of co-dominant species for all layers combined (enter here and use in Table 18)**	8
		Percent Invasion *Round to the nearest integer* (enter here and use in Table 18)	25

Horizontal Interspersion Worksheet.

Use the spaces below to make a quick sketch of the AA in plan view, outlining the major plant zones (this should take no longer than 10 minutes). Assign the zones names and record them on the right. Based on the sketch, choose a single profile from Figure 12 that best represents the AA overall.



Assigned zones:

1) XANSTR

2) AVEFAT

3) TYPLAT

4) ECHBER

5) HELANN

6) Lemna sp.

Worksheet for Wetland disturbances and conversions

Has a major disturbance occurred at this wetland?	Yes	(No)		
If yes, was it a flood, fire, landslide, or other?	flood	fire	landslide	other
If yes, then how severe is the disturbance?	likely to affect site next 5 or more years	likely to affect site next 3-5 years	likely to affect site next 1-2 years	
Has this wetland been converted from another type? If yes, then what was the previous type? **No, N/A**	depressional	vernal pool	vernal pool system	
	non-confined riverine	confined riverine	seasonal estuarine	
	perennial saline estuarine	perennial non-saline estuarine	wet meadow	
	lacustrine	seep or spring	playa	

Stressor Checklist Worksheet

HYDROLOGY ATTRIBUTE (WITHIN 50 M OF AA)	Present	Significant negative effect on AA
Point Source (PS) discharges (POTW, other non-stormwater discharge)		
Non-point Source (Non-PS) discharges (urban runoff, farm drainage)		
Flow diversions or unnatural inflows		
Dams (reservoirs, detention basins, recharge basins)		
Flow obstructions (culverts, paved stream crossings)		
Weir/drop structure, tide gates		
Dredged inlet/channel	✓	✓
Engineered channel (riprap, armored channel bank, bed)	✓	✓
Dike/levees	✓	✓
Groundwater extraction		
Ditches (borrow, agricultural drainage, mosquito control, etc.)		
Actively managed hydrology	✓	✓
Comments		
Managed, engineered spillway ditch		

PHYSICAL STRUCTURE ATTRIBUTE (WITHIN 50 M OF AA)	Present	Significant negative effect on AA
Filling or dumping of sediment or soils **(N/A for restoration areas)**	✓	
Grading/ compaction **(N/A for restoration areas)**	✓	✓
Plowing/Discing **(N/A for restoration areas)**	✓	✓
Resource extraction (sediment, gravel, oil and/or gas)		
Vegetation management		
Excessive sediment or organic debris from watershed		
Excessive runoff from watershed		
Nutrient impaired (PS or Non-PS pollution)		
Heavy metal impaired (PS or Non-PS pollution)		
Pesticides or trace organics impaired (PS or Non-PS pollution)		
Bacteria and pathogens impaired (PS or Non-PS pollution)		
Trash or refuse		
Comments		
Irrigated pasture levelling		

BIOTIC STRUCTURE ATTRIBUTE (WITHIN 50 M OF AA)	Present	Significant negative effect on AA
Mowing, grazing, excessive herbivory (within AA)		
Excessive human visitation		
Predation and habitat destruction by non-native vertebrates (e.g., *Virginia opossum* and domestic predators, such as feral pets)		
Tree cutting/sapling removal		
Removal of woody debris		
Treatment of non-native and nuisance plant species	✓	
Pesticide application or vector control	✓	
Biological resource extraction or stocking (fisheries, aquaculture)		
Excessive organic debris in matrix (for vernal pools)		
Lack of vegetation management to conserve natural resources	✓	✓
Lack of treatment of invasive plants adjacent to AA or buffer	✓	✓
Comments		

BUFFER AND LANDSCAPE CONTEXT ATTRIBUTE (WITHIN 500 M OF AA)	Present	Significant negative effect on AA
Urban residential		
Industrial/commercial		
Military training/Air traffic		
Dams (or other major flow regulation or disruption)	✓	✓
Dryland farming	✓	✓
Intensive row-crop agriculture		
Orchards/nurseries		
Commercial feedlots		
Dairies		
Ranching (enclosed livestock grazing or horse paddock or feedlot)	✓	✓
Transportation corridor		
Rangeland (livestock rangeland also managed for native vegetation)	✓	
Sports fields and urban parklands (golf courses, soccer fields, etc.)		
Passive recreation (bird-watching, hiking, etc.)		
Active recreation (off-road vehicles, mountain biking, hunting, fishing)		
Physical resource extraction (rock, sediment, oil/gas)		
Biological resource extraction (aquaculture, commercial fisheries)		
Comments		

Basic Information Sheet: Riverine Wetlands

Assessment Area Name: Vista R2	
Project Name: Jamison	
Assessment Area ID #: R2	
Project ID #: 361	**Date:** 9/27/2023

Assessment Team Members for This AA:

A. Merrill, E. Smith

Average Bankfull Width: 57 m

Approximate Length of AA (10 times bankfull width, min 100 m, max 200 m)**:** 200m

Upstream Point Latitude: 36.871774 **Longitude:** -119.666087

Downstream Point Latitude: 36.870868 **Longitude:** -119.667979

Wetland Sub-type:

☐ Confined ☒ Non-confined

AA Category:

☐ Restoration ☐ Mitigation ☐ Impacted ☐ Ambient ☐ Reference

☐ Training ☒ Other: Pre-impact

Did the river/stream have flowing water at the time of the assessment?

☐ yes ☒ no

What is the apparent hydrologic flow regime of the reach you are assessing?

The hydrologic flow regime of a stream describes the frequency with which the channel conducts water. *Perennial* streams conduct water all year long, whereas *ephemeral* streams conduct water only during and immediately following precipitation events. *Intermittent* streams are dry for part of the year, but conduct water for periods longer than ephemeral streams, as a function of watershed size and water source.

☐ perennial ☐ intermittent ☒ ephemeral:

Dry. Stream lacks all hydrology due to upstream diversion.

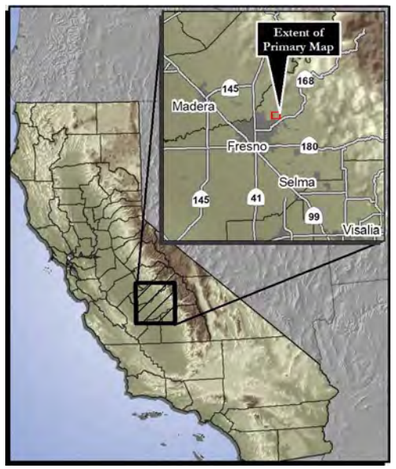
CRAM AA
Locations Map

Vista Ranch Development
Fresno County, California

D1
D2
R1
R2

Legend

Project Site (368 ac.)



Vollmar
NATURAL LANDS CONSULTING

Data Sources: VNLC, 2023 | USDA-WSS, 2023
ESRI/Maxar, 2023 | USGS, various | GAP, 2023
GIS/Cartography by: E. Smith, Sep. 2023
Map File: 361_Vista_AP_B-L_2023-0914.mxd

N
W E
S

1:7,200
(1 in. = 600 feet. at Tabloid Layout)

0 50 100 200 Meters
0 300 600 1,200 Feet

Photos and Descriptions:



Looking upstream from bottom of AA, 36.870965, -119.668040



Looking downstream from top of AA, 36.871755, -119.666076



Looking south from north-center edge of AA, 36.871573, -119.667084



Looking north from south-center edge of AA, 36.871036, -119.666877

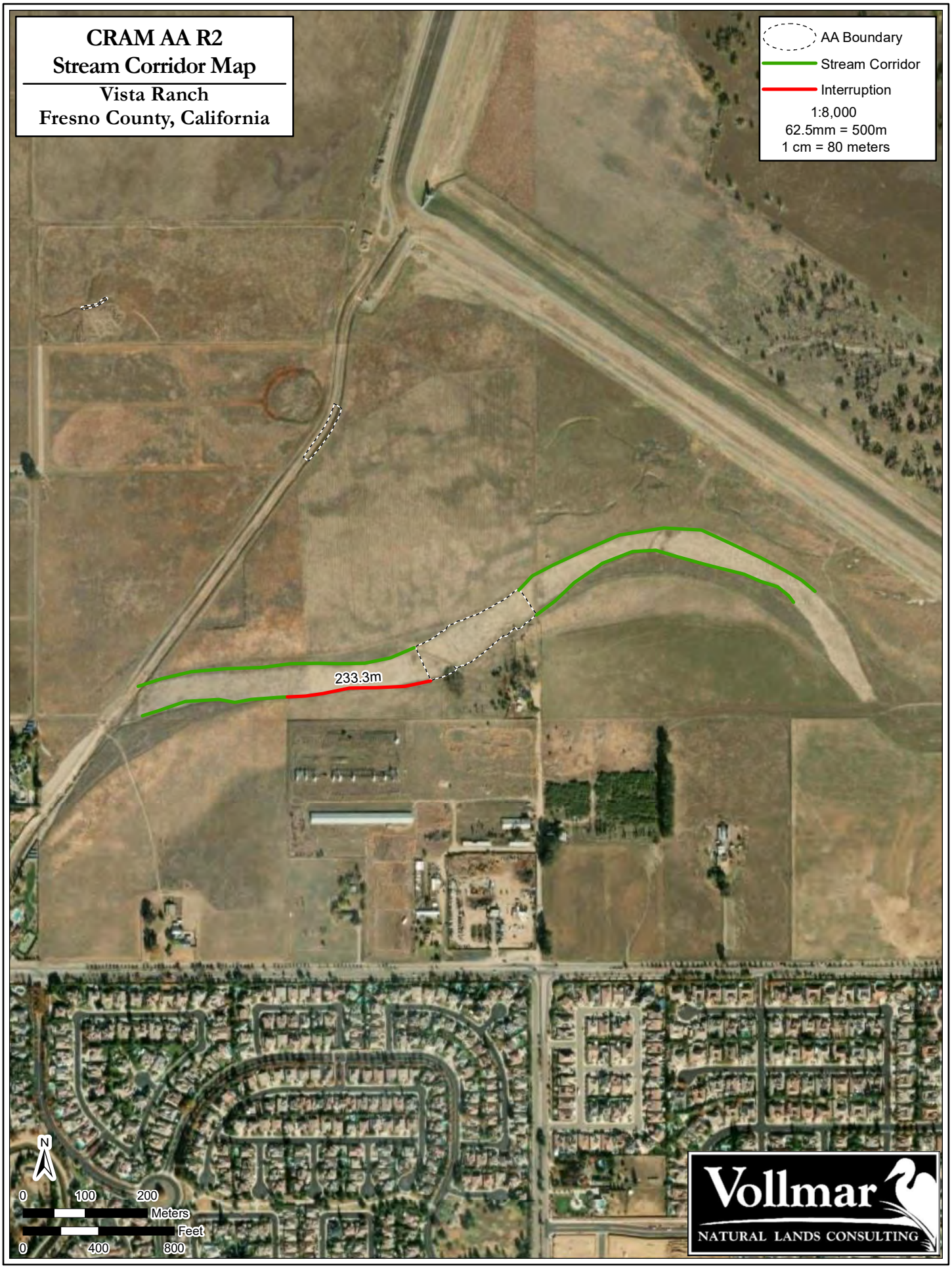
Site Location Description:
The AA is located along the dry former channel of Big Dry Creek. The creek was diverted from this channel when the dam was constructed. The location of the AA is near the center of the project site, north of an existing residence.

Comments:
This feature has not carried water in approximately 80 years. It has remnant fluvial geomorphology, but lacks any current stream processes. It lacks wetland hydrology, hydric soils, and hydrophytic vegetation. It is characterized by extremely sandy soils with a very low cover of plants tolerant of very dry conditions. It does not have woody riparian vegetation, or any riparian vegetation at all.

This feature is arguably inappropriate for CRAM evaluation, as it does not represent a wetland or stream. This inappropriateness is chiefly marked by the fact that the AA receives a score of 75 on the hydrology metric, despite having *no hydrology*. Nonetheless, the riverine wetlands module has been used here to help evaluate the statement that the AA completely lacks riparian or wetland habitat values.

Scoring Sheet: Riverine Wetlands

AA Name: Vista R2					**Date:** 9/27/2023	
Attribute 1: Buffer and Landscape Context (pp. 11-19)					**Comments**	
Stream Corridor Continuity (D)			Alpha. D	Numeric 3		
Buffer:						
Buffer submetric A: Percent of AA with Buffer	Alpha. B	Numeric 9				
Buffer submetric B: Average Buffer Width	D	3				
Buffer submetric C: Buffer Condition	C	6			Ruderal, heavy use by livestock Moderate human visitation	
Raw Attribute Score = D+[C x (A x B)^{½}]^{½}				8.58	**Final Attribute Score = (Raw Score/24) x 100**	36
Attribute 2: Hydrology (pp. 20-26)						
Water Source			Alpha. D	Numeric 3	Dammed above site.	
Channel Stability			A	12	No fluvial action	
Hydrologic Connectivity			A	12	Almost without banks	
Raw Attribute Score = sum of numeric scores				27	**Final Attribute Score = (Raw Score/36) x 100**	75
Attribute 3: Physical Structure (pp. 27-33)						
Structural Patch Richness			Alpha. D	Numeric 3	Score of C would be expected in wet season due to algae and submergent plants.	
Topographic Complexity			D	3	B2, 1 bench and bumpy	
Raw Attribute Score = sum of numeric scores				6	**Final Attribute Score = (Raw Score/24) x 100**	25
Attribute 4: Biotic Structure (pp. 34-41)						
Plant Community Composition (based on sub-metrics A-C)						
Plant Community submetric A: Number of plant layers	Alpha. D	Numeric 3				
Plant Community submetric B: Number of Co-dominant species	D	3				
Plant Community submetric C: Percent Invasion	D	3				
Plant Community Composition Metric *(numeric average of submetrics A-C)*				3		
Horizontal Interspersion			D	3		
Vertical Biotic Structure			D	3		
Raw Attribute Score = sum of numeric scores				9	**Final Attribute Score = (Raw Score/36) x 100**	25
Overall AA Score (average of four final Attribute Scores)					**40**	



361_CRAM_Vista_A-P_2023-0927.xd

Worksheet for Stream Corridor Continuity Metric for Riverine Wetlands

Lengths of Non-buffer Segments For Distance of 500 m Upstream of AA		**Lengths of Non-buffer Segments For Distance of 500 m Downstream of AA**	
Segment No.	Length (m)	Segment No.	Length (m)
1		1	233.3
2		2	
3		3	
4		4	
5		5	
Upstream Total Length	0	Downstream Total Length	233.3

Percent of AA with Buffer Worksheet

In the space provided below make a quick sketch of the AA, or perform the assessment directly on the aerial imagery; indicate where buffer is present, estimate the percentage of the AA perimeter providing buffer functions, and record the estimate amount in the space provided.

Percent of AA with Buffer: 70 **%**

Worksheet for calculating average buffer width of AA

Line	**Buffer Width (m)**
A	72
B	206
C	31
D	17
E	17
F	22
G	6
H	6
Average Buffer Width ***Round to the nearest integer***	47



361_CRAM_Vista_A-P_2023-1004b.xd

Worksheet for Assessing Channel Stability for Riverine Wetlands

Condition	Field Indicators (check all existing conditions)
Indicators of Channel Equilibrium	☐The channel (or multiple channels in braided systems) has a well-defined bankfull contour that clearly demarcates an obvious active floodplain in the cross-sectional profile of the channel throughout most of the AA. ☐Perennial riparian vegetation is abundant and well established along the bankfull contour, but not below it. ☐There is leaf litter, thatch, or wrack in most pools (if pools are present). ☐The channel contains embedded woody debris of the size and amount consistent with what is naturally available in the riparian area. ☐There is little or no active undercutting or burial of riparian vegetation. ☐If mid-channel bars and/or point bars are present, they are not densely vegetated with perennial vegetation. ☐Channel bars consist of well-sorted bed material (smaller grain size on the top and downstream end of the bar, larger grain size along the margins and upstream end of the bar). ☐There are channel pools, the spacing between pools tends to be regular and the bed is not planar throughout the AA ☐The larger bed material supports abundant mosses or periphyton.
Indicators of Active Degradation	☐The channel is characterized by deeply undercut banks with exposed living roots of trees or shrubs. ☐There are abundant bank slides or slumps. ☐The lower banks are uniformly scoured and not vegetated. ☐Riparian vegetation is declining in stature or vigor, or many riparian trees and shrubs along the banks are leaning or falling into the channel. ☐An obvious historical floodplain has recently been abandoned, as indicated by the age structure of its riparian vegetation. ☐The channel bed appears scoured to bedrock or dense clay. ☐Recently active flow pathways appear to have coalesced into one channel (i.e. a previously braided system is no longer braided). ☐The channel has one or more knickpoints indicating headward erosion of the bed.
Indicators of Active Aggradation	☐There is an active floodplain with fresh splays of coarse sediment (sand and larger that is not vegetated) deposited in the current or previous year. ☐There are partially buried living tree trunks or shrubs along the banks. ☐The bed is planar (flat or uniform gradient) overall; it lacks well-defined channel pools, or they are uncommon and irregularly spaced. ☐There are partially buried, or sediment-choked, culverts. ☐Perennial terrestrial or riparian vegetation is encroaching into the channel or onto channel bars below the bankfull contour. ☐There are avulsion channels on the floodplain or adjacent valley floor.
Overall	**☐ Equilibrium ☐ Degradation ☐ Aggradation**

Riverine Wetland Entrenchment Ratio Calculation Worksheet

The following 5 steps should be conducted for each of 3 cross-sections located in the AA at the approximate midpoints along straight riffles or glides, away from deep pools or meander bends. An attempt should be made to place them at the top, middle, and bottom of the AA.				
Steps	**Replicate Cross-sections** ⟶	**TOP**	**MID**	**BOT**
1 Estimate bankfull width.	This is a critical step requiring familiarity with field indicators of the bankfull contour. Estimate or measure the distance between the right and left bankfull contours.	50	60	60
2: Estimate max. bankfull depth.	Imagine a level line between the right and left bankfull contours; estimate or measure the height of the line above the thalweg (the deepest part of the channel).	0.6	0.5	0.7
3: Estimate flood prone depth.	Double the estimate of maximum bankfull depth from Step 2.	1.2	1.0	1.4
4: Estimate flood prone width.	Imagine a level line having a height equal to the flood prone depth from Step 3; note where the line intercepts the right and left banks; estimate or measure the length of this line.	>500	>500	>500
5: Calculate entrenchment ratio.	Divide the flood prone width (Step 4) by the bankfull width (Step 1).	>8.9	>8.33	>8.33
6: Calculate average entrenchment ratio.	Calculate the average results for Step 5 for all 3 replicate cross-sections. Enter the average result here and use it in Table 13a or 13b.			>8.52

Structural Patch Type Worksheet for Riverine wetlands

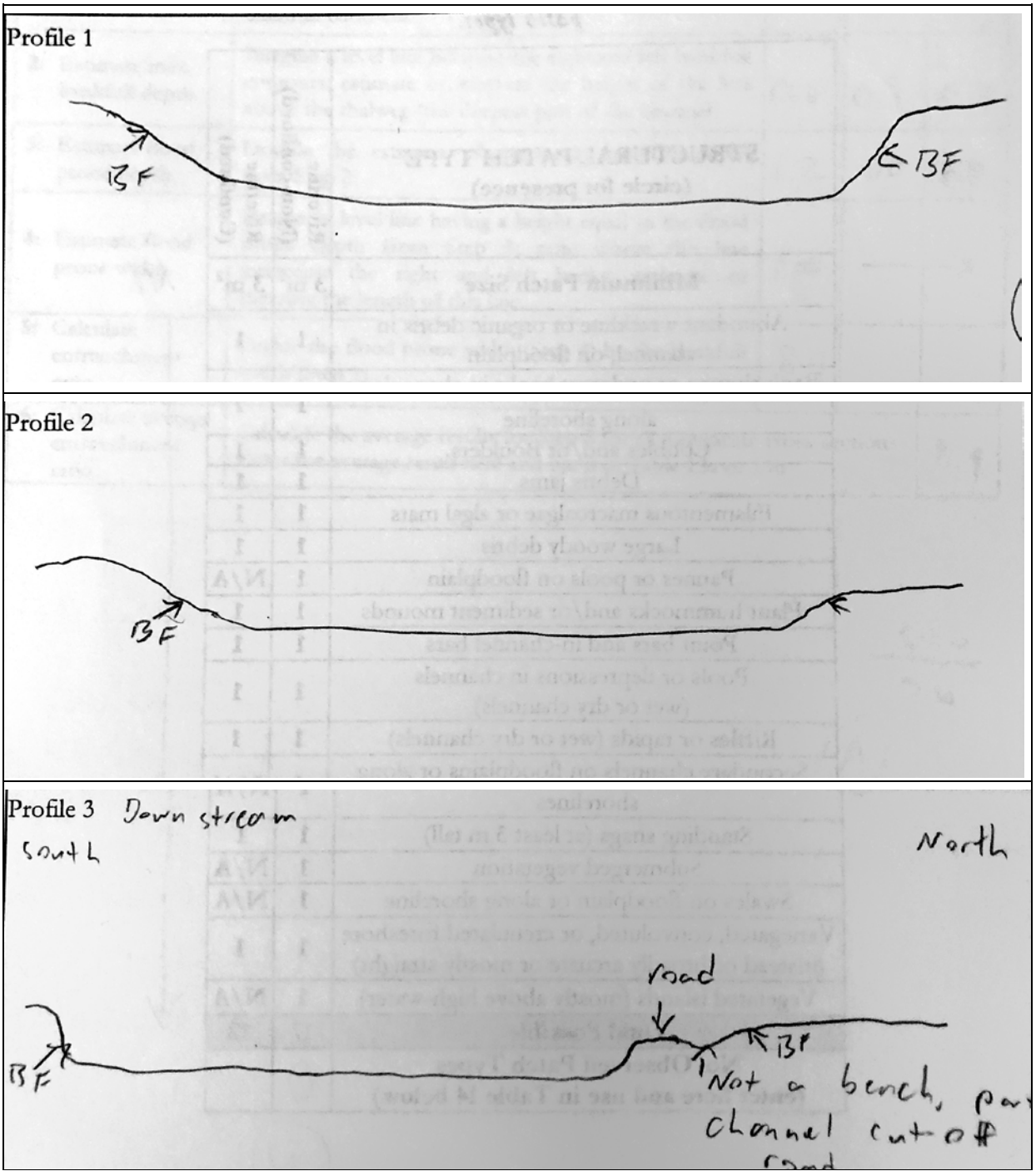
Circle each type of patch that is observed in the AA and enter the total number of observed patches in Table below. In the case of riverine wetlands, their status as confined or non-confined must first be determined (see page 6) to determine with patches are expected in the system (indicated by a "1" in the table below). Any feature onsite should only be counted once as a patch type. If a feature appears to meet the definition of more than one patch type (i.e. swale and secondary channel) the practitioner should choose which patch type best illustrates the feature. Not all features at a site will be patch types.

**Please refer to the CRAM Photo Dictionary at www.cramwetlands.org for photos of each of the following patch types.*

STRUCTURAL PATCH TYPE (circle for presence)	**Riverine (Non-confined)**	**Riverine (Confined)**
Minimum Patch Size	**3 m^2**	**3 m^2**
Abundant wrackline or organic debris in channel, on floodplain	**1**	**1**
Bank slumps or undercut banks in channels or along shoreline	**1**	**1**
Cobbles and/or Boulders	**1**	**1**
Debris jams	**1**	**1**
Filamentous macroalgae or algal mats	**1**	**1**
Large woody debris	**1**	**1**
Pannes or pools on floodplain	**1**	**N/A**
Plant hummocks and/or sediment mounds	**1**	**1**
Point bars and in-channel bars	**1**	**1**
Pools or depressions in channels (wet or dry channels)	**1**	**1**
Riffles or rapids (wet or dry channels)	**1**	**1**
Secondary channels on floodplains or along shorelines	**1**	**N/A**
Standing snags (at least 3 m tall)	**1**	**1**
Submerged vegetation	**1**	**N/A**
Swales on floodplain or along shoreline	**1**	**N/A**
Variegated, convoluted, or crenulated foreshore (instead of broadly arcuate or mostly straight)	**1**	**1**
Vegetated islands (mostly above high-water)	**1**	**N/A**
Total Possible	**17**	**12**
No. Observed Patch Types (enter here and use in Table 14 below)	0	

Worksheet for AA Topographic Complexity

At three locations along the AA, make a sketch of the profile of the stream from the AA boundary down to its deepest area then back out to the other AA boundary. Try to capture the benches and the intervening micro-topographic relief. To maintain consistency, make drawings at each of the stream hydrologic connectivity measurements, always facing downstream. Include the water level, an arrow at the bankfull contour, and label the benches. Based on these sketches and the profiles in Figure 10, choose a description in Table 16 that best describes the overall topographic complexity of the AA.



Plant Community Metric Worksheet: Co-dominant species richness for Riverine wetlands
(A dominant species represents ≥10% *relative* cover)

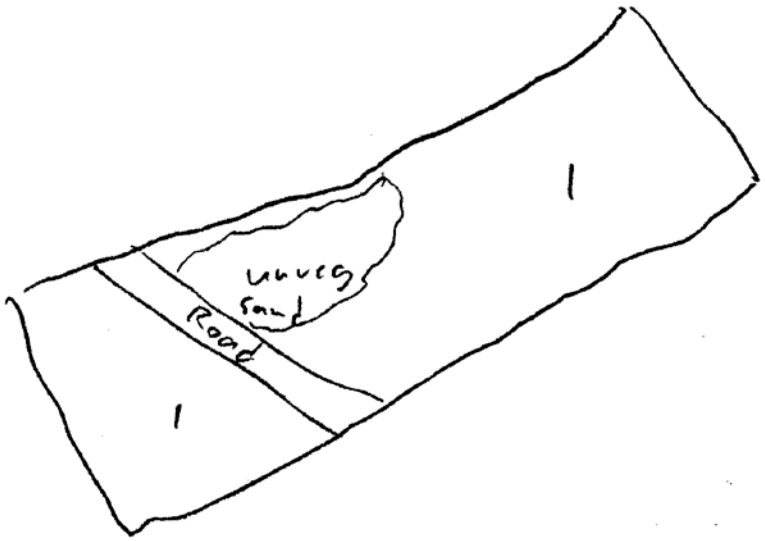
Special Note:

** Combine the counts of co-dominant species from all layers to identify the total species count. Each plant species is only counted once when calculating the Number of Co-dominant Species and Percent Invasion submetric scores, regardless of the numbers of layers in which it occurs.*

Floating or Canopy-forming (non-confined only)	**Invasive?**	**Short (<0.5 m)**	**Invasive?**
		Eriogonum gracile	
		Distichli spicata	
		Festuca myuros	✓
		Bromus hordeaceus	✓
Medium (0.5-1.5 m)	**Invasive?**	**Tall (1.5-3.0 m)**	**Invasive?**
Very Tall (>3.0 m)	**Invasive?**	**Total number of co-dominant species for all layers combined (enter here and use in Table 18)**	4
		Percent Invasion *Round to the nearest integer* (enter here and use in Table 18)	50

Horizontal Interspersion Worksheet.

Use the spaces below to make a quick sketch of the AA in plan view, outlining the major plant zones (this should take no longer than 10 minutes). Assign the zones names and record them on the right. Based on the sketch, choose a single profile from Figure 12 that best represents the AA overall.



Assigned zones:

1) Low-cover grasses & buckwheat

2) Unvegetated sand

3)

4)

5)

6)

Worksheet for Wetland disturbances and conversions

Has a major disturbance occurred at this wetland?	Yes	(No)		
If yes, was it a flood, fire, landslide, or other?	flood	fire	landslide	other
If yes, then how severe is the disturbance?	likely to affect site next 5 or more years	likely to affect site next 3-5 years	likely to affect site next 1-2 years	
Has this wetland been converted from another type? If yes, then what was the previous type? **No, N/A**	depressional	vernal pool	vernal pool system	
	non-confined riverine	confined riverine	seasonal estuarine	
	perennial saline estuarine	perennial non-saline estuarine	wet meadow	
	lacustrine	seep or spring	playa	

Stressor Checklist Worksheet

HYDROLOGY ATTRIBUTE (WITHIN 50 M OF AA)	Present	Significant negative effect on AA
Point Source (PS) discharges (POTW, other non-stormwater discharge)		
Non-point Source (Non-PS) discharges (urban runoff, farm drainage)	✓	
Flow diversions or unnatural inflows		
Dams (reservoirs, detention basins, recharge basins)		
Flow obstructions (culverts, paved stream crossings)		
Weir/drop structure, tide gates		
Dredged inlet/channel		
Engineered channel (riprap, armored channel bank, bed)		
Dike/levees		
Groundwater extraction		
Ditches (borrow, agricultural drainage, mosquito control, etc.)		
Actively managed hydrology	✓	✓
Comments		

PHYSICAL STRUCTURE ATTRIBUTE (WITHIN 50 M OF AA)	Present	Significant negative effect on AA
Filling or dumping of sediment or soils **(N/A for restoration areas)**		
Grading/ compaction **(N/A for restoration areas)**	✓	
Plowing/Discing **(N/A for restoration areas)**		
Resource extraction (sediment, gravel, oil and/or gas)		
Vegetation management		
Excessive sediment or organic debris from watershed		
Excessive runoff from watershed		
Nutrient impaired (PS or Non-PS pollution)		
Heavy metal impaired (PS or Non-PS pollution)		
Pesticides or trace organics impaired (PS or Non-PS pollution)		
Bacteria and pathogens impaired (PS or Non-PS pollution)		
Trash or refuse	✓	✓
Comments		
Assumed minor compaction and bacterial input from cattle; no direct evidence.		

BIOTIC STRUCTURE ATTRIBUTE (WITHIN 50 M OF AA)	Present	Significant negative effect on AA
Mowing, grazing, excessive herbivory (within AA)	✓	✓
Excessive human visitation	✓	✓
Predation and habitat destruction by non-native vertebrates (e.g., *Virginia opossum* and domestic predators, such as feral pets)	✓	✓
Tree cutting/sapling removal		
Removal of woody debris		
Treatment of non-native and nuisance plant species		
Pesticide application or vector control		
Biological resource extraction or stocking (fisheries, aquaculture)		
Excessive organic debris in matrix (for vernal pools)		
Lack of vegetation management to conserve natural resources	✓	✓
Lack of treatment of invasive plants adjacent to AA or buffer		
Comments		

BUFFER AND LANDSCAPE CONTEXT ATTRIBUTE (WITHIN 500 M OF AA)	Present	Significant negative effect on AA
Urban residential	✓	✓
Industrial/commercial		
Military training/Air traffic		
Dams (or other major flow regulation or disruption)	✓	✓
Dryland farming	✓	✓
Intensive row-crop agriculture		
Orchards/nurseries	✓	
Commercial feedlots		
Dairies		
Ranching (enclosed livestock grazing or horse paddock or feedlot)	✓	✓
Transportation corridor	✓	✓
Rangeland (livestock rangeland also managed for native vegetation)		
Sports fields and urban parklands (golf courses, soccer fields, etc.)		
Passive recreation (bird-watching, hiking, etc.)		
Active recreation (off-road vehicles, mountain biking, hunting, fishing)		
Physical resource extraction (rock, sediment, oil/gas)		
Biological resource extraction (aquaculture, commercial fisheries)		
Comments		

Appendix B

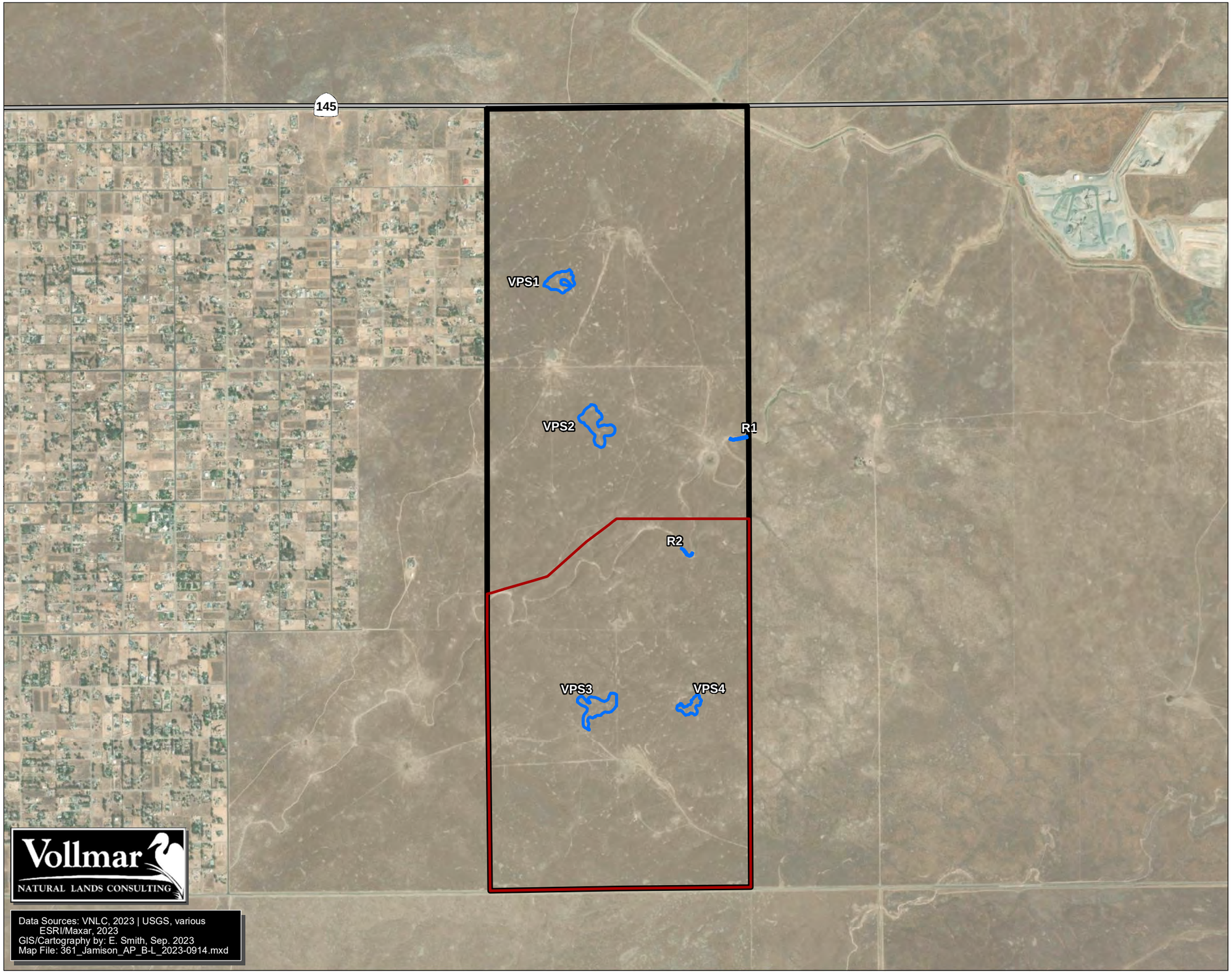
CRAM Assessment Worksheets, Jamison Ranch Property

Basic Information: Vernal Pool Systems

Assessment Area Name: VPS 1	
Project Name: Jamison Ranch/Madera Terrace Preserve	
Assessment Area ID #: VPS 1	
Project ID #: 361	**Date:** 9/28/23
Assessment Team Members for This AA	
M. Yonashiro, A. Merril, E. Smith, T. Hurd	
AA Location: **Latitude**: 37.000409 **Longitude:** -119.852535 **Datum:** NAD83	
Wetland Category: ☒ Natural ☐ Constructed ☐ Restoration (Rehabilitation OR Enhancement)	
If Created or Restored, does the action encompass: ☐ entire wetland ☐ portion of the wetland ☒N/A	
What best describes the hydrologic state of the wetland at the time of assessment? ☐ ponded/inundated ☐ saturated soil, but no surface water ☒ dry	
Does the vernal pool system connect with the floodplain of a nearby stream? ☐ yes ☒ no	
Comments: The AA falls within the north pasture of the approximately 1920-acre Jamison Ranch. This area is outside of the proposed preserve for the Vista Ranch project, but representative of overall conditions in the vernal pool grasslands of the ranch.	

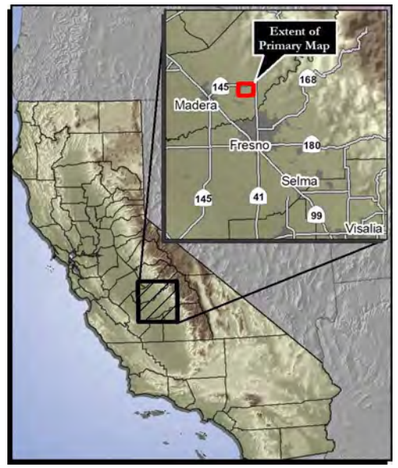
CRAM AA
Locations Map

Jamison Ranch
Madera County, California



Legend

- AA Boundary
- Proposed Preserve (857 ac.)
- Jamison Ranch (1,920 ac.)



Vollmar NATURAL LANDS CONSULTING

Data Sources: VNLC, 2023 | USGS, various ESRI/Maxar, 2023
GIS/Cartography by: E. Smith, Sep. 2023
Map File: 361_Jamison_AP_B-L_2023-0914.mxd

N
W E
S

1:24,000
(1 in. = 2,000 feet. at Tabloid Layout)

0 200 400 800 Meters
0 1,000 2,000 4,000 Feet

Photos and Descriptions:



AA VPS 1, from center / September 29, 2023 (N, 37.000586, - 119.852403)



AA VPS 1, from center / September 29, 2023 (E, 37.000586, - 119.852403)



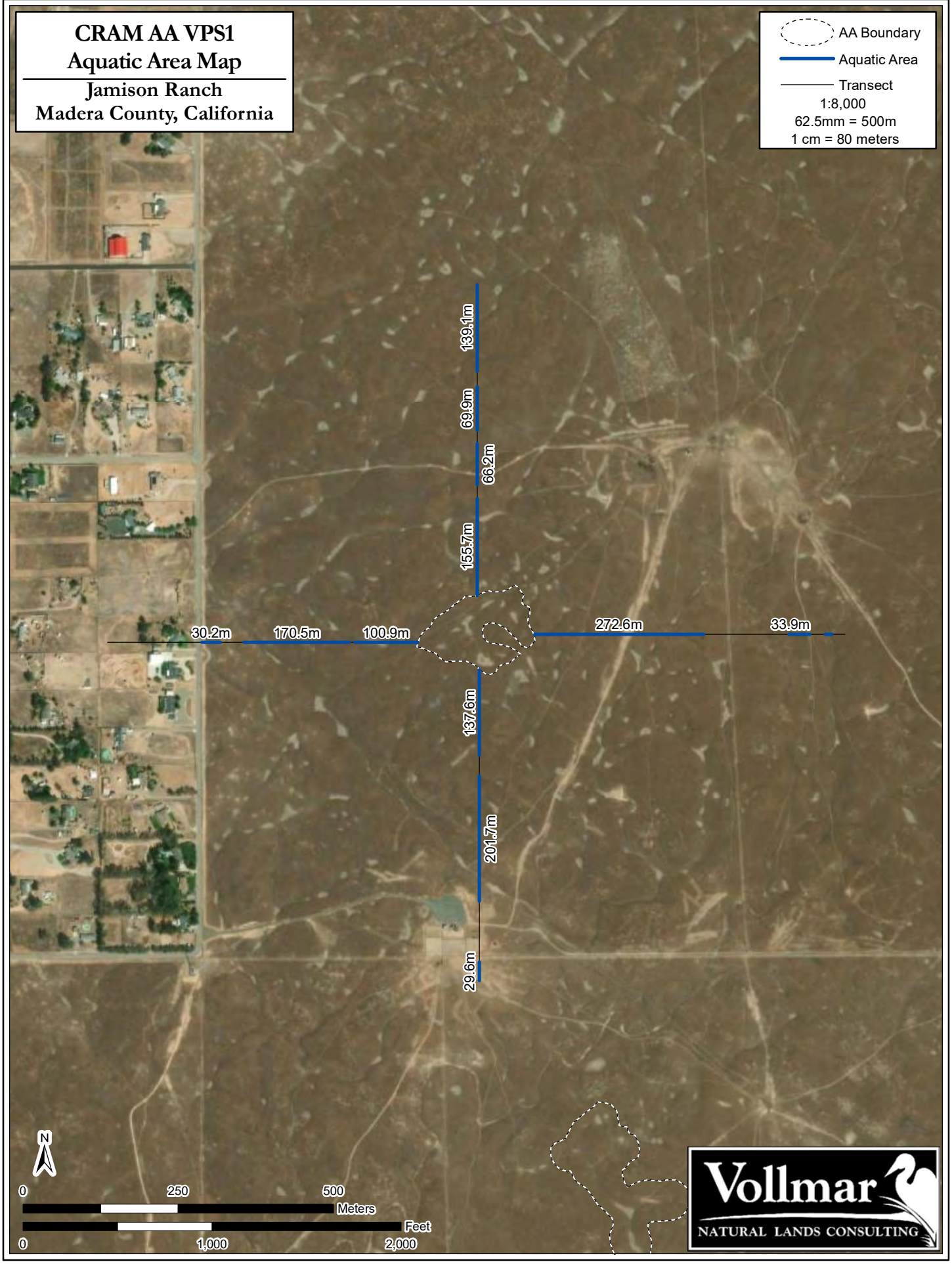
AA VPS 1, from center / September 29, 2023 (S, 37.000586, - 119.852403)



AA VPS 1, from center / September 29, 2023 (W, 37.000586, - 119.852403)

Scoring Sheet: Vernal Pool Systems

AA Name: VPS 1					**Date:** 9/28/ 23	
Attributes and Metrics			Alpha.	Numeric	**Comments/Scores**	
Attribute 1: Buffer and Landscape Context (pp. 8-15)						
(A) Aquatic Area Abundance			A	12		
(B): *Percent of AA with Buffer*	Alpha.	Numeric				
	A	12				
(C): *Average Buffer Width*	A	12				
(D): *Buffer Condition*	B	9				
Initial Attribute Score = A + [D x (B x C)^{½}] ^{½}				21	**Final Attribute Score = (Initial Score/24) x 100**	87.5
Attribute 2: Hydrology (pp. 16-18)						
Water Source			A	12		
Hydroperiod			A	12		
Hydrologic Connectivity			A	12		
Initial Attribute Score= sum of metric scores			36		**Final Attribute Score = (Initial Score/36) x 100**	100
Attribute 3: Physical Structure (pp. 19-28)						
Structural Patch Richness			B	9		
Pool and Swale Density			B	9		
Topographic Complexity			B	9		
Initial Attribute Score= sum of metric scores			27		**Final Attribute Score = (Initial Score/36) x 100**	75
Attribute 4: Biotic Structure (pp. 29-34)						
Horizontal Interspersion and Zonation			B	9		
Plant Community submetric A: Number of Co-dominant species	Alpha.	Numeric				
	C	6				
Plant Community submetric B: Percent Non Native	B	9				
Plant Community submetric C: Endemic Species Richness	C	6				
Plant Community Composition Metric *(numeric average of submetrics A-C)*				7		
Initial Attribute Score= sum of metric scores			16		**Final Attribute Score = (Initial Score/24) x 100**	66.67
Overall AA Score (Average of four Final Attribute Scores)					**82**	



361_CRAM_Vista_A-P_2023-0927.xd

Worksheet 1: Aquatic Area Abundance for Vernal Pool Systems

Percentage of Each Transect Line Crossing Wetland or Other Aquatic Habitat	
Transect	Percent Crossing Aquatic Area
North	86.18
South	73.8
East	63.4
West	60.32
Average value for all Four Transects *Round to the nearest integer*	71

Worksheet 3: Calculating average buffer width of AA
Record the length of each buffer measurement.

Transect	Buffer Width (m)
A	250
B	250
C	250
D	250
E	250
F	250
G	250
H	250
Average Buffer Width *Round to nearest integer*	250

Percent of AA with Buffer: 100 **%**

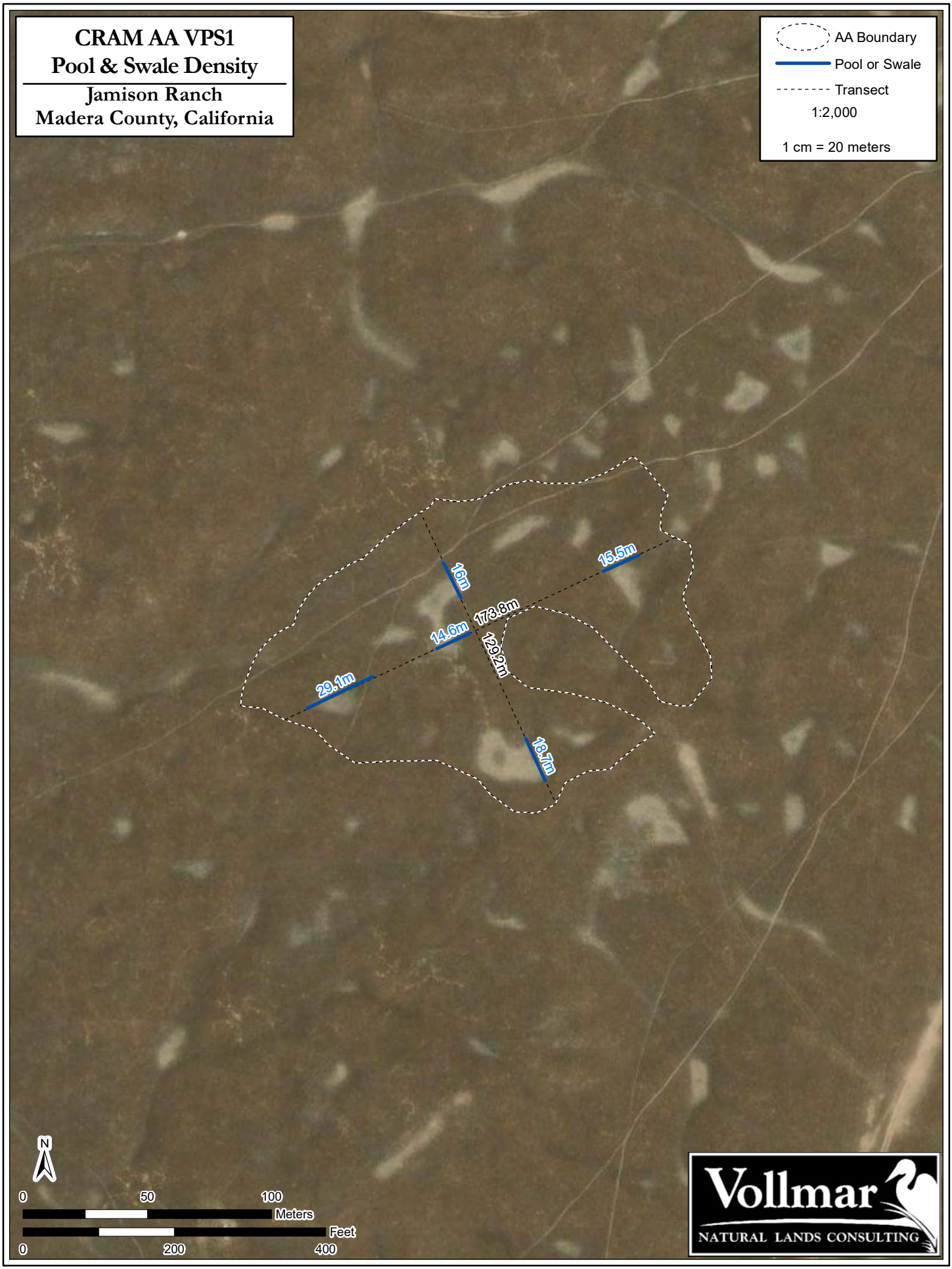


361_CRAM_Vista_A-P_2023-0927.xd

Worksheet 4: Structural Patch Types for Vernal Pool Systems

Identify each type of patch that is observed in the AA and use the total number of observed patch types in Table 15. Each patch should occupy at least 3 m^2 of area in aggregate within the AA, with some exceptions (see definitions below).

Structural Patch Type	Check for Presence
Adjacent shrub or tree cover	
Animal mounds and burrows	
Bare soil	
Cobble and boulders	
Complexly-shaped pools	✓
Drainage branches (more than 1 drainage branch)	
Islands	✓
Large individual pools	✓
Large swales	
Mima mounds	✓
Patches of dense vegetation	
Pool Cluster	✓
Simply-shaped pools	✓
Small individual pools	✓
Small swales	✓
Soil cracks	✓
Within Pool Mounds	
Total Possible	**17**
No. Observed Patch Types (enter here and use in Table 15)	**9**



361_CRAM_Vista_A-P_2023-1004.xd

Worksheet 5: Pool and Swale Density for Vernal Pool Systems

Pool and Swale Density Worksheet		
Transect	Transect Length (m)	Length Crossing Pool or Swale (m)
Long Axis	173.8	59.2
Short Axis	129.2	34.7
Sum of Length (m)	303	93.9
Percent Pool and Swale (Sum of Pools & Swales/Sum of Transect Lengths)*100 *Round to nearest integer*		B

Worksheet 6: Rating of Topographic Complexity for Vernal Pool Systems

Replicate Number	**Replicate Score (A = 12; B = 9; C = 6; D = 3)**	
	Alpha.	*Numeric*
Replicate 1	B	9
Replicate 2	C	6
Replicate 3	B	9
Overall Average Score for All Pool Replicates *Round to nearest integer* (enter here and use in Table 19)		8

Worksheet 7: Rating of Horizontal Interspersion for Vernal Pool Systems

Replicate Number	**Replicate Score (A = 12; B = 9; C = 6; D = 3)**	
	Alpha.	*Numeric*
Replicate 1	A	12
Replicate 2	B	9
Replicate 3	C	6
Overall Average Score for All Pool Replicates *Round to nearest integer* (enter here and use in Table 21)		9

Worksheet 8: Plant Community Metric –
List of Unique Co-dominant Plant Species from all Vernal Pools Combined

Plant Name	Check if non-native	Check if in Appendix I	Pool 1	Pool 2	Pool 3
Eryngium castrense		✓	✓	✓	✓
Plagiobothrys stipitatus var. *micranthus*		✓	✓	✓	
Psilocarphus brevissimus		✓	✓		✓
Lythrum hyssopifolia	✓			✓	
Total number of co-dominant species in each pool			3	3	2
Average number of co-dominant species *round to nearest integer* Enter here and use in Table 22	3				
Total number of co-dominant species (A)	4				
Total number of co-dominant species that are non-native (B)	1				
Percent non-native (B/A) x 100 *Round to nearest integer* Enter here and use in Table 23	25				
Total number of co-dominant species that are endemic Enter here and use in Table 24		3			

Pool Replicate 1

Worksheet 6a: Sketches of Vernal Pool Profiles for Topographic Complexity

Along the long axis of the pool and perpendicular to the long axis across the middle, make a sketch of the profile of each of the three pools from its outside edge (1-3m landward or away from the saturated zone of the pool) to its deepest areas then back out to the outside margin. Try to capture the major breaks in slope and the intervening micro-topographic relief. Based on the sketches, choose a single profile from Figure 9 that best represents the pool overall.

Long Axis



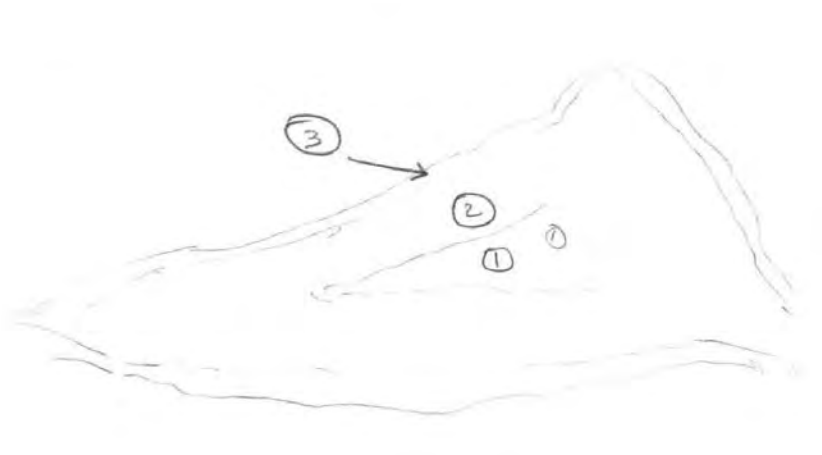
B

Perpendicular to Long Axis



Worksheet 7a: Sketch of Vernal Pool Horizontal Interspersion and Zonation

Pool 1



A

Assigned Zones:

1) LYTHYS-PLASTIM.

2) ERYCAS-PSIBREB

3) EPIBRA-JUNBUF

4)

5)

Pool Replicate 2

Worksheet 6a: Sketches of Vernal Pool Profiles for Topographic Complexity

Along the long axis of the pool and perpendicular to the long axis across the middle, make a sketch of the profile of each of the three pools from its outside edge (1-3m landward or away from the saturated zone of the pool) to its deepest areas then back out to the outside margin. Try to capture the major breaks in slope and the intervening micro-topographic relief. Based on the sketches, choose a single profile from Figure 9 that best represents the pool overall.

Long Axis



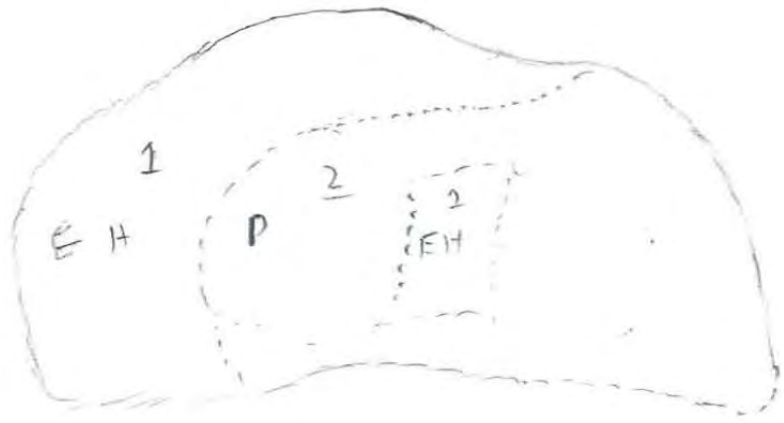
Perpendicular to Long Axis



C

Worksheet 7a: Sketch of Vernal Pool Horizontal Interspersion and Zonation

Pool 2



B

Assigned Zones:

1) ERYCAS-HORMAR

2) PLAACA

3)

4)

5)

Pool Replicate 3

Worksheet 6a: Sketches of Vernal Pool Profiles for Topographic Complexity

Along the long axis of the pool and perpendicular to the long axis across the middle, make a sketch of the profile of each of the three pools from its outside edge (1-3m landward or away from the saturated zone of the pool) to its deepest areas then back out to the outside margin. Try to capture the major breaks in slope and the intervening micro-topographic relief. Based on the sketches, choose a single profile from Figure 9 that best represents the pool overall.

Long Axis



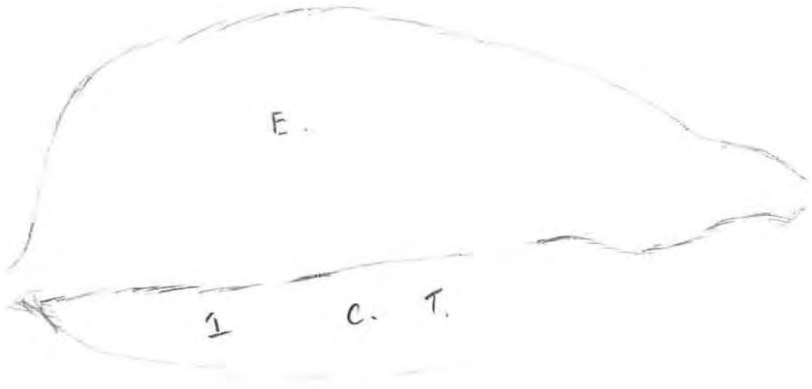
Perpendicular to Long Axis



B

Worksheet 7a: Sketch of Vernal Pool Horizontal Interspersion and Zonation

Pool 3



C

Assigned Zones:

1) TRILAN- CROSET

2) ERYCAS

3)

4)

5)

Table 25: Wetland disturbances and conversions

Has a major disturbance occurred at this wetland?	Yes	(No)		
If yes, was it a flood, fire, landslide, or other?	flood	fire	landslide	other
If yes, then how severe is the disturbance?	likely to affect site next 5 or more years	likely to affect site next 3-5 years	likely to affect site next 1-2 years	
Has this wetland been converted from another type? If yes, then what was the previous type?	depressional	vernal pool	vernal pool system	
	non-confined riverine	confined riverine	bar-built estuarine	
	perennial saline estuarine	perennial non-saline estuarine	wet meadow	
	lacustrine	seep or spring	playa	

Worksheet 9: Stressor Checklist.

HYDROLOGY ATTRIBUTE (WITHIN 50 M OF AA)	Present	Present and likely to have significant negative effect on AA
Point Source (PS) discharges (POTW, other non-stormwater discharge)		
Non-point Source (Non-PS) discharges (urban runoff, farm drainage)		
Flow diversions or unnatural inflows		
Dams (reservoirs, detention basins, recharge basins)		
Flow obstructions (culverts, paved stream crossings)		
Weir/drop structure, tide gates		
Dredged inlet/channel		
Engineered channel (riprap, armored channel bank, bed)		
Dike/levees		
Groundwater extraction		
Ditches (borrow, agricultural drainage, mosquito control, etc.)		
Actively managed hydrology		
Comments		

PHYSICAL STRUCTURE ATTRIBUTE (WITHIN 50 M OF AA)	Present	Present and likely to have significant negative effect on AA
Filling or dumping of sediment or soils **(N/A for restoration areas)**		
Grading/ compaction **(N/A for restoration areas)**		
Plowing/Discing **(N/A for restoration areas)**		
Resource extraction (sediment, gravel, oil and/or gas)		
Vegetation management		
Excessive sediment or organic debris from watershed		
Excessive runoff from watershed		
Nutrient impaired (PS or Non-PS pollution)		
Heavy metal impaired (PS or Non-PS pollution)		
Pesticides or trace organics impaired (PS or Non-PS pollution)		
Bacteria and pathogens impaired (PS or Non-PS pollution)		
Trash or refuse		
Comments		

BIOTIC STRUCTURE ATTRIBUTE (WITHIN 50 M OF AA)	Present	Present and Likely to Have Significant negative effect on AA
Mowing, grazing, excessive herbivory (within AA)	✓	
Excessive human visitation		
Predation and habitat destruction by non-native vertebrates (e.g., *Virginia opossum* and domestic predators, such as feral pets)		
Tree cutting/sapling removal		
Removal of woody debris		
Treatment of non-native and nuisance plant species	✓	
Pesticide application or vector control		
Biological resource extraction or stocking (fisheries, aquaculture)		
Excessive organic debris in matrix (for vernal pools)		
Lack of vegetation management to conserve natural resources		
Lack of treatment of invasive plants adjacent to AA or buffer		
Comments		

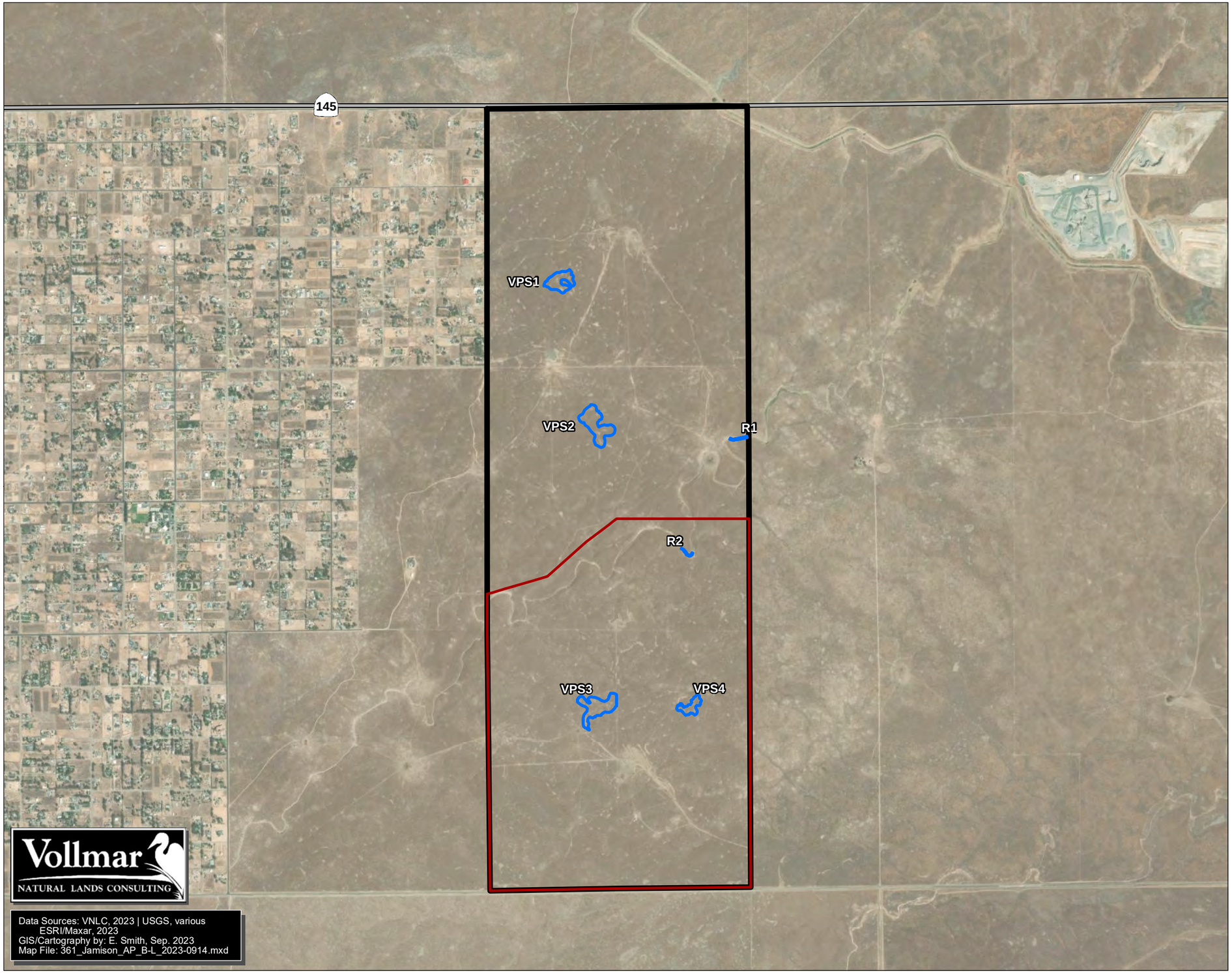
BUFFER AND LANDSCAPE CONTEXT ATTRIBUTE (WITHIN 500 M OF AA)	Present	Present and likely to have significant negative effect on AA
Urban residential		
Industrial/commercial		
Military training/Air traffic		
Dams (or other major flow regulation or disruption)		
Dryland farming		
Intensive row-crop agriculture		
Orchards/nurseries		
Commercial feedlots		
Dairies		
Ranching (enclosed livestock grazing or horse paddock or feedlot)	✓	
Transportation corridor		
Rangeland (livestock rangeland also managed for native vegetation)		
Sports fields and urban parklands (golf courses, soccer fields, etc.)		
Passive recreation (bird-watching, hiking, etc.)		
Active recreation (off-road vehicles, mountain biking, hunting, fishing)		
Physical resource extraction (rock, sediment, oil/gas)		
Biological resource extraction (aquaculture, commercial fisheries)		
Comments		
Working Ranch		

Basic Information: Vernal Pool Systems

Assessment Area Name: VPS 2	
Project Name: Jamison Ranch/Madera Terrace Preserve	
Assessment Area ID #: VPS 2	
Project ID #: 361	**Date:** 9/28/23
Assessment Team Members for This AA	
M. Yonashiro, A. Merril, E. Smith, T. Hurd	
AA Location: **Latitude:** 36.992508 **Longitude:** -119.850194 **Datum:** NAD83	
Wetland Category: ☒ Natural ☐ Constructed ☐ Restoration (Rehabilitation OR Enhancement)	
If Created or Restored, does the action encompass: ☐ entire wetland ☐ portion of the wetland ☒N/A	
What best describes the hydrologic state of the wetland at the time of assessment? ☐ ponded/inundated ☐ saturated soil, but no surface water ☒ dry	
Does the vernal pool system connect with the floodplain of a nearby stream? ☐ yes ☒ no	
Comments: The AA falls within the central pasture of the approximately 1920-acre Jamison Ranch. This area is outside of the proposed preserve for the Vista Ranch project, but representative of overall conditions in the vernal pool grasslands of the ranch.	

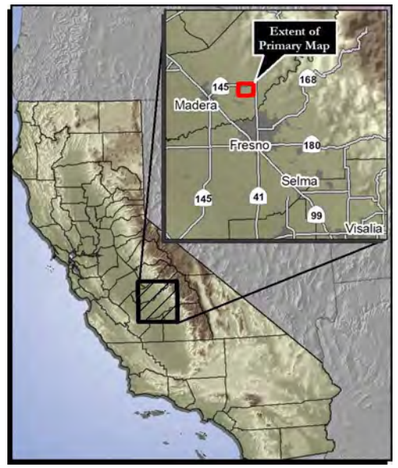
CRAM AA
Locations Map

Jamison Ranch
Madera County, California



Legend

- AA Boundary
- Proposed Preserve (857 ac.)
- Jamison Ranch (1,920 ac.)



Vollmar NATURAL LANDS CONSULTING

Data Sources: VNLC, 2023 | USGS, various ESRI/Maxar, 2023
GIS/Cartography by: E. Smith, Sep. 2023
Map File: 361_Jamison_AP_B-L_2023-0914.mxd

N
W E
S

1:24,000
(1 in. = 2,000 feet. at Tabloid Layout)

0 200 400 800 Meters
0 1,000 2,000 4,000 Feet

Photos and Descriptions:



AA VPS 2, from center / September 29, 2023 (N, 36.992639, -119.85018)



AA VPS 2, from center / September 29, 2023 (E, 36.992639, -119.85018)



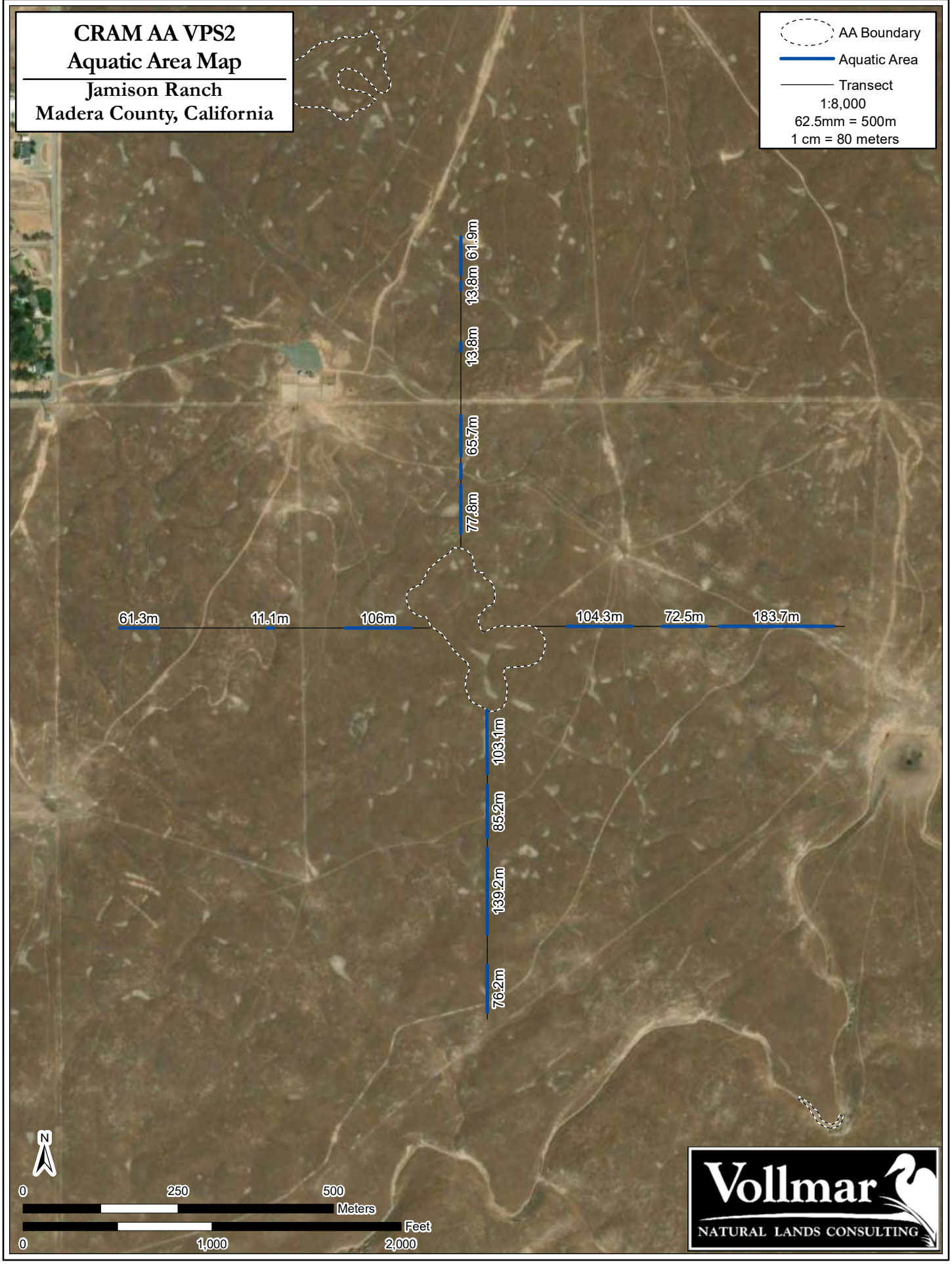
AA VPS 2, from center / September 29, 2023 (S, 36.992639, -119.85018)



AA VPS 2, from center / September 29, 2023 (W, 36.992639, -119.85018)

Scoring Sheet: Vernal Pool Systems

AA Name: VPS 2					**Date:** 9/28/ 23
Attributes and Metrics			Alpha.	Numeric	**Comments/Scores**
Attribute 1: Buffer and Landscape Context (pp. 8-15)					
(A) Aquatic Area Abundance			A	12	
(B): *Percent of AA with Buffer*	Alpha.	Numeric			
	A	12			
(C): *Average Buffer Width*	A	12			
(D): *Buffer Condition*	B	9			
Initial Attribute Score = A + [D x (B x C)^{½}] ^{½}				21	**Final Attribute Score = (Initial Score/24) x 100** 87.5
Attribute 2: Hydrology (pp. 16-18)					
Water Source			A	12	
Hydroperiod			A	12	
Hydrologic Connectivity			A	12	
Initial Attribute Score= sum of metric scores			36		**Final Attribute Score = (Initial Score/36) x 100** 100
Attribute 3: Physical Structure (pp. 19-28)					
Structural Patch Richness			B	9	
Pool and Swale Density			B	9	
Topographic Complexity			A	12	
Initial Attribute Score= sum of metric scores			30		**Final Attribute Score = (Initial Score/36) x 100** 83.33
Attribute 4: Biotic Structure (pp. 29-34)					
Horizontal Interspersion and Zonation			C	6	
Plant Community submetric A: Number of Co-dominant species	Alpha.	Numeric			
	C	6			
Plant Community submetric B: Percent Non Native	B	9			
Plant Community submetric C: Endemic Species Richness	C	6			
Plant Community Composition Metric *(numeric average of submetrics A-C)*				7	
Initial Attribute Score= sum of metric scores			13		**Final Attribute Score = (Initial Score/24) x 100** 54.17
Overall AA Score (Average of four Final Attribute Scores)					**81**



361_CRAM_Vista_A-P_2023-0927.xd

Worksheet 1: Aquatic Area Abundance for Vernal Pool Systems

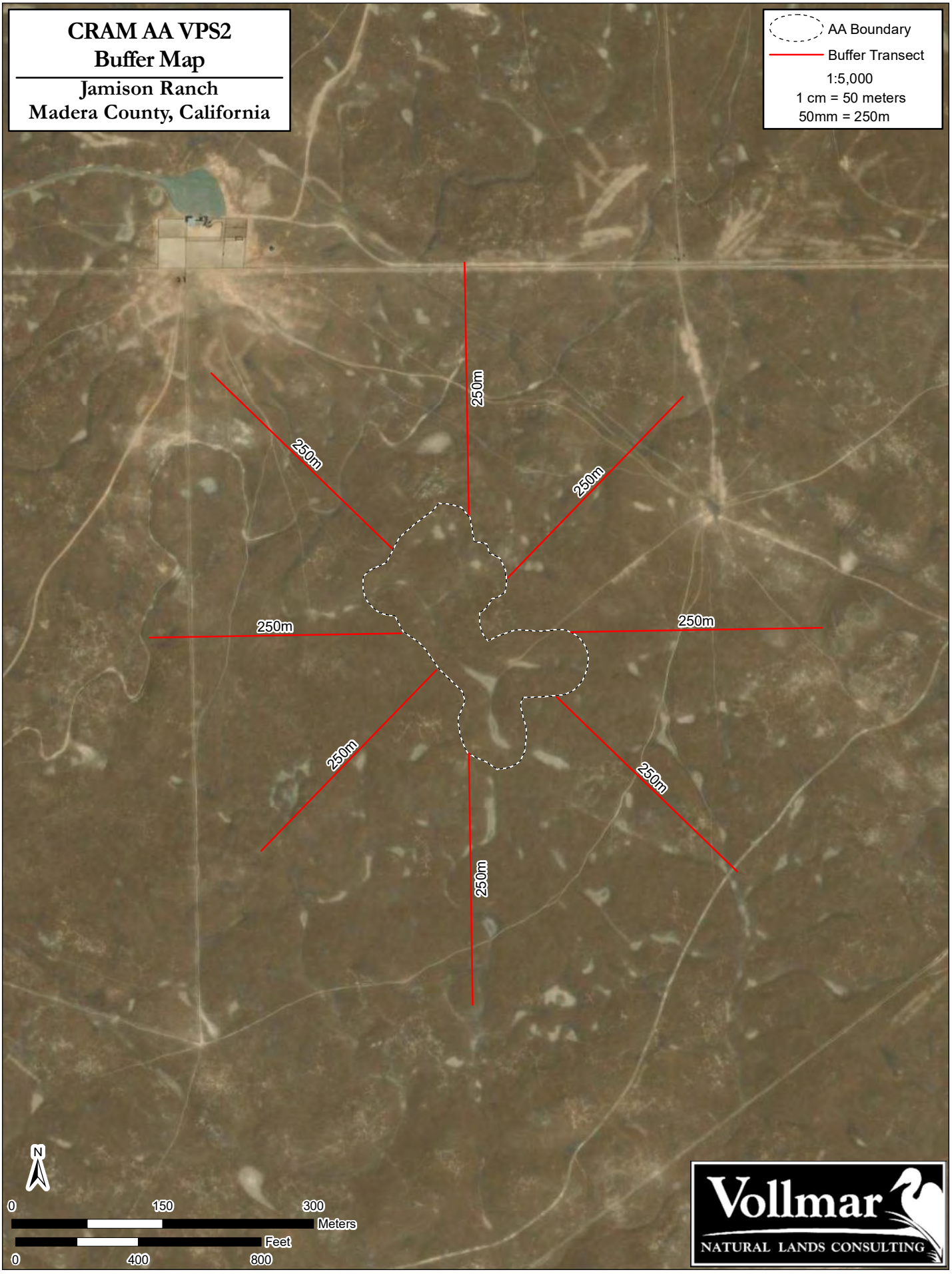
Percentage of Each Transect Line Crossing Wetland or Other Aquatic Habitat	
Transect	Percent Crossing Aquatic Area
North	51
South	80.76
East	72.2
West	35.7
Average value for all Four Transects *Round to the nearest integer*	60

Worksheet 3: Calculating average buffer width of AA

Record the length of each buffer measurement.

Transect	**Buffer Width (m)**
A	250
B	250
C	250
D	250
E	250
F	250
G	250
H	250
Average Buffer Width *Round to nearest integer*	250

Percent of AA with Buffer: 100 **%**



361_CRAM_Vista_A-P_2023-0927.xd

Worksheet 4: Structural Patch Types for Vernal Pool Systems

Identify each type of patch that is observed in the AA and use the total number of observed patch types in Table 15. Each patch should occupy at least 3 m^2 of area in aggregate within the AA, with some exceptions (see definitions below).

Structural Patch Type	Check for Presence
Adjacent shrub or tree cover	
Animal mounds and burrows	✓
Bare soil	
Cobble and boulders	
Complexly-shaped pools	✓
Drainage branches (more than 1 drainage branch)	✓
Islands	
Large individual pools	✓
Large swales	
Mima mounds	✓
Patches of dense vegetation	
Pool Cluster	✓
Simply-shaped pools	✓
Small individual pools	✓
Small swales	✓
Soil cracks	✓
Within Pool Mounds	
Total Possible	**17**
No. Observed Patch Types (enter here and use in Table 15)	**10**



361_CRAM_Vista_A-P_2023-1004.xd

Worksheet 5: Pool and Swale Density for Vernal Pool Systems

Pool and Swale Density Worksheet		
Transect	Transect Length (m)	Length Crossing Pool or Swale (m)
Long Axis	268.3	78.3
Short Axis	60.9	7.6
Sum of Length (m)	329.2	85.9
Percent Pool and Swale (Sum of Pools & Swales/Sum of Transect Lengths)*100 *Round to nearest integer*		26

Worksheet 6: Rating of Topographic Complexity for Vernal Pool Systems

Replicate Number	**Replicate Score (A = 12; B = 9; C = 6; D = 3)**	
	Alpha.	*Numeric*
Replicate 1	B	9
Replicate 2	A	12
Replicate 3	B	9
Overall Average Score for All Pool Replicates *Round to nearest integer* (enter here and use in Table 19)		10

Worksheet 7: Rating of Horizontal Interspersion for Vernal Pool Systems

Replicate Number	**Replicate Score (A = 12; B = 9; C = 6; D = 3)**	
	Alpha.	*Numeric*
Replicate 1	B	6
Replicate 2	A	12
Replicate 3	D	3
Overall Average Score for All Pool Replicates *Round to nearest integer* (enter here and use in Table 21)		7

Worksheet 8: Plant Community Metric –
List of Unique Co-dominant Plant Species from all Vernal Pools Combined

Plant Name	Check if non-native	Check if in Appendix I	Pool 1	Pool 2	Pool 3
Lythrum hyssopifolia	✓		✓		
Eryngium castrense		✓	✓	✓	✓
Plagiobothrys stipitatus		✓	✓		
Plagiobothrys acanthocarpus		✓		✓	
Hordeum marinum ssp. *gussoneanum*	✓			✓	
Croton setiger					✓
Trichostema lanceolatum					✓
Total number of co-dominant species in each pool			3	3	3
Average number of co-dominant species *round to nearest integer* Enter here and use in Table 22	3				
Total number of co-dominant species (A)	7				
Total number of co-dominant species that are non-native (B)	2				
Percent non-native (B/A) x 100 *Round to nearest integer* Enter here and use in Table 23	29				
Total number of co-dominant species that are endemic Enter here and use in Table 24		3			

Pool Replicate 1

Worksheet 6a: Sketches of Vernal Pool Profiles for Topographic Complexity

Along the long axis of the pool and perpendicular to the long axis across the middle, make a sketch of the profile of each of the three pools from its outside edge (1-3m landward or away from the saturated zone of the pool) to its deepest areas then back out to the outside margin. Try to capture the major breaks in slope and the intervening micro-topographic relief. Based on the sketches, choose a single profile from Figure 9 that best represents the pool overall.

Long Axis



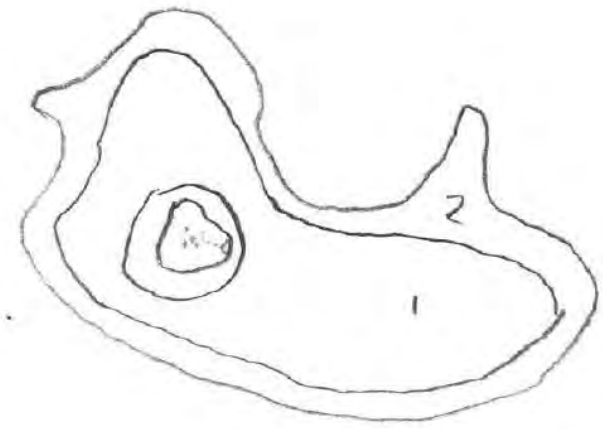
Perpendicular to Long Axis



B

Worksheet 7a: Sketch of Vernal Pool Horizontal Interspersion and Zonation

Pool 1



B

Assigned Zones:

1) PLASTIM

2) ERYCAS

3)

4)

5)

Pool Replicate 2

Worksheet 6a: Sketches of Vernal Pool Profiles for Topographic Complexity

Along the long axis of the pool and perpendicular to the long axis across the middle, make a sketch of the profile of each of the three pools from its outside edge (1-3m landward or away from the saturated zone of the pool) to its deepest areas then back out to the outside margin. Try to capture the major breaks in slope and the intervening micro-topographic relief. Based on the sketches, choose a single profile from Figure 9 that best represents the pool overall.

Long Axis



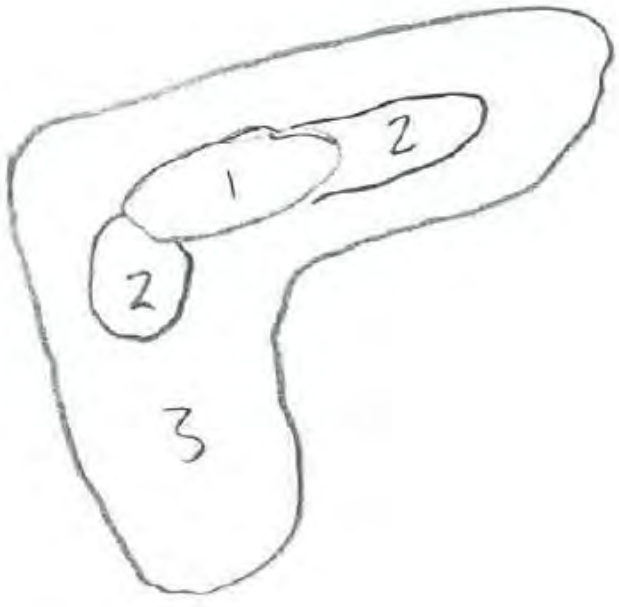
Perpendicular to Long Axis



A

Worksheet 7a: Sketch of Vernal Pool Horizontal Interspersion and Zonation

Pool 2



A

Assigned Zones:

1) LYTHYS

2) PLASTIM

3) ERYCAS

4)

5)

Pool Replicate 3

Worksheet 6a: Sketches of Vernal Pool Profiles for Topographic Complexity

Along the long axis of the pool and perpendicular to the long axis across the middle, make a sketch of the profile of each of the three pools from its outside edge (1-3m landward or away from the saturated zone of the pool) to its deepest areas then back out to the outside margin. Try to capture the major breaks in slope and the intervening micro-topographic relief. Based on the sketches, choose a single profile from Figure 9 that best represents the pool overall.

Long Axis



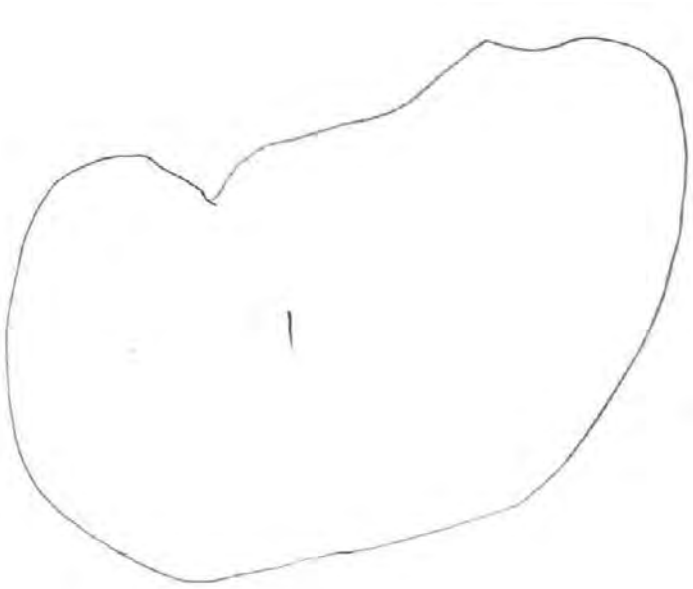
Perpendicular to Long Axis



B

Worksheet 7a: Sketch of Vernal Pool Horizontal Interspersion and Zonation

Pool 3



D

Assigned Zones:

1) ERYCAS

2)

3)

4)

5)

Table 25: Wetland disturbances and conversions

Has a major disturbance occurred at this wetland?	Yes	(No)		
If yes, was it a flood, fire, landslide, or other?	flood	fire	landslide	other
If yes, then how severe is the disturbance?	likely to affect site next 5 or more years	likely to affect site next 3-5 years	likely to affect site next 1-2 years	
Has this wetland been converted from another type? If yes, then what was the previous type?	depressional	vernal pool	vernal pool system	
	non-confined riverine	confined riverine	bar-built estuarine	
	perennial saline estuarine	perennial non-saline estuarine	wet meadow	
	lacustrine	seep or spring	playa	

Worksheet 9: Stressor Checklist.

HYDROLOGY ATTRIBUTE (WITHIN 50 M OF AA)	Present	Present and likely to have significant negative effect on AA
Point Source (PS) discharges (POTW, other non-stormwater discharge)		
Non-point Source (Non-PS) discharges (urban runoff, farm drainage)		
Flow diversions or unnatural inflows		
Dams (reservoirs, detention basins, recharge basins)		
Flow obstructions (culverts, paved stream crossings)		
Weir/drop structure, tide gates		
Dredged inlet/channel		
Engineered channel (riprap, armored channel bank, bed)		
Dike/levees		
Groundwater extraction		
Ditches (borrow, agricultural drainage, mosquito control, etc.)		
Actively managed hydrology		
Comments		

PHYSICAL STRUCTURE ATTRIBUTE (WITHIN 50 M OF AA)	Present	Present and likely to have significant negative effect on AA
Filling or dumping of sediment or soils **(N/A for restoration areas)**		
Grading/ compaction **(N/A for restoration areas)**		
Plowing/Discing **(N/A for restoration areas)**		
Resource extraction (sediment, gravel, oil and/or gas)		
Vegetation management		
Excessive sediment or organic debris from watershed		
Excessive runoff from watershed		
Nutrient impaired (PS or Non-PS pollution)		
Heavy metal impaired (PS or Non-PS pollution)		
Pesticides or trace organics impaired (PS or Non-PS pollution)		
Bacteria and pathogens impaired (PS or Non-PS pollution)		
Trash or refuse		
Comments		

BIOTIC STRUCTURE ATTRIBUTE (WITHIN 50 M OF AA)	Present	Present and Likely to Have Significant negative effect on AA
Mowing, grazing, excessive herbivory (within AA)	✓	
Excessive human visitation		
Predation and habitat destruction by non-native vertebrates (e.g., *Virginia opossum* and domestic predators, such as feral pets)		
Tree cutting/sapling removal		
Removal of woody debris		
Treatment of non-native and nuisance plant species		
Pesticide application or vector control		
Biological resource extraction or stocking (fisheries, aquaculture)		
Excessive organic debris in matrix (for vernal pools)		
Lack of vegetation management to conserve natural resources		
Lack of treatment of invasive plants adjacent to AA or buffer		
Comments		

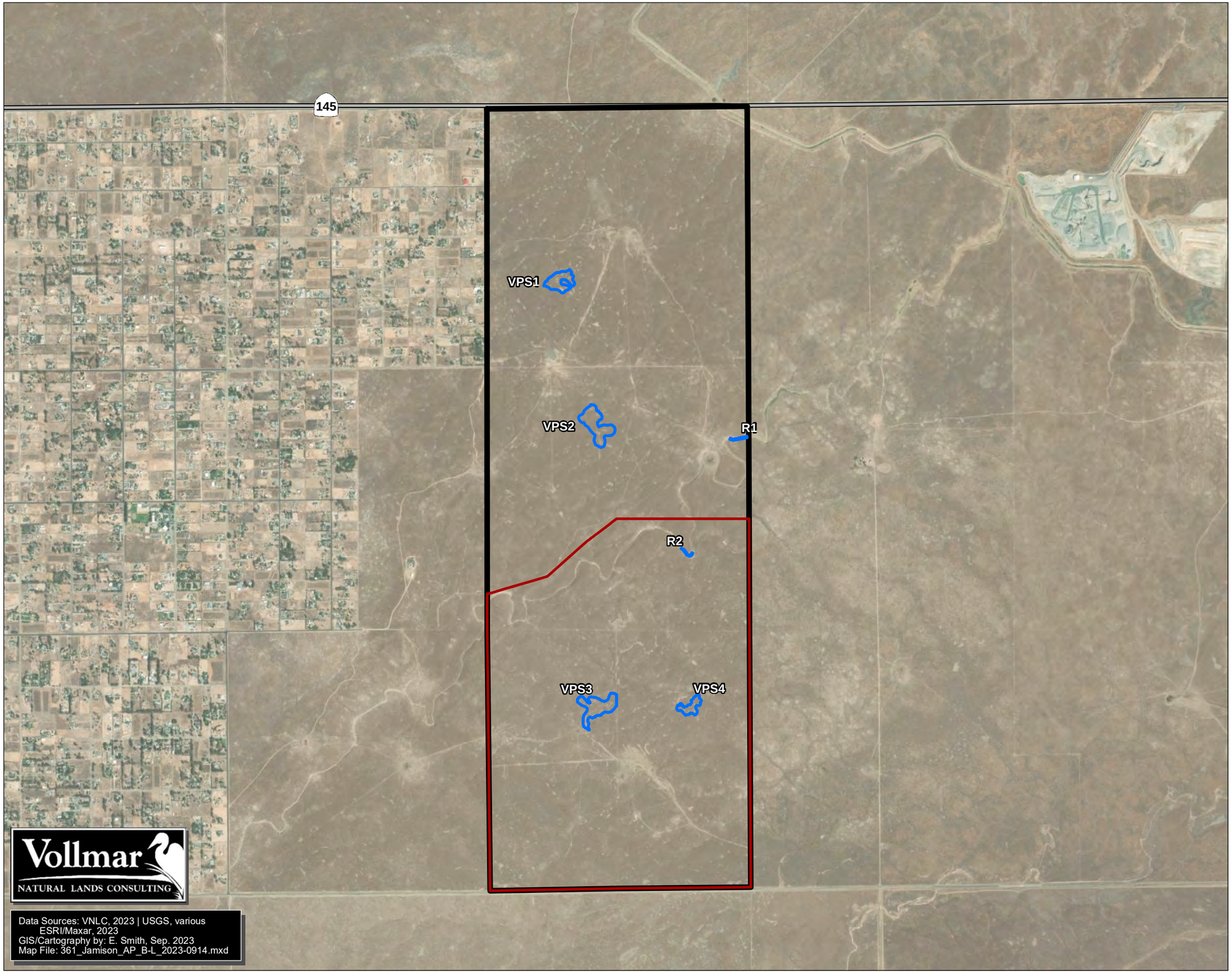
BUFFER AND LANDSCAPE CONTEXT ATTRIBUTE (WITHIN 500 M OF AA)	Present	Present and likely to have significant negative effect on AA
Urban residential	✓	
Industrial/commercial		
Military training/Air traffic		
Dams (or other major flow regulation or disruption)		
Dryland farming		
Intensive row-crop agriculture		
Orchards/nurseries		
Commercial feedlots		
Dairies		
Ranching (enclosed livestock grazing or horse paddock or feedlot)		
Transportation corridor	✓	
Rangeland (livestock rangeland also managed for native vegetation)	✓	
Sports fields and urban parklands (golf courses, soccer fields, etc.)		
Passive recreation (bird-watching, hiking, etc.)		
Active recreation (off-road vehicles, mountain biking, hunting, fishing)		
Physical resource extraction (rock, sediment, oil/gas)		
Biological resource extraction (aquaculture, commercial fisheries)		
Comments		
Residential is low density Madera Ranchos		

Basic Information: Vernal Pool Systems

Assessment Area Name: VPS 3	
Project Name: Jamison Ranch/Madera Terrace Preserve	
Assessment Area ID #: VPS 3	
Project ID #: 361-3	**Date:** 9/29/23
Assessment Team Members for This AA	
M. Yonashiro, E. Smith	
AA Location: **Latitude:** 36.976980 **Longitude: -**119.849850 **Datum:** NAD 1983	
Wetland Category: ☒ Natural ☐ Constructed ☐ Restoration (Rehabilitation OR Enhancement)	
If Created or Restored, does the action encompass: ☒ entire wetland ☐ portion of the wetland ☒N/A	
What best describes the hydrologic state of the wetland at the time of assessment? ☐ ponded/inundated ☐ saturated soil, but no surface water ☒ dry	
Does the vernal pool system connect with the floodplain of a nearby stream? ☐ yes ☒ no	
Comments: The AA falls within the southwest pasture of the approximately 1920-acre Jamison Ranch, within the area proposed as a mitigation preserve for the Vista Ranch project.	

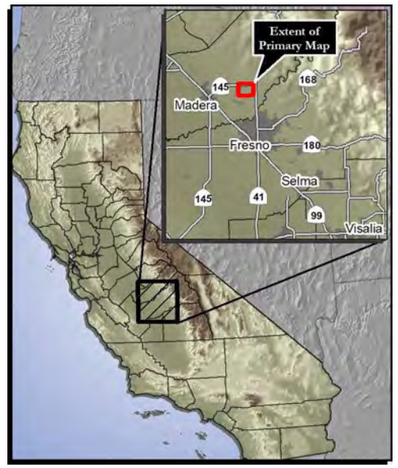
CRAM AA
Locations Map

Jamison Ranch
Madera County, California



Legend

- AA Boundary
- Proposed Preserve (857 ac.)
- Jamison Ranch (1,920 ac.)



Vollmar NATURAL LANDS CONSULTING

Data Sources: VNLC, 2023 | USGS, various ESRI/Maxar, 2023
GIS/Cartography by: E. Smith, Sep. 2023
Map File: 361_Jamison_AP_B-L_2023-0914.mxd

N
W E
S

1:24,000
(1 in. = 2,000 feet. at Tabloid Layout)

0 200 400 800 Meters
0 1,000 2,000 4,000 Feet

Photos and Descriptions:



AA VPS 3, from center / September 29, 2023 (N, 36.976946, -119.84991)



AA VPS 3, from center / September 29, 2023 (E, 36.976946, -119.84991)



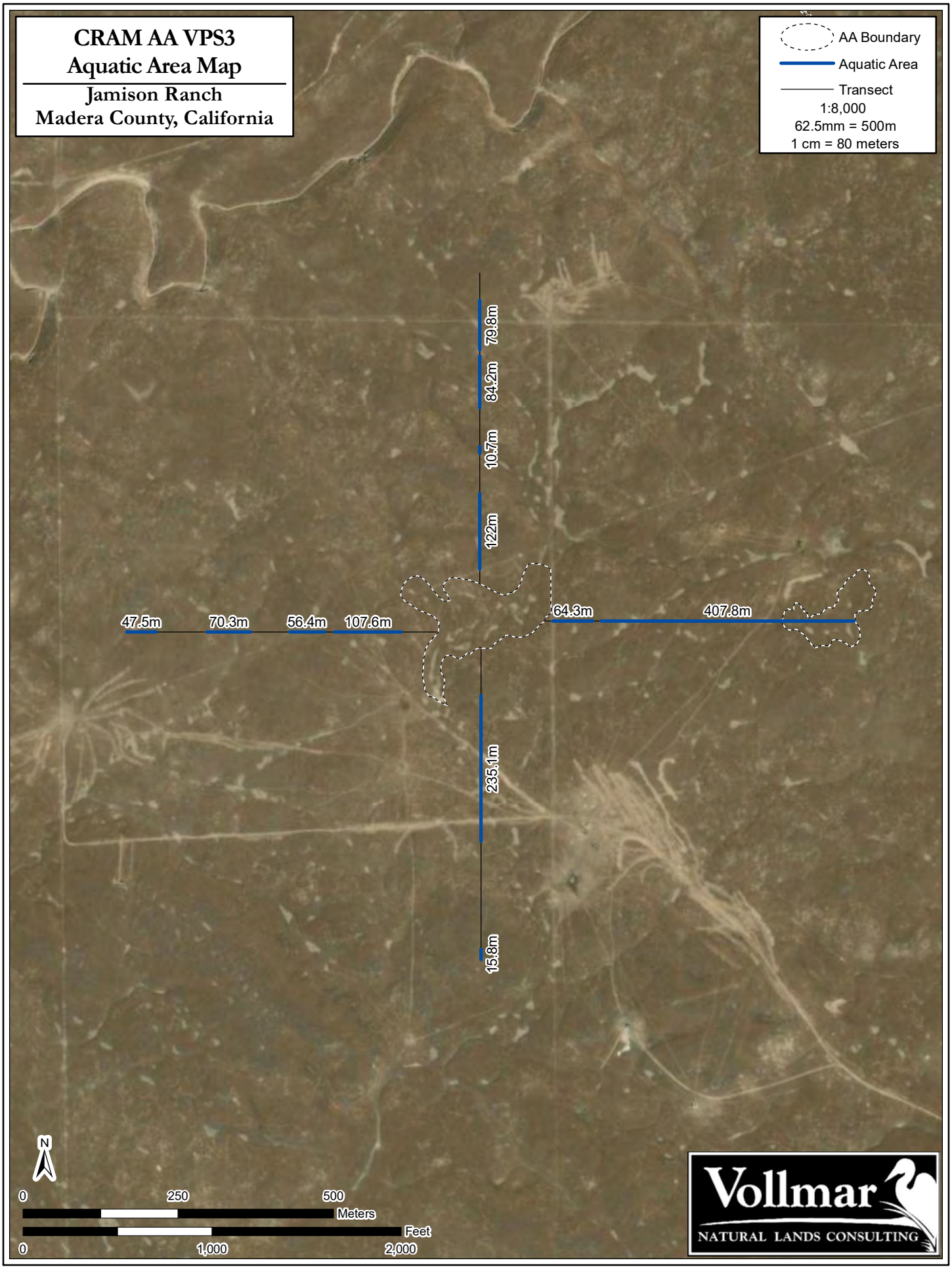
AA VPS 3, from center / September 29, 2023 (S, 36.976946, -119.84991)



AA VPS 3, from center / September 29, 2023 (W, 36.976946, -119.84991)

Scoring Sheet: Vernal Pool Systems

AA Name: VPS 3					**Date:** 9/29/ 23
Attributes and Metrics			Alpha.	Numeric	**Comments/Scores**
Attribute 1: Buffer and Landscape Context (pp. 8-15)					
(A) Aquatic Area Abundance			A	12	
(B): *Percent of AA with Buffer*	Alpha.	Numeric			
	A	12			
(C): *Average Buffer Width*	A	12			
(D): *Buffer Condition*	B	9			
Initial Attribute Score = A + [D x (B x C)^{½}] ^{½}				21	**Final Attribute Score = (Initial Score/24) x 100** 87.5
Attribute 2: Hydrology (pp. 16-18)					
Water Source			A	12	
Hydroperiod			A	12	
Hydrologic Connectivity			A	12	
Initial Attribute Score= sum of metric scores			36		**Final Attribute Score = (Initial Score/36) x 100** 100
Attribute 3: Physical Structure (pp. 19-28)					
Structural Patch Richness			A	12	
Pool and Swale Density			B	9	
Topographic Complexity			A	12	
Initial Attribute Score= sum of metric scores			33		**Final Attribute Score = (Initial Score/36) x 100** 91.67
Attribute 4: Biotic Structure (pp. 29-34)					
Horizontal Interspersion and Zonation			A	12	
Plant Community submetric A: Number of Co-dominant species	Alpha.	Numeric			
	B	9			
Plant Community submetric B: Percent Non Native	A	12			
Plant Community submetric C: Endemic Species Richness	C	6			
Plant Community Composition Metric *(numeric average of submetrics A-C)*				9	
Initial Attribute Score= sum of metric scores			21		**Final Attribute Score = (Initial Score/24) x 100** 87.5
Overall AA Score (Average of four Final Attribute Scores)					**92**



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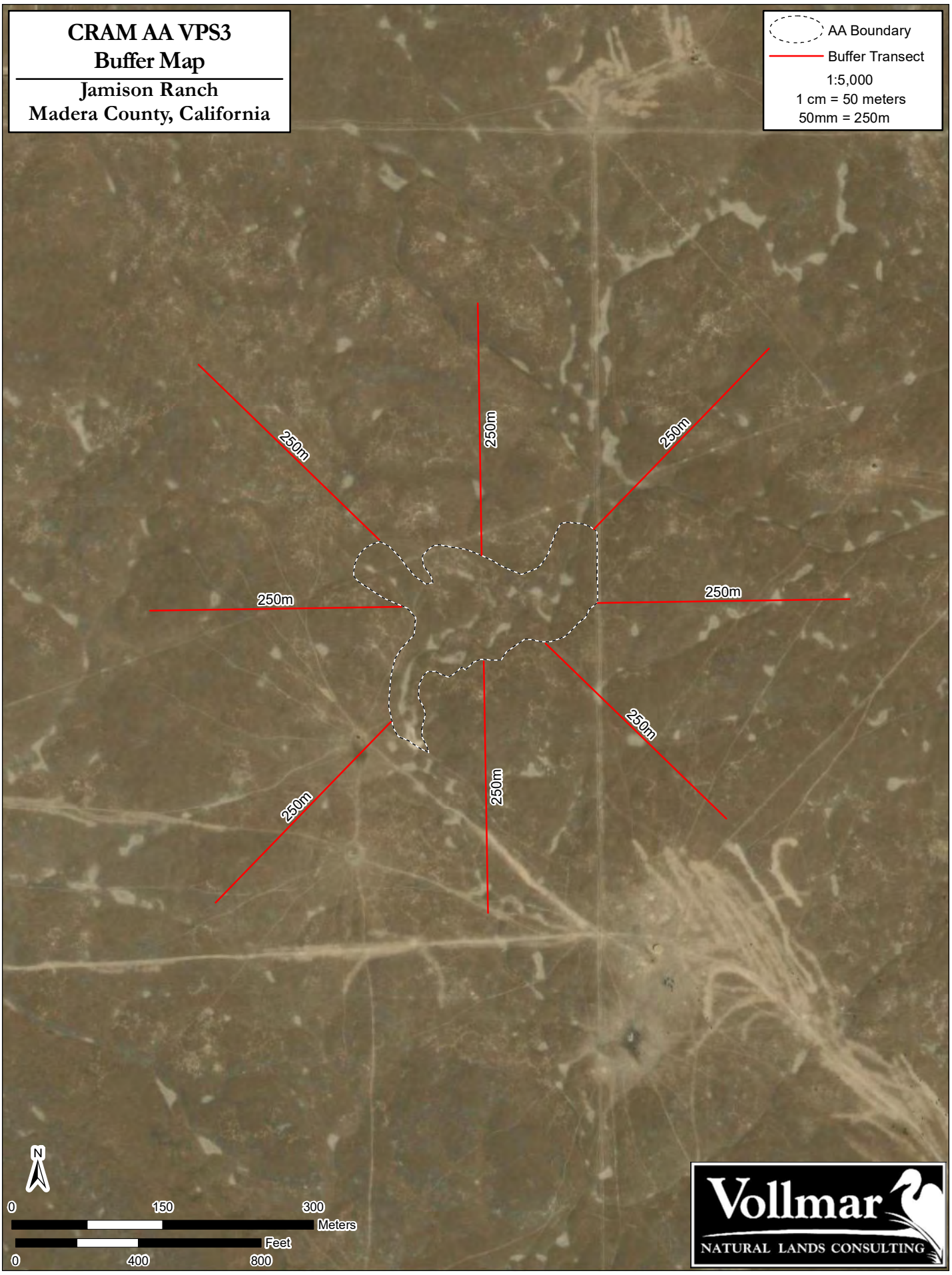
Worksheet 1: Aquatic Area Abundance for Vernal Pool Systems

Percentage of Each Transect Line Crossing Wetland or Other Aquatic Habitat	
Transect	Percent Crossing Aquatic Area
North	59.34
South	50.18
East	94.42
West	56.36
Average value for all Four Transects *Round to the nearest integer*	65

Worksheet 3: Calculating average buffer width of AA
Record the length of each buffer measurement.

Transect	Buffer Width (m)
A	250
B	250
C	250
D	250
E	250
F	250
G	250
H	250
Average Buffer Width *Round to nearest integer*	250

Percent of AA with Buffer: 100 **%**



361_CRAM_Vista_A-P_2023-0927.xd

Worksheet 4: Structural Patch Types for Vernal Pool Systems

Identify each type of patch that is observed in the AA and use the total number of observed patch types in Table 15. Each patch should occupy at least 3 m^2 of area in aggregate within the AA, with some exceptions (see definitions below).

Structural Patch Type	Check for Presence
Adjacent shrub or tree cover	
Animal mounds and burrows	✓
Bare soil	✓
Cobble and boulders	
Complexly-shaped pools	✓
Drainage branches (more than 1 drainage branch)	✓
Islands	✓
Large individual pools	✓
Large swales	
Mima mounds	✓
Patches of dense vegetation	
Pool Cluster	✓
Simply-shaped pools	✓
Small individual pools	✓
Small swales	✓
Soil cracks	✓
Within Pool Mounds	
Total Possible	**17**
No. Observed Patch Types (enter here and use in Table 15)	**12**



361_CRAM_Vista_A-P_2023-1004.xd

Worksheet 5: Pool and Swale Density for Vernal Pool Systems

Pool and Swale Density Worksheet		
Transect	Transect Length (m)	Length Crossing Pool or Swale (m)
Long Axis	246.5	88.9
Short Axis	123.7	18.9
Sum of Length (m)	370.2	107.8
Percent Pool and Swale (Sum of Pools & Swales/Sum of Transect Lengths)*100 *Round to nearest integer*		B

Worksheet 6: Rating of Topographic Complexity for Vernal Pool Systems

Replicate Number	**Replicate Score (A = 12; B = 9; C = 6; D = 3)**	
	Alpha.	*Numeric*
Replicate 1	A	12
Replicate 2	A	12
Replicate 3	A	12
Overall Average Score for All Pool Replicates *Round to nearest integer* (enter here and use in Table 19)		A

Worksheet 7: Rating of Horizontal Interspersion for Vernal Pool Systems

Replicate Number	**Replicate Score (A = 12; B = 9; C = 6; D = 3)**	
	Alpha.	*Numeric*
Replicate 1	A	12
Replicate 2	A	12
Replicate 3	A	12
Overall Average Score for All Pool Replicates *Round to nearest integer* (enter here and use in Table 21)		A

Worksheet 8: Plant Community Metric –
List of Unique Co-dominant Plant Species from all Vernal Pools Combined

Plant Name	Check if non-native	Check if in Appendix I	Pool 1	Pool 2	Pool 3
Eryngium castrense		✓	✓	✓	✓
Plagiobothrys stipitatus		✓		✓	✓
Juncus bufonius				✓	✓
Hordeum marinum ssp. *gussoneanum*	✓				✓
Croton setiger			✓		
Eleocharis acicularis			✓		
Psilocarphus brevissimus		✓		✓	
Lasthenia fremontii		✓		✓	
Total number of co-dominant species in each pool			3	5	4
Average number of co-dominant species *round to nearest integer* Enter here and use in Table 22	4				
Total number of co-dominant species (A)	8				
Total number of co-dominant species that are non-native (B)	1				
Percent non-native (B/A) x 100 *Round to nearest integer* Enter here and use in Table 23	12.5				
Total number of co-dominant species that are endemic Enter here and use in Table 24		4			

Pool Replicate 1

Worksheet 6a: Sketches of Vernal Pool Profiles for Topographic Complexity

Along the long axis of the pool and perpendicular to the long axis across the middle, make a sketch of the profile of each of the three pools from its outside edge (1-3m landward or away from the saturated zone of the pool) to its deepest areas then back out to the outside margin. Try to capture the major breaks in slope and the intervening micro-topographic relief. Based on the sketches, choose a single profile from Figure 9 that best represents the pool overall.

Long Axis

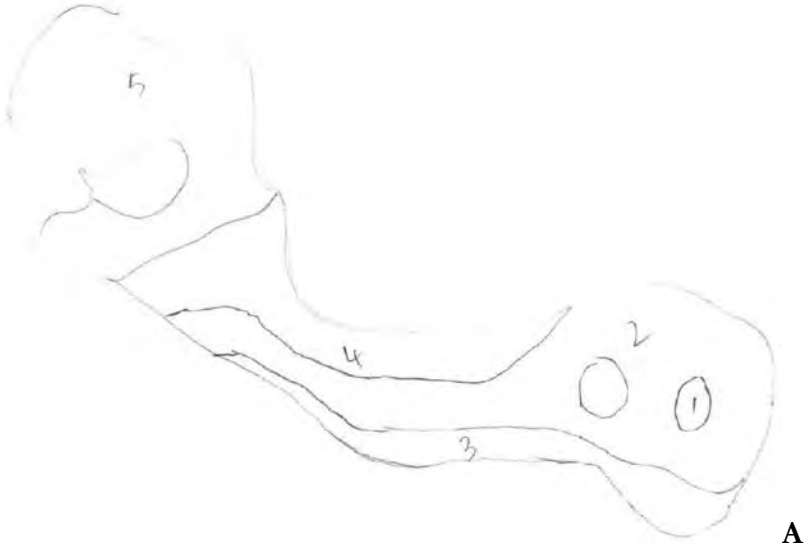


Perpendicular to Long Axis



Worksheet 7a: Sketch of Vernal Pool Horizontal Interspersion and Zonation

Pool 1



A

Assigned Zones:

1) deepest- no plants from dam

2) mostly CROSET

3) JUNBUF-CROSET

4) ERYCAS-CROSET

5) ERYCAS-ELEACI

Pool Replicate 2

Worksheet 6a: Sketches of Vernal Pool Profiles for Topographic Complexity

Along the long axis of the pool and perpendicular to the long axis across the middle, make a sketch of the profile of each of the three pools from its outside edge (1-3m landward or away from the saturated zone of the pool) to its deepest areas then back out to the outside margin. Try to capture the major breaks in slope and the intervening micro-topographic relief. Based on the sketches, choose a single profile from Figure 9 that best represents the pool overall.

Long Axis

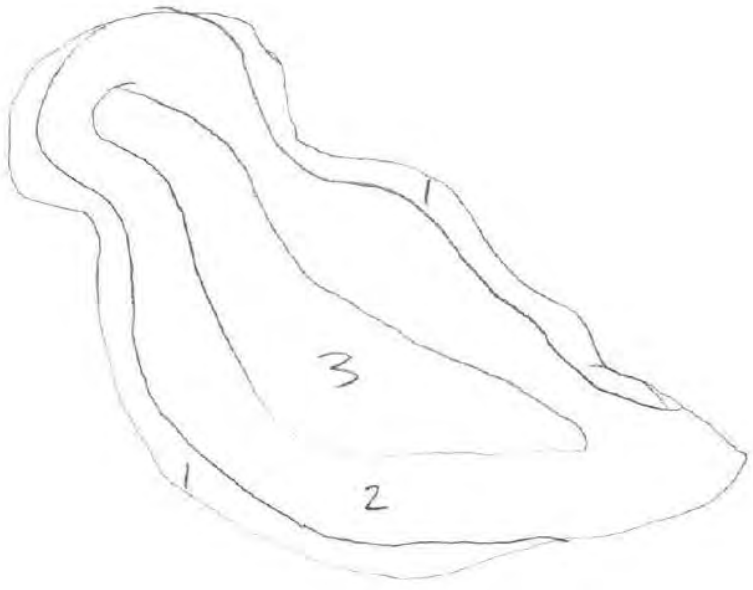


Perpendicular to Long Axis



Worksheet 7a: Sketch of Vernal Pool Horizontal Interspersion and Zonation

Pool 2



A

Assigned Zones:

1) JUNBUF-HORMARG

2) ERYCAS

3) PLASTIM-ERYCAS

4)

5)

Pool Replicate 3

Worksheet 6a: Sketches of Vernal Pool Profiles for Topographic Complexity

Along the long axis of the pool and perpendicular to the long axis across the middle, make a sketch of the profile of each of the three pools from its outside edge (1-3m landward or away from the saturated zone of the pool) to its deepest areas then back out to the outside margin. Try to capture the major breaks in slope and the intervening micro-topographic relief. Based on the sketches, choose a single profile from Figure 9 that best represents the pool overall.

Long Axis



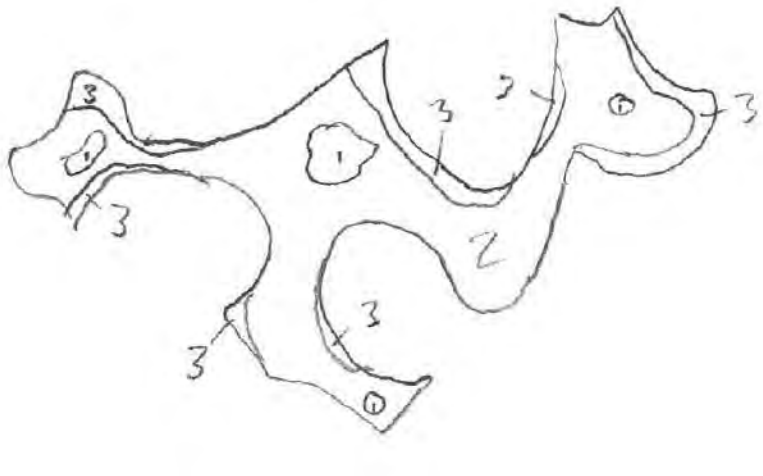
A

Perpendicular to Long Axis



Worksheet 7a: Sketch of Vernal Pool Horizontal Interspersion and Zonation

Pool 3



A

Assigned Zones:

1) PLASTIM

2) ERACYS

3) JUNBUF-HORMARG

4)

5)

Table 25: Wetland disturbances and conversions

Has a major disturbance occurred at this wetland?	Yes	(No)		
If yes, was it a flood, fire, landslide, or other?	flood	fire	landslide	other
If yes, then how severe is the disturbance?	likely to affect site next 5 or more years	likely to affect site next 3-5 years	likely to affect site next 1-2 years	
Has this wetland been converted from another type? If yes, then what was the previous type?	depressional	vernal pool	vernal pool system	
	non-confined riverine	confined riverine	bar-built estuarine	
	perennial saline estuarine	perennial non-saline estuarine	wet meadow	
	lacustrine	seep or spring	playa	

Worksheet 9: Stressor Checklist.

HYDROLOGY ATTRIBUTE (WITHIN 50 M OF AA)	Present	Present and likely to have significant negative effect on AA
Point Source (PS) discharges (POTW, other non-stormwater discharge)		
Non-point Source (Non-PS) discharges (urban runoff, farm drainage)		
Flow diversions or unnatural inflows		
Dams (reservoirs, detention basins, recharge basins)		
Flow obstructions (culverts, paved stream crossings)		
Weir/drop structure, tide gates		
Dredged inlet/channel		
Engineered channel (riprap, armored channel bank, bed)		
Dike/levees		
Groundwater extraction		
Ditches (borrow, agricultural drainage, mosquito control, etc.)		
Actively managed hydrology		
Comments		

PHYSICAL STRUCTURE ATTRIBUTE (WITHIN 50 M OF AA)	Present	Present and likely to have significant negative effect on AA
Filling or dumping of sediment or soils **(N/A for restoration areas)**		
Grading/ compaction **(N/A for restoration areas)**		
Plowing/Discing **(N/A for restoration areas)**		
Resource extraction (sediment, gravel, oil and/or gas)		
Vegetation management		
Excessive sediment or organic debris from watershed		
Excessive runoff from watershed		
Nutrient impaired (PS or Non-PS pollution)		
Heavy metal impaired (PS or Non-PS pollution)		
Pesticides or trace organics impaired (PS or Non-PS pollution)		
Bacteria and pathogens impaired (PS or Non-PS pollution)		
Trash or refuse		
Comments		
Cattle compaction, low intensity		

BIOTIC STRUCTURE ATTRIBUTE (WITHIN 50 M OF AA)	Present	Present and Likely to Have Significant negative effect on AA
Mowing, grazing, excessive herbivory (within AA)	✓	
Excessive human visitation		
Predation and habitat destruction by non-native vertebrates (e.g., *Virginia opossum* and domestic predators, such as feral pets)		
Tree cutting/sapling removal		
Removal of woody debris		
Treatment of non-native and nuisance plant species	✓	
Pesticide application or vector control		
Biological resource extraction or stocking (fisheries, aquaculture)		
Excessive organic debris in matrix (for vernal pools)		
Lack of vegetation management to conserve natural resources		
Lack of treatment of invasive plants adjacent to AA or buffer		
Comments		
Cattle grazing, presumed weed spot treatment		

BUFFER AND LANDSCAPE CONTEXT ATTRIBUTE (WITHIN 500 M OF AA)	Present	Present and likely to have significant negative effect on AA
Urban residential		
Industrial/commercial		
Military training/Air traffic		
Dams (or other major flow regulation or disruption)		
Dryland farming		
Intensive row-crop agriculture		
Orchards/nurseries		
Commercial feedlots		
Dairies		
Ranching (enclosed livestock grazing or horse paddock or feedlot)		
Transportation corridor		
Rangeland (livestock rangeland also managed for native vegetation)	✓	
Sports fields and urban parklands (golf courses, soccer fields, etc.)		
Passive recreation (bird-watching, hiking, etc.)		
Active recreation (off-road vehicles, mountain biking, hunting, fishing)		
Physical resource extraction (rock, sediment, oil/gas)		
Biological resource extraction (aquaculture, commercial fisheries)		
Comments		

Basic Information: Vernal Pool Systems

Assessment Area Name: VPS 4	
Project Name: Jamison Ranch/Madera Terrace Preserve	
Assessment Area ID #: VPS 4	
Project ID #: 361	**Date:** 9/29/23
Assessment Team Members for This AA	
M. Yonashiro, E. Smith	
AA Location: **Latitude:** 36.976734 **Longitude: -**119.842937 **Datum:** NAD83	
Wetland Category: ☒ Natural ☐ Constructed ☐ Restoration (Rehabilitation OR Enhancement)	
If Created or Restored, does the action encompass: ☐ entire wetland ☐ portion of the wetland ☒N/A	
What best describes the hydrologic state of the wetland at the time of assessment? ☐ ponded/inundated ☐ saturated soil, but no surface water ☒ dry	
Does the vernal pool system connect with the floodplain of a nearby stream? ☐ yes ☒ no	
Comments: The AA falls within the southeast pasture of the approximately 1920-acre Jamison Ranch, within the area proposed as a mitigation preserve for the Vista Ranch project.	

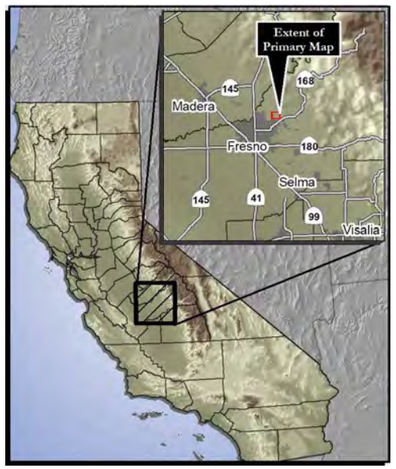
CRAM AA
Locations Map

Vista Ranch Development
Fresno County, California

D1
D2
R1
R2

Legend

Project Site (368 ac.)



Vollmar
NATURAL LANDS CONSULTING

Data Sources: VNLC, 2023 | USDA-WSS, 2023
ESRI/Maxar, 2023 | USGS, various | GAP, 2023
GIS/Cartography by: E. Smith, Sep. 2023
Map File: 361_Vista_AP_B-L_2023-0914.mxd

N
W E
S

1:7,200
(1 in. = 600 feet. at Tabloid Layout)

0 50 100 200 Meters
0 300 600 1,200 Feet

Photos and Descriptions:



AA VPS 4, from center / September 29, 2023 (N, 36.977014, -119.843063)



AA VPS 4, from center / September 29, 2023 (E, 36.977014, -119.843063)



AA VPS 4, from center / September 29, 2023 (S, 36.977014, -119.843063)



AA VPS 4, from center / September 29, 2023 (W, 36.977014, -119.843063)

Scoring Sheet: Vernal Pool Systems

AA Name: VPS 4					**Date:** 9/29/ 23	
Attributes and Metrics			Alpha.	Numeric	**Comments/Scores**	
Attribute 1: Buffer and Landscape Context (pp. 8-15)						
(A) Aquatic Area Abundance			A	12		
(B): *Percent of AA with Buffer*	Alpha.	Numeric				
	A	12				
(C): *Average Buffer Width*	A	12				
(D): *Buffer Condition*	B	9				
Initial Attribute Score = A + [D x (B x C)^{½}] ^{½}				21	**Final Attribute Score = (Initial Score/24) x 100**	87.5
Attribute 2: Hydrology (pp. 16-18)						
Water Source			A	12		
Hydroperiod			A	12		
Hydrologic Connectivity			A	12		
Initial Attribute Score= sum of metric scores			36		**Final Attribute Score = (Initial Score/36) x 100**	100
Attribute 3: Physical Structure (pp. 19-28)						
Structural Patch Richness			B	9		
Pool and Swale Density			C	6		
Topographic Complexity			A	12		
Initial Attribute Score= sum of metric scores			27		**Final Attribute Score = (Initial Score/36) x 100**	75
Attribute 4: Biotic Structure (pp. 29-34)						
Horizontal Interspersion and Zonation			B	9		
Plant Community submetric A: Number of Co-dominant species	Alpha.	Numeric				
	B	9				
Plant Community submetric B: Percent Non Native	B	9				
Plant Community submetric C: Endemic Species Richness	C	6				
Plant Community Composition Metric *(numeric average of submetrics A-C)*				8		
Initial Attribute Score= sum of metric scores			17		**Final Attribute Score = (Initial Score/24) x 100**	70.83
Overall AA Score (Average of four Final Attribute Scores)					**83**	



361_CRAM_Vista_A-P_2023-0927.xd

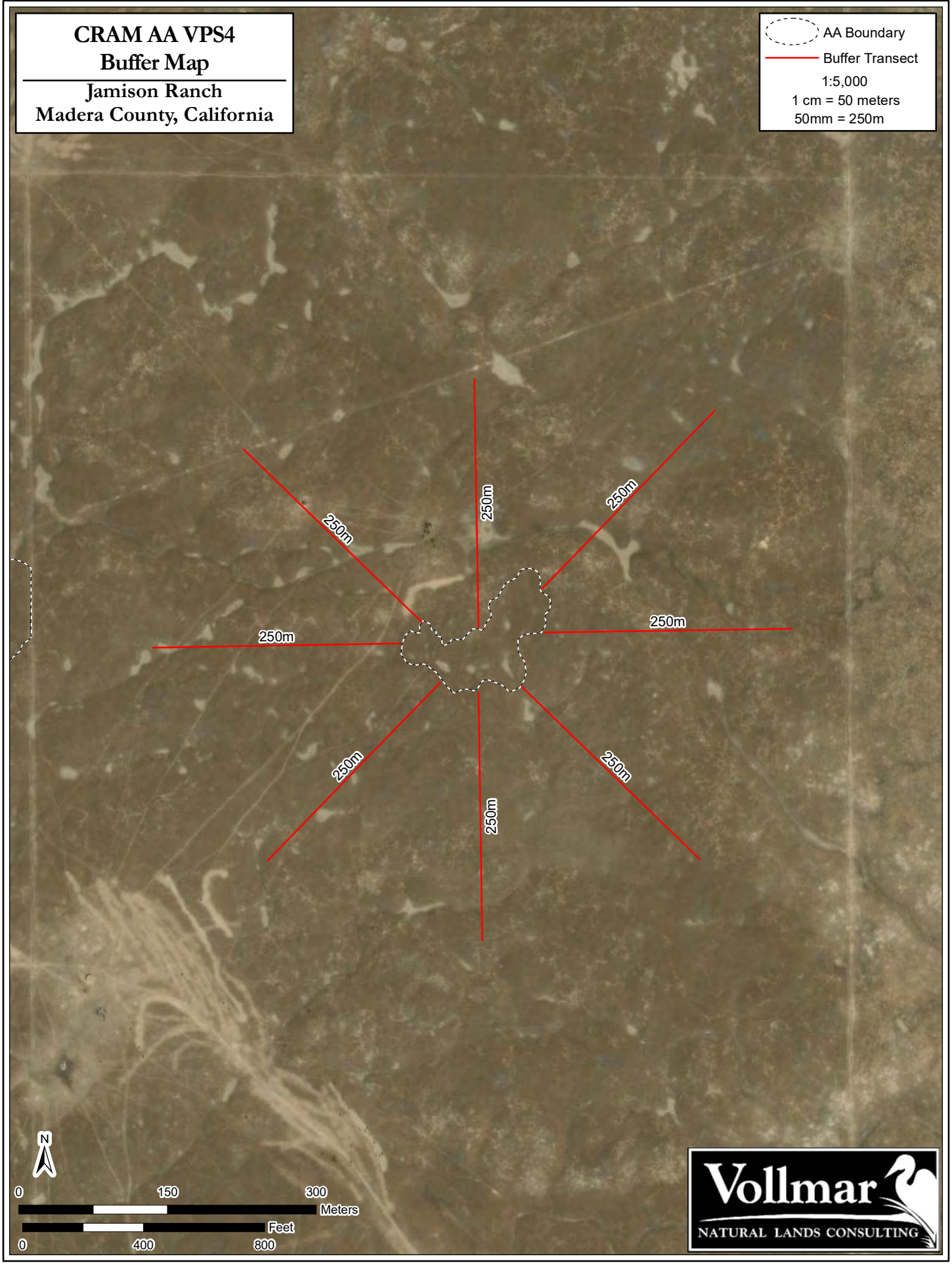
Worksheet 1: Aquatic Area Abundance for Vernal Pool Systems

Percentage of Each Transect Line Crossing Wetland or Other Aquatic Habitat	
Transect	Percent Crossing Aquatic Area
North	79.04
South	79.54
East	64.98
West	91.22
Average value for all Four Transects *Round to the nearest integer*	79

Worksheet 3: Calculating average buffer width of AA
Record the length of each buffer measurement.

Transect	**Buffer Width (m)**
A	250
B	250
C	250
D	250
E	250
F	250
G	250
H	250
Average Buffer Width *Round to nearest integer*	250

Percent of AA with Buffer: ____100____%



361_CRAM_Vista_A-P_2023-0927.xd

Worksheet 4: Structural Patch Types for Vernal Pool Systems

Identify each type of patch that is observed in the AA and use the total number of observed patch types in Table 15. Each patch should occupy at least 3 m^2 of area in aggregate within the AA, with some exceptions (see definitions below).

Structural Patch Type	Check for Presence
Adjacent shrub or tree cover	
Animal mounds and burrows	✓
Bare soil	
Cobble and boulders	
Complexly-shaped pools	✓
Drainage branches (more than 1 drainage branch)	✓
Islands	
Large individual pools	✓
Large swales	
Mima mounds	✓
Patches of dense vegetation	
Pool Cluster	✓
Simply-shaped pools	✓
Small individual pools	✓
Small swales	✓
Soil cracks	✓
Within Pool Mounds	
Total Possible	**17**
No. Observed Patch Types (enter here and use in Table 15)	**10**



361_CRAM_Vista_A-P_2023-1004.xd

Worksheet 5: Pool and Swale Density for Vernal Pool Systems

Pool and Swale Density Worksheet		
Transect	Transect Length (m)	Length Crossing Pool or Swale (m)
Long Axis	154.6	31
Short Axis	56.9	8.9
Sum of Length (m)	211.5	39.9
Percent Pool and Swale (Sum of Pools & Swales/Sum of Transect Lengths)*100 *Round to nearest integer*		18.87

Worksheet 6: Rating of Topographic Complexity for Vernal Pool Systems

Replicate Number	**Replicate Score (A = 12; B = 9; C = 6; D = 3)**	
	Alpha.	*Numeric*
Replicate 1	B	9
Replicate 2	A	12
Replicate 3	B	9
Overall Average Score for All Pool Replicates *Round to nearest integer* (enter here and use in Table 19)		10

Worksheet 7: Rating of Horizontal Interspersion for Vernal Pool Systems

Replicate Number	**Replicate Score (A = 12; B = 9; C = 6; D = 3)**	
	Alpha.	*Numeric*
Replicate 1	B	9
Replicate 2	C	6
Replicate 3	A	12
Overall Average Score for All Pool Replicates *Round to nearest integer* (enter here and use in Table 21)		9

Worksheet 8: Plant Community Metric –
List of Unique Co-dominant Plant Species from all Vernal Pools Combined

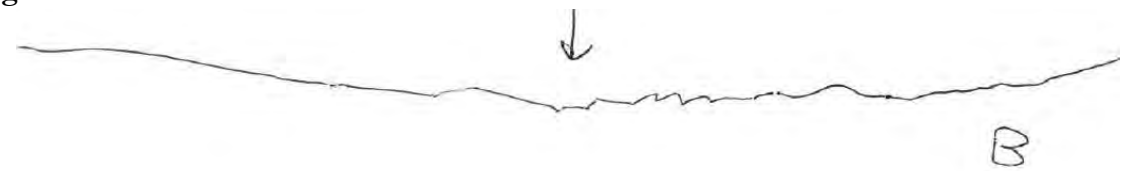
Plant Name	Check if non-native	Check if in Appendix I	Pool 1	Pool 2	Pool 3
Eryngium castrense		✓	✓	✓	✓
Hordeum marinum ssp. *gussoneanum*	✓				✓
Plagiobothrys acanthocarpus		✓			✓
Psilocarphus brevissimus		✓		✓	✓
Juncus bufonius			✓		✓
Plagiobothrys stipitatus		✓	✓	✓	
Total number of co-dominant species in each pool			3	3	5
Average number of co-dominant species *round to nearest integer* Enter here and use in Table 22	4				
Total number of co-dominant species (A)	6				
Total number of co-dominant species that are non-native (B)	1				
Percent non-native (B/A) x 100 *Round to nearest integer* Enter here and use in Table 23	17				
Total number of co-dominant species that are endemic Enter here and use in Table 24		4			

Pool Replicate 1

Worksheet 6a: Sketches of Vernal Pool Profiles for Topographic Complexity

Along the long axis of the pool and perpendicular to the long axis across the middle, make a sketch of the profile of each of the three pools from its outside edge (1-3m landward or away from the saturated zone of the pool) to its deepest areas then back out to the outside margin. Try to capture the major breaks in slope and the intervening micro-topographic relief. Based on the sketches, choose a single profile from Figure 9 that best represents the pool overall.

Long Axis



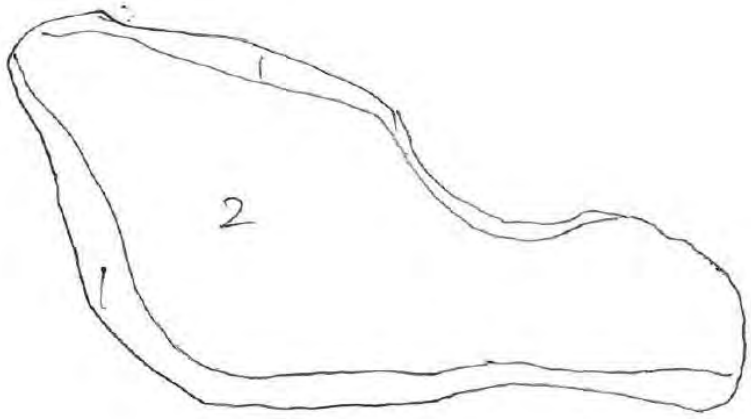
Perpendicular to Long Axis



B

Worksheet 7a: Sketch of Vernal Pool Horizontal Interspersion and Zonation

Pool 1



B

Assigned Zones:

1) JUNBUF-HORMARG

2) ERYCAS-PLASTIMIR

3)

4)

5)

Pool Replicate 2

Worksheet 6a: Sketches of Vernal Pool Profiles for Topographic Complexity

Along the long axis of the pool and perpendicular to the long axis across the middle, make a sketch of the profile of each of the three pools from its outside edge (1-3m landward or away from the saturated zone of the pool) to its deepest areas then back out to the outside margin. Try to capture the major breaks in slope and the intervening micro-topographic relief. Based on the sketches, choose a single profile from Figure 9 that best represents the pool overall.

Long Axis

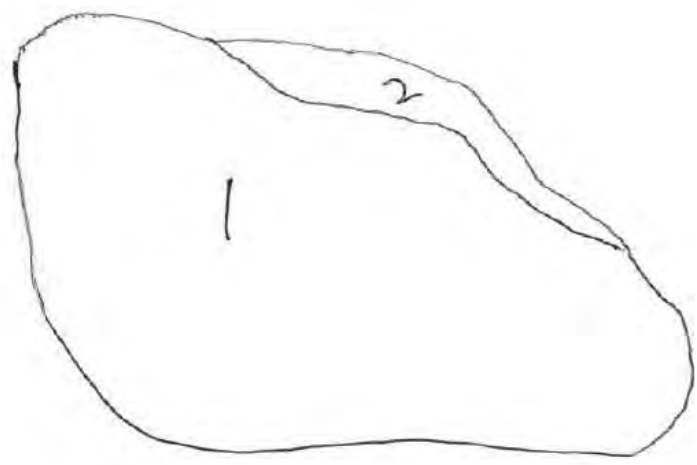


Perpendicular to Long Axis



Worksheet 7a: Sketch of Vernal Pool Horizontal Interspersion and Zonation

Pool 2



C

Assigned Zones:

1) ERYCAS-BRIBEB-PASLTIM

2) JUNBUF

3)

4)

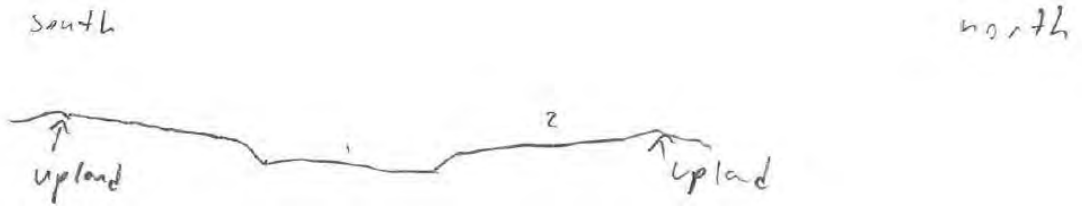
5)

Pool Replicate 3

Worksheet 6a: Sketches of Vernal Pool Profiles for Topographic Complexity

Along the long axis of the pool and perpendicular to the long axis across the middle, make a sketch of the profile of each of the three pools from its outside edge (1-3m landward or away from the saturated zone of the pool) to its deepest areas then back out to the outside margin. Try to capture the major breaks in slope and the intervening micro-topographic relief. Based on the sketches, choose a single profile from Figure 9 that best represents the pool overall.

Long Axis



Perpendicular to Long Axis



B

Worksheet 7a: Sketch of Vernal Pool Horizontal Interspersion and Zonation

Pool 3



A

Assigned Zones:

1) HORMARG

2) PLAACA

3) ERYCAS

4)

5)

Table 25: Wetland disturbances and conversions

Has a major disturbance occurred at this wetland?	Yes	(No)		
If yes, was it a flood, fire, landslide, or other?	flood	fire	landslide	other
If yes, then how severe is the disturbance?	likely to affect site next 5 or more years	likely to affect site next 3-5 years	likely to affect site next 1-2 years	
Has this wetland been converted from another type? If yes, then what was the previous type?	depressional	vernal pool	vernal pool system	
	non-confined riverine	confined riverine	bar-built estuarine	
	perennial saline estuarine	perennial non-saline estuarine	wet meadow	
	lacustrine	seep or spring	playa	

Worksheet 9: Stressor Checklist.

HYDROLOGY ATTRIBUTE (WITHIN 50 M OF AA)	Present	Present and likely to have significant negative effect on AA
Point Source (PS) discharges (POTW, other non-stormwater discharge)		
Non-point Source (Non-PS) discharges (urban runoff, farm drainage)		
Flow diversions or unnatural inflows		
Dams (reservoirs, detention basins, recharge basins)		
Flow obstructions (culverts, paved stream crossings)		
Weir/drop structure, tide gates		
Dredged inlet/channel		
Engineered channel (riprap, armored channel bank, bed)		
Dike/levees		
Groundwater extraction		
Ditches (borrow, agricultural drainage, mosquito control, etc.)		
Actively managed hydrology		
Comments		

PHYSICAL STRUCTURE ATTRIBUTE (WITHIN 50 M OF AA)	Present	Present and likely to have significant negative effect on AA
Filling or dumping of sediment or soils **(N/A for restoration areas)**		
Grading/ compaction **(N/A for restoration areas)**	✓	
Plowing/Discing **(N/A for restoration areas)**		
Resource extraction (sediment, gravel, oil and/or gas)		
Vegetation management		
Excessive sediment or organic debris from watershed		
Excessive runoff from watershed		
Nutrient impaired (PS or Non-PS pollution)		
Heavy metal impaired (PS or Non-PS pollution)		
Pesticides or trace organics impaired (PS or Non-PS pollution)		
Bacteria and pathogens impaired (PS or Non-PS pollution)		
Trash or refuse		
Comments		
Cattle compaction, low intensity		

BIOTIC STRUCTURE ATTRIBUTE (WITHIN 50 M OF AA)	Present	Present and Likely to Have Significant negative effect on AA
Mowing, grazing, excessive herbivory (within AA)	✓	
Excessive human visitation		
Predation and habitat destruction by non-native vertebrates (e.g., *Virginia opossum* and domestic predators, such as feral pets)		
Tree cutting/sapling removal		
Removal of woody debris		
Treatment of non-native and nuisance plant species	✓	
Pesticide application or vector control		
Biological resource extraction or stocking (fisheries, aquaculture)		
Excessive organic debris in matrix (for vernal pools)		
Lack of vegetation management to conserve natural resources		
Lack of treatment of invasive plants adjacent to AA or buffer		
Comments		
Cattle grazing, presumed weed spot treatment		

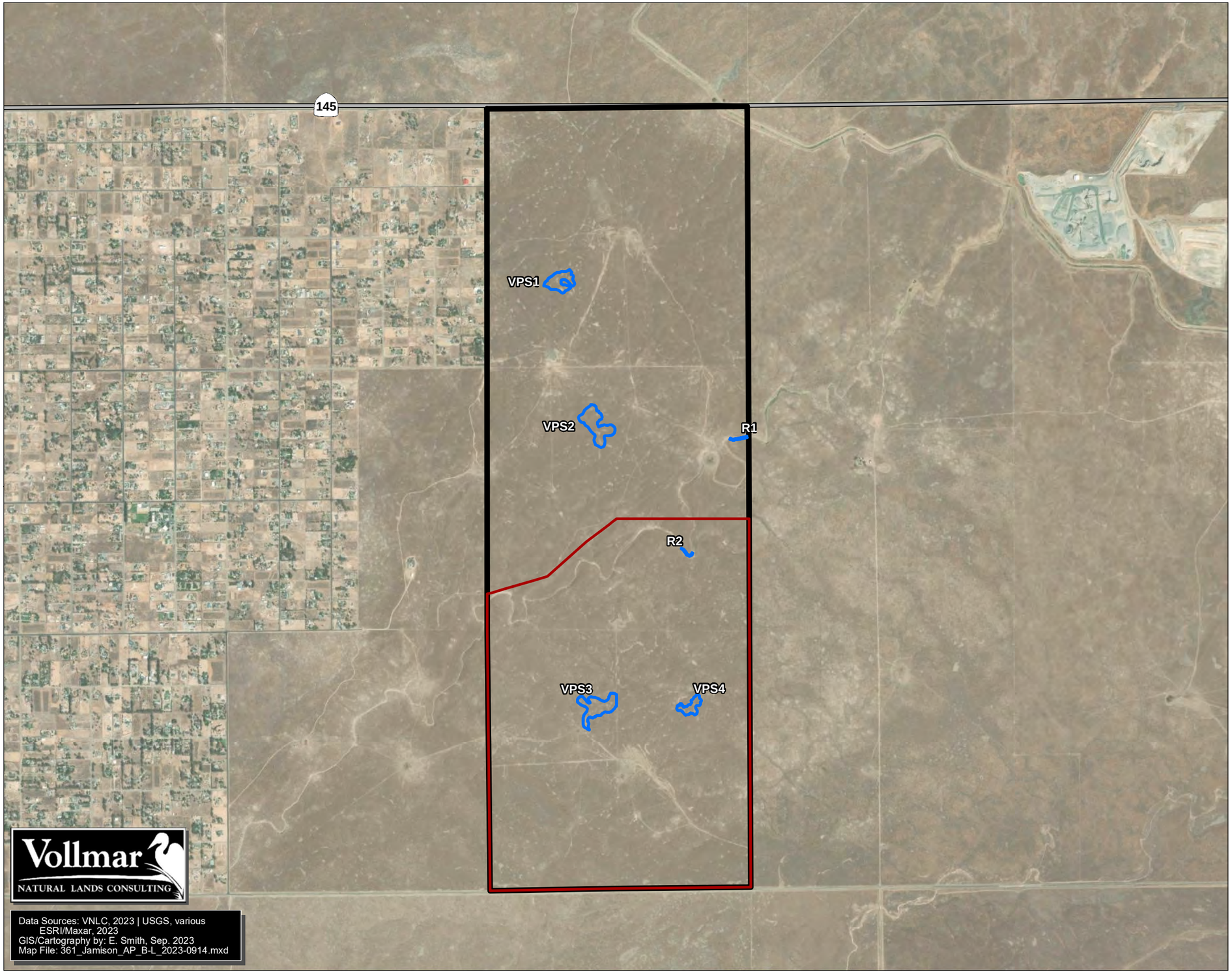
BUFFER AND LANDSCAPE CONTEXT ATTRIBUTE (WITHIN 500 M OF AA)	Present	Present and likely to have significant negative effect on AA
Urban residential		
Industrial/commercial		
Military training/Air traffic		
Dams (or other major flow regulation or disruption)		
Dryland farming		
Intensive row-crop agriculture		
Orchards/nurseries		
Commercial feedlots		
Dairies		
Ranching (enclosed livestock grazing or horse paddock or feedlot)		
Transportation corridor		
Rangeland (livestock rangeland also managed for native vegetation)	✓	
Sports fields and urban parklands (golf courses, soccer fields, etc.)		
Passive recreation (bird-watching, hiking, etc.)		
Active recreation (off-road vehicles, mountain biking, hunting, fishing)		
Physical resource extraction (rock, sediment, oil/gas)		
Biological resource extraction (aquaculture, commercial fisheries)		
Comments		

Basic Information Sheet: Riverine Wetlands

Assessment Area Name: Jamison R1	
Project Name: Jamison Ranch/Madera Terrace Preserve	
Assessment Area ID #: J-R1	
Project ID #: 361	**Date:** 2023-0928
Assessment Team Members for This AA:	
Eric Smith, Amy Merrill	
Average Bankfull Width: 3.87m	
Approximate Length of AA (10 times bankfull width, min 100 m, max 200 m)**:** 100m	
Upstream Point Latitude: 36.991850	**Longitude:** -119.839641
Downstream Point Latitude: 36.991770	**Longitude:** -119.840824
Wetland Sub-type: ☐ Confined ☒ Non-confined	
AA Category: ☐ Restoration ☒ Mitigation ☐ Impacted ☐ Ambient ☐ Reference ☐ Training ☐ Other: (Proposed mitigation preserve site, restoration not proposed)	
Did the river/stream have flowing water at the time of the assessment? ☐ yes ☑ no	
What is the apparent hydrologic flow regime of the reach you are assessing? The hydrologic flow regime of a stream describes the frequency with which the channel conducts water. *Perennial* streams conduct water all year long, whereas *ephemeral* streams conduct water only during and immediately following precipitation events. *Intermittent* streams are dry for part of the year, but conduct water for periods longer than ephemeral streams, as a function of watershed size and water source. ☐ perennial ☒ intermittent ☐ ephemeral	

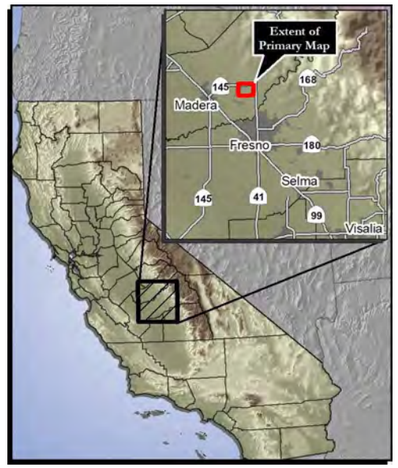
CRAM AA
Locations Map

Jamison Ranch
Madera County, California



Legend

- AA Boundary
- Proposed Preserve (857 ac.)
- Jamison Ranch (1,920 ac.)



Vollmar NATURAL LANDS CONSULTING

Data Sources: VNLC, 2023 | USGS, various ESRI/Maxar, 2023
GIS/Cartography by: E. Smith, Sep. 2023
Map File: 361_Jamison_AP_B-L_2023-0914.mxd

N
W E
S

1:24,000
(1 in. = 2,000 feet. at Tabloid Layout)

0 200 400 800 Meters
0 1,000 2,000 4,000 Feet

Photos and Descriptions:



Looking downstream from top of AA, 36.991892, -119.839783



Looking north up confluence at top of AA, 36.991892, -119.839783



Looking upstream from top of AA, 36.991892, -119.839783



Looking upstream from middle of AA, 36.991875, -119.839695



Looking upstream from middle of AA, 36.991875, -119.839695



Looking downstream from middle of AA, 36.991751, -119.840488



Looking downstream from middle of AA, 36.991751, -119.840488



Looking downstream from middle of AA, 36.991751, -119.840488



Looking south toward AA from north of AA, 36.991762, -119.840782



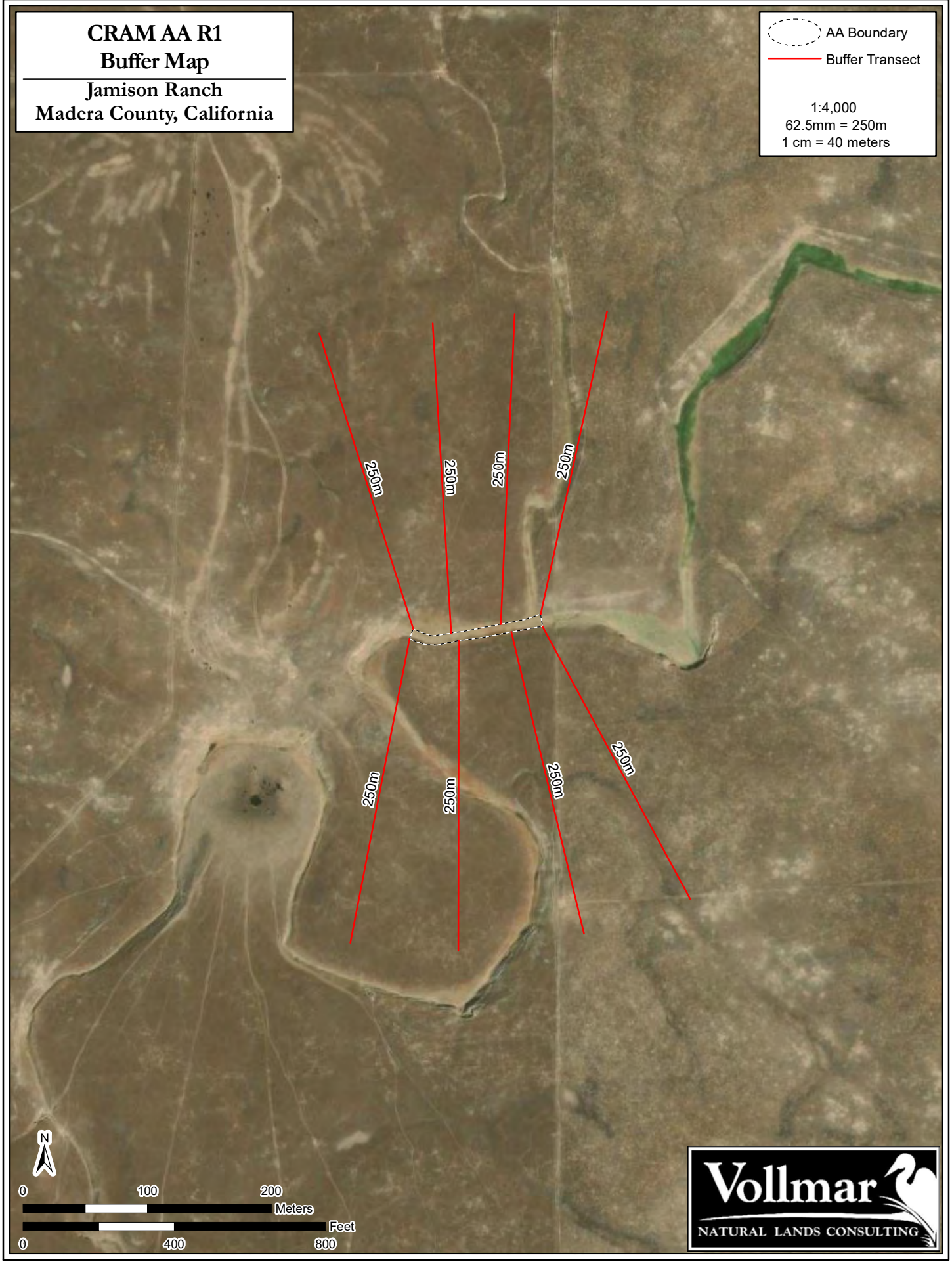
Looking southeast from northwest of AA, 36.991762, -119.840782

Site Location Description:
The AA is located along North Fork Little Dry Creek, near the eastern edge of the Jamison Ranch. The top of the AA is located where an ephemeral tributary joins the creek.

Comments:
The creek is an intermittent stream in a vernal pool grassland. The stream is cut down to a lower terrace than the vernal pools. The site lacks any woody vegetation. This stream supports brief flows in winter, and scattered pools that last into spring. The pools support California tiger salamander (*Ambystoma californiense*) breeding; they typically have submergent vegetation such as white water-crowsfoot (*Ranunculus aquatilis*) during the wet season, but that is lacking at the time of assessment. Conducting the assessment in spring would likely increase scores.

Scoring Sheet: Riverine Wetlands

AA Name: J-R1					**Date:** 2023-0928	
Attribute 1: Buffer and Landscape Context (pp. 11-19)					**Comments**	
Stream Corridor Continuity (D)			Alpha. A	Numeric 12	No obstructions	
Buffer:						
Buffer submetric A: Percent of AA with Buffer	Alpha. A	Numeric 12			No non-buffer land covers nearby	
Buffer submetric B: Average Buffer Width	A	12				
Buffer submetric C: Buffer Condition	B	9			Buffer is ranched vernal pool grass-land w/ dominant Eurasian grasses.	
Raw Attribute Score = $D+[C \times (A \times B)^{1/2}]^{1/2}$				22.39	**Final Attribute Score = (Raw Score/24) x 100**	93.30
Attribute 2: Hydrology (pp. 20-26)						
Water Source			Alpha. A	Numeric 12		
Channel Stability			A	12		
Hydrologic Connectivity			A	12		
Raw Attribute Score = sum of numeric scores				36	**Final Attribute Score = (Raw Score/36) x 100**	100
Attribute 3: Physical Structure (pp. 27-33)						
Structural Patch Richness			Alpha. D	Numeric 3	Score of C would be expected in wet season due to algae and submergent plants.	
Topographic Complexity			B	9		
Raw Attribute Score = sum of numeric scores				12	**Final Attribute Score = (Raw Score/24) x 100**	50
Attribute 4: Biotic Structure (pp. 34-41)						
Plant Community Composition (based on sub-metrics A-C)						
Plant Community submetric A: Number of plant layers	Alpha. C	Numeric 6			"B" in wet season due to submergents	
Plant Community submetric B: Number of Co-dominant species	D	3				
Plant Community submetric C: Percent Invasion	D	3				
Plant Community Composition Metric *(numeric average of submetrics A-C)*				4		
Horizontal Interspersion			C	6		
Vertical Biotic Structure			C	6		
Raw Attribute Score = sum of numeric scores				16	**Final Attribute Score = (Raw Score/36) x 100**	44.44
Overall AA Score (average of four final Attribute Scores)					**72**	



361_CRAM_Jami_A-P_2023-1004.xd

Worksheet for Stream Corridor Continuity Metric for Riverine Wetlands

Lengths of Non-buffer Segments For Distance of 500 m Upstream of AA		**Lengths of Non-buffer Segments For Distance of 500 m Downstream of AA**	
Segment No.	Length (m)	Segment No.	Length (m)
1	-	1	-
2	-	2	-
3	-	3	-
4	-	4	-
5	-	5	-
Upstream Total Length	0	Downstream Total Length	0

Percent of AA with Buffer Worksheet

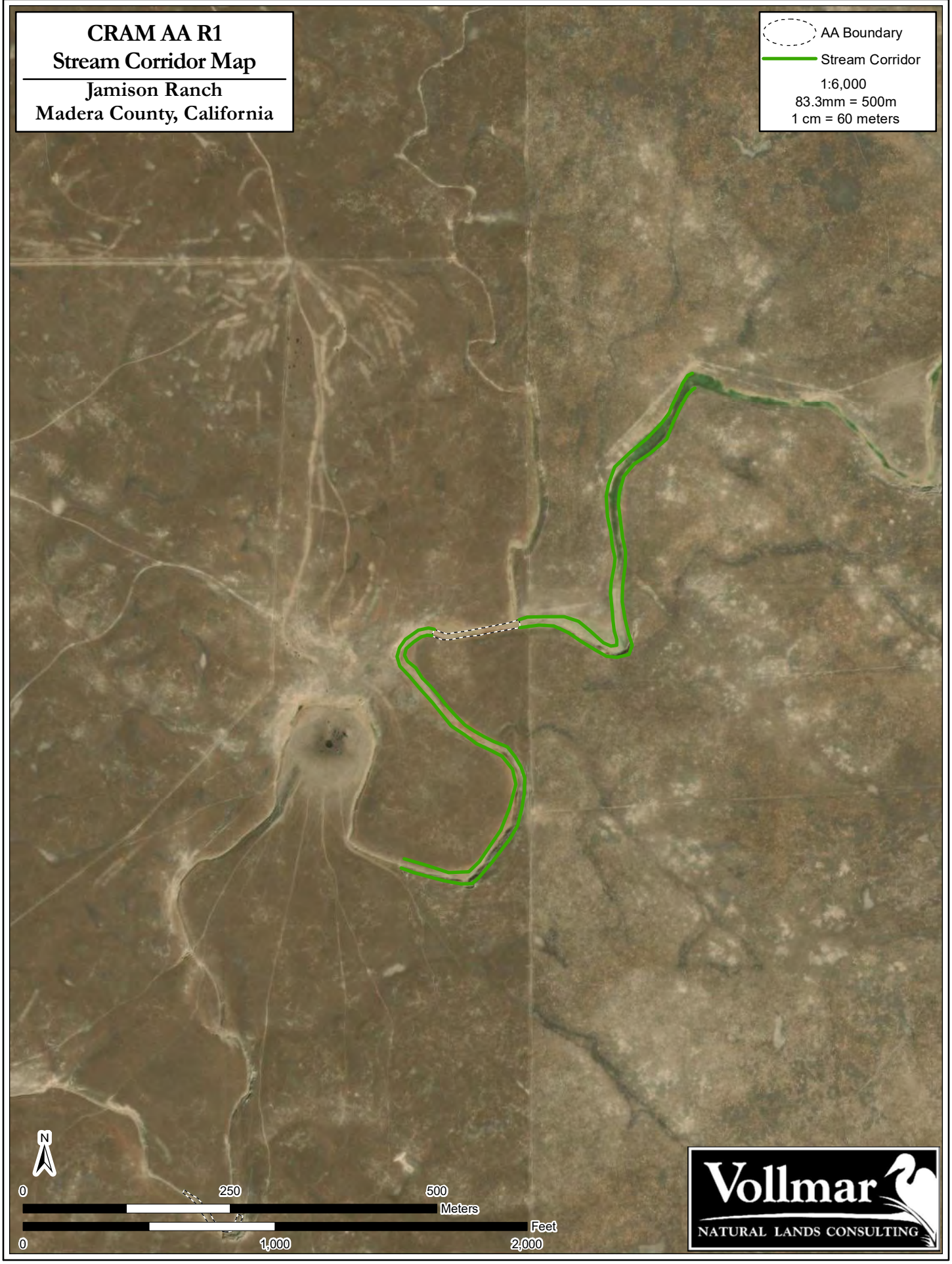
In the space provided below make a quick sketch of the AA, or perform the assessment directly on the aerial imagery; indicate where buffer is present, estimate the percentage of the AA perimeter providing buffer functions, and record the estimate amount in the space provided.

Percent of AA with Buffer: 100 **%**

Worksheet for calculating average buffer width of AA

Line	**Buffer Width (m)**
A	250
B	250
C	250
D	250
E	250
F	250
G	250
H	250
Average Buffer Width ***Round to the nearest integer***	250

CRAM AA R1
Stream Corridor Map
Jamison Ranch
Madera County, California



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361_CRAM_Vista_A-P_2023-0927.xd

Worksheet for Assessing Channel Stability for Riverine Wetlands

Condition	Field Indicators (check all existing conditions)
Indicators of Channel Equilibrium	☒ The channel (or multiple channels in braided systems) has a well-defined bankfull contour that clearly demarcates an obvious active floodplain in the cross-sectional profile of the channel throughout most of the AA. ☐ Perennial riparian vegetation is abundant and well established along the bankfull contour, but not below it. ☐ There is leaf litter, thatch, or wrack in most pools (if pools are present). ☐ The channel contains embedded woody debris of the size and amount consistent with what is naturally available in the riparian area. ☐ There is little or no active undercutting or burial of riparian vegetation. ☐ If mid-channel bars and/or point bars are present, they are not densely vegetated with perennial vegetation. ☐ Channel bars consist of well-sorted bed material (smaller grain size on the top and downstream end of the bar, larger grain size along the margins and upstream end of the bar). ☒ There are channel pools, the spacing between pools tends to be regular and the bed is not planar throughout the AA ☐ The larger bed material supports abundant mosses or periphyton.
Indicators of Active Degradation	☐ The channel is characterized by deeply undercut banks with exposed living roots of trees or shrubs. ☐ There are abundant bank slides or slumps. ☐ The lower banks are uniformly scoured and not vegetated. ☐ Riparian vegetation is declining in stature or vigor, or many riparian trees and shrubs along the banks are leaning or falling into the channel. ☐ An obvious historical floodplain has recently been abandoned, as indicated by the age structure of its riparian vegetation. ☐ The channel bed appears scoured to bedrock or dense clay. ☐ Recently active flow pathways appear to have coalesced into one channel (i.e. a previously braided system is no longer braided). ☐ The channel has one or more knickpoints indicating headward erosion of the bed.
Indicators of Active Aggradation	☐ There is an active floodplain with fresh splays of coarse sediment (sand and larger that is not vegetated) deposited in the current or previous year. ☐ There are partially buried living tree trunks or shrubs along the banks. ☐ The bed is planar (flat or uniform gradient) overall; it lacks well-defined channel pools, or they are uncommon and irregularly spaced. ☐ There are partially buried, or sediment-choked, culverts. ☐ Perennial terrestrial or riparian vegetation is encroaching into the channel or onto channel bars below the bankfull contour. ☐ There are avulsion channels on the floodplain or adjacent valley floor.
Overall	**☒ Equilibrium** **☐ Degradation** **☐ Aggradation**

Riverine Wetland Entrenchment Ratio Calculation Worksheet

The following 5 steps should be conducted for each of 3 cross-sections located in the AA at the approximate midpoints along straight riffles or glides, away from deep pools or meander bends. An attempt should be made to place them at the top, middle, and bottom of the AA.

Steps	Replicate Cross-sections ⟶	TOP	MID	BOT
1 Estimate bankfull width.	This is a critical step requiring familiarity with field indicators of the bankfull contour. Estimate or measure the distance between the right and left bankfull contours.	3.87	3.96	3.78
2: Estimate max. bankfull depth.	Imagine a level line between the right and left bankfull contours; estimate or measure the height of the line above the thalweg (the deepest part of the channel).	0.20	0.36	0.61
3: Estimate flood prone depth.	Double the estimate of maximum bankfull depth from Step 2.	0.4	0.72	1.21
4: Estimate flood prone width.	Imagine a level line having a height equal to the flood prone depth from Step 3; note where the line intercepts the right and left banks; estimate or measure the length of this line.	6.74	28	21
5: Calculate entrenchment ratio.	Divide the flood prone width (Step 4) by the bankfull width (Step 1).	2.16	7.07	5.56
6: Calculate average entrenchment ratio.	Calculate the average results for Step 5 for all 3 replicate cross-sections. Enter the average result here and use it in Table 13a or 13b.			4.93

Structural Patch Type Worksheet for Riverine wetlands

Circle each type of patch that is observed in the AA and enter the total number of observed patches in Table below. In the case of riverine wetlands, their status as confined or non-confined must first be determined (see page 6) to determine with patches are expected in the system (indicated by a "1" in the table below). Any feature onsite should only be counted once as a patch type. If a feature appears to meet the definition of more than one patch type (i.e. swale and secondary channel) the practitioner should choose which patch type best illustrates the feature. Not all features at a site will be patch types.

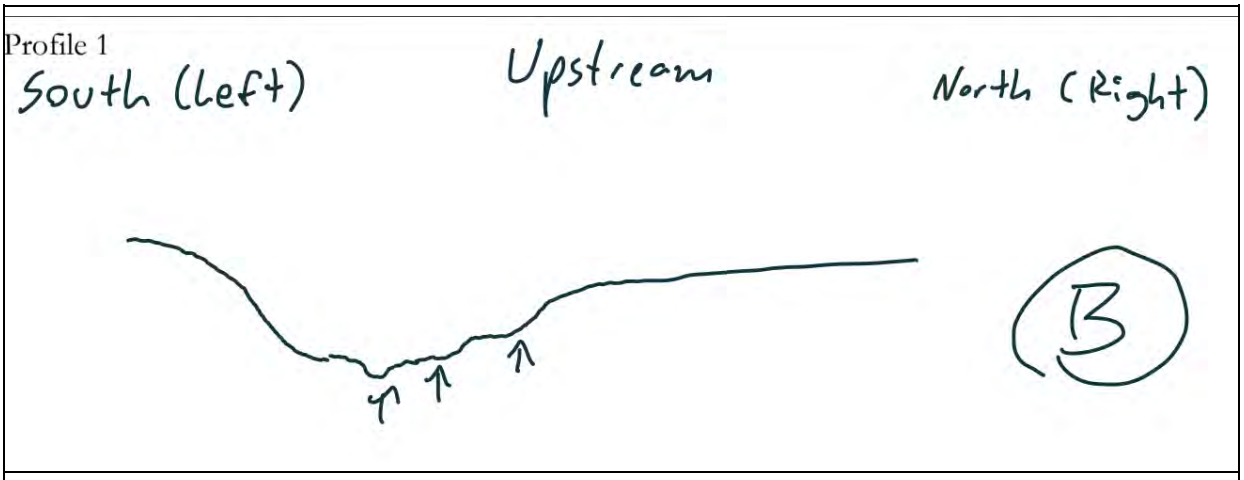
**Please refer to the CRAM Photo Dictionary at www.cramwetlands.org for photos of each of the following patch types.*

STRUCTURAL PATCH TYPE (circle for presence)	**Riverine (Non-confined)**	**Riverine (Confined)**
Minimum Patch Size	**3 m^2**	**3 m^2**
Abundant wrackline or organic debris in channel, on floodplain	**1**	**1**
Bank slumps or undercut banks in channels or along shoreline	**(1)**	**1**
Cobbles and/or Boulders	**1**	**1**
Debris jams	**1**	**1**
Filamentous macroalgae or algal mats	**1**	**1**
Large woody debris	**1**	**1**
Pannes or pools on floodplain	**1**	**N/A**
Plant hummocks and/or sediment mounds	**1**	**1**
Point bars and in-channel bars	**1**	**1**
Pools or depressions in channels (wet or dry channels)	**(1)**	**1**
Riffles or rapids (wet or dry channels)	**1**	**1**
Secondary channels on floodplains or along shorelines	**1**	**N/A**
Standing snags (at least 3 m tall)	**1**	**1**
Submerged vegetation	**1**	**N/A**
Swales on floodplain or along shoreline	**(1)**	**N/A**
Variegated, convoluted, or crenulated foreshore (instead of broadly arcuate or mostly straight)	**(1)**	**1**
Vegetated islands (mostly above high-water)	**1**	**N/A**
Total Possible	**17**	**12**
No. Observed Patch Types (enter here and use in Table 14 below)	4	

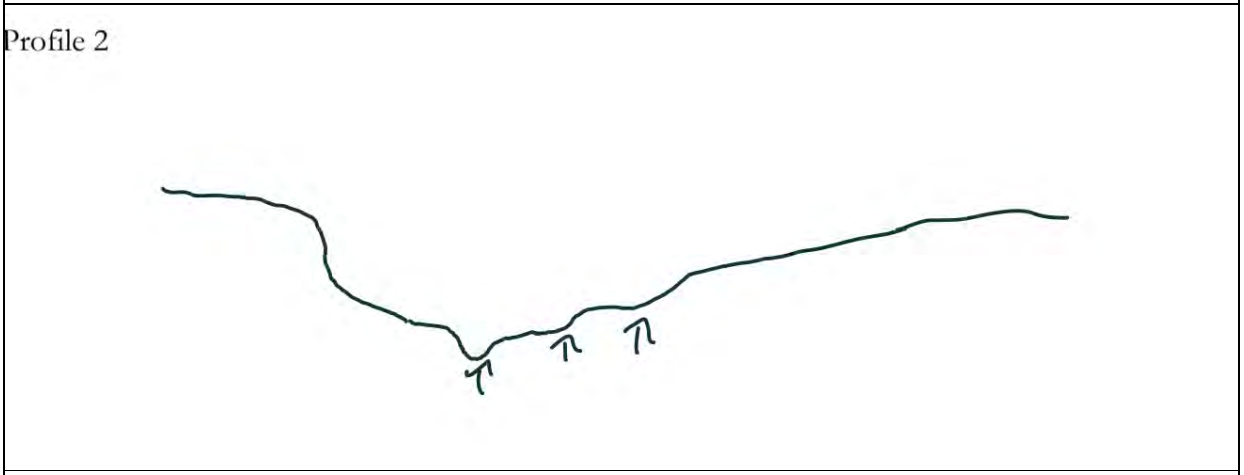
Worksheet for AA Topographic Complexity

At three locations along the AA, make a sketch of the profile of the stream from the AA boundary down to its deepest area then back out to the other AA boundary. Try to capture the benches and the intervening micro-topographic relief. To maintain consistency, make drawings at each of the stream hydrologic connectivity measurements, always facing downstream. Include the water level, an arrow at the bankfull contour, and label the benches. Based on these sketches and the profiles in Figure 10, choose a description in Table 16 that best describes the overall topographic complexity of the AA.

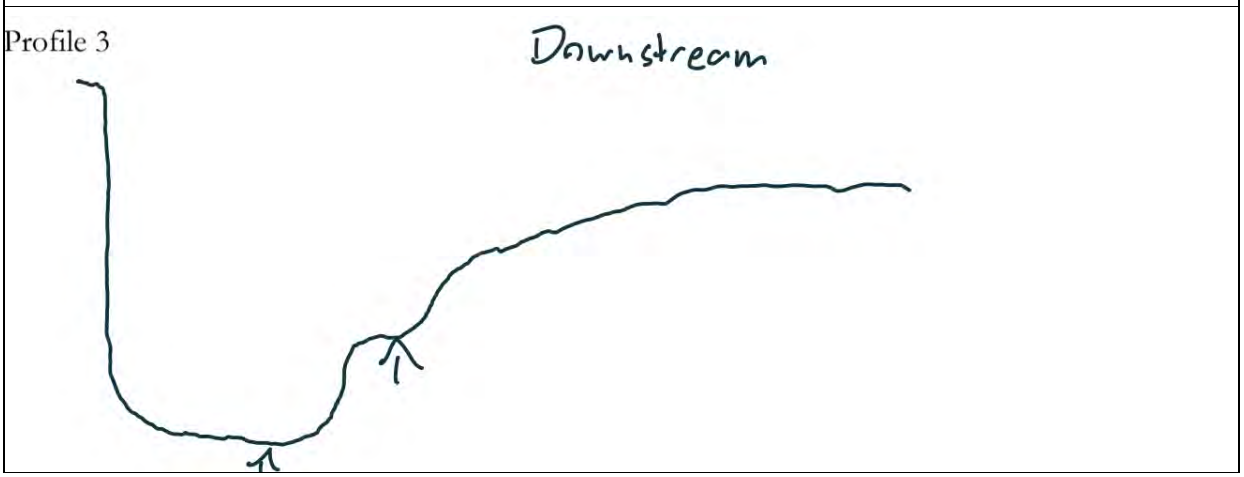
Profile 1



Profile 2



Profile 3



Plant Community Metric Worksheet: Co-dominant species richness for Riverine wetlands
(A dominant species represents ≥10% *relative* cover)

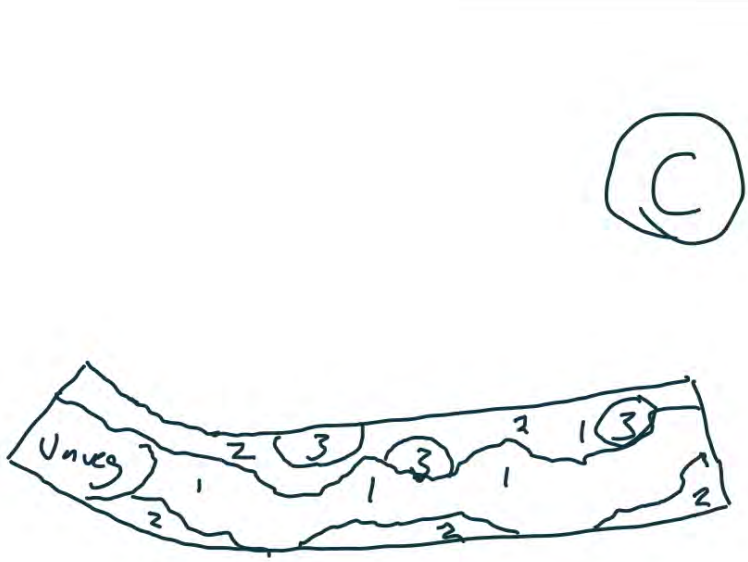
Special Note:

* *Combine the counts of co-dominant species from all layers to identify the total species count. Each plant species is only counted once when calculating the Number of Co-dominant Species and Percent Invasion submetric scores, regardless of the numbers of layers in which it occurs.*

Floating or Canopy-forming (non-confined only)	**Invasive?**	**Short (<0.5 m)**	**Invasive?**
n/a (Ranunculus aquatilis present in		*Cynodon dactylon*	✓
wet season)		*Hordeum marinum* ssp. *gussoneanum*	✓
Medium (0.5-1.5 m)	**Invasive?**	**Tall (1.5-3.0 m)**	**Invasive?**
Hordeum marinum ssp. *gussoneanum*	✓		
Acmispon sp.			
Very Tall (>3.0 m)	**Invasive?**	**Total number of co-dominant species for all layers combined (enter here and use in Table 18)**	3
		Percent Invasion *Round to the nearest integer* (enter here and use in Table 18)	67

Horizontal Interspersion Worksheet.

Use the spaces below to make a quick sketch of the AA in plan view, outlining the major plant zones (this should take no longer than 10 minutes). Assign the zones names and record them on the right. Based on the sketch, choose a single profile from Figure 12 that best represents the AA overall.



Assigned zones:

1) **CYNDAC**

2) **HORMARG**

3) **Acmispon sp.**

4)

5)

6)

Worksheet for Wetland disturbances and conversions

Has a major disturbance occurred at this wetland?	Yes	No		
If yes, was it a flood, fire, landslide, or other?	flood	fire	landslide	other
If yes, then how severe is the disturbance?	likely to affect site next 5 or more years	likely to affect site next 3-5 years	likely to affect site next 1-2 years	
Has this wetland been converted from another type? If yes, then what was the previous type? **No, N/A**	depressional	vernal pool	vernal pool system	
	non-confined riverine	confined riverine	seasonal estuarine	
	perennial saline estuarine	perennial non-saline estuarine	wet meadow	
	lacustrine	seep or spring	playa	

Stressor Checklist Worksheet

HYDROLOGY ATTRIBUTE (WITHIN 50 M OF AA)	Present	Significant negative effect on AA
Point Source (PS) discharges (POTW, other non-stormwater discharge)		
Non-point Source (Non-PS) discharges (urban runoff, farm drainage)		
Flow diversions or unnatural inflows		
Dams (reservoirs, detention basins, recharge basins)		
Flow obstructions (culverts, paved stream crossings)		
Weir/drop structure, tide gates		
Dredged inlet/channel		
Engineered channel (riprap, armored channel bank, bed)		
Dike/levees		
Groundwater extraction		
Ditches (borrow, agricultural drainage, mosquito control, etc.)		
Actively managed hydrology		
Comments		

PHYSICAL STRUCTURE ATTRIBUTE (WITHIN 50 M OF AA)	Present	Significant negative effect on AA
Filling or dumping of sediment or soils **(N/A for restoration areas)**		
Grading/ compaction **(N/A for restoration areas)**	✓	
Plowing/Discing **(N/A for restoration areas)**		
Resource extraction (sediment, gravel, oil and/or gas)		
Vegetation management		
Excessive sediment or organic debris from watershed		
Excessive runoff from watershed		
Nutrient impaired (PS or Non-PS pollution)		
Heavy metal impaired (PS or Non-PS pollution)		
Pesticides or trace organics impaired (PS or Non-PS pollution)		
Bacteria and pathogens impaired (PS or Non-PS pollution)	✓	
Trash or refuse		
Comments		
Assumed minor compaction and bacterial input from cattle; no direct evidence.		

BIOTIC STRUCTURE ATTRIBUTE (WITHIN 50 M OF AA)	Present	Significant negative effect on AA
Mowing, grazing, excessive herbivory (within AA)	✓	✓
Excessive human visitation		
Predation and habitat destruction by non-native vertebrates (e.g., *Virginia opossum* and domestic predators, such as feral pets)		
Tree cutting/sapling removal		
Removal of woody debris		
Treatment of non-native and nuisance plant species		
Pesticide application or vector control		
Biological resource extraction or stocking (fisheries, aquaculture)		
Excessive organic debris in matrix (for vernal pools)		
Lack of vegetation management to conserve natural resources	✓	✓
Lack of treatment of invasive plants adjacent to AA or buffer	✓	✓
Comments		
Cattle have free access, preventing establishment of any woody vegetation. Invasive grasses are dominant within and near the AA.		

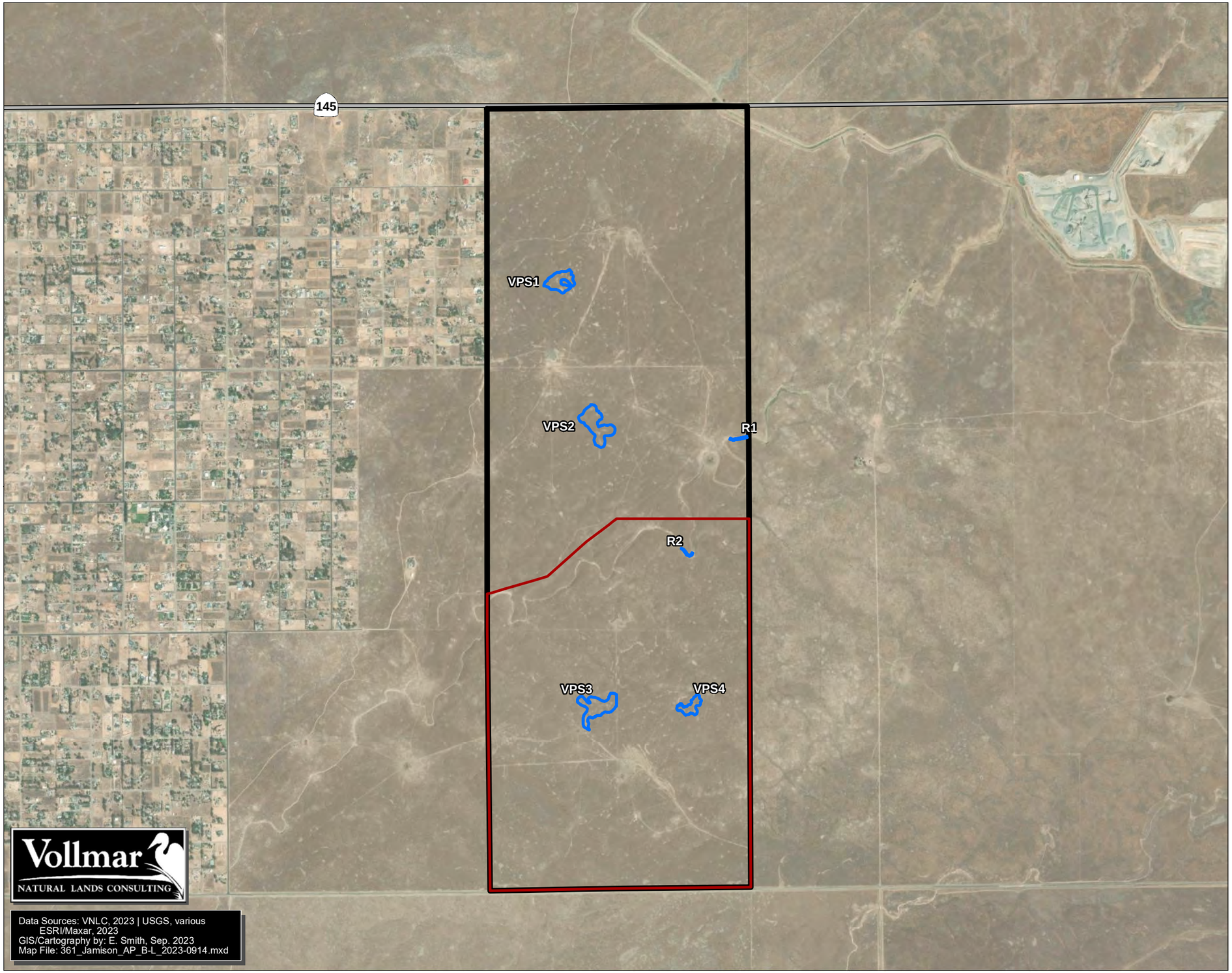
BUFFER AND LANDSCAPE CONTEXT ATTRIBUTE (WITHIN 500 M OF AA)	Present	Significant negative effect on AA
Urban residential		
Industrial/commercial		
Military training/Air traffic		
Dams (or other major flow regulation or disruption)		
Dryland farming		
Intensive row-crop agriculture		
Orchards/nurseries		
Commercial feedlots		
Dairies		
Ranching (enclosed livestock grazing or horse paddock or feedlot)		
Transportation corridor		
Rangeland (livestock rangeland also managed for native vegetation)	✓	
Sports fields and urban parklands (golf courses, soccer fields, etc.)		
Passive recreation (bird-watching, hiking, etc.)		
Active recreation (off-road vehicles, mountain biking, hunting, fishing)		
Physical resource extraction (rock, sediment, oil/gas)		
Biological resource extraction (aquaculture, commercial fisheries)		
Comments		
AA is part of an active cattle ranch. Cattle management within 500m is generally beneficial due to thatch control within the vernal pool grasslands (and associated management by the ranchers).		

Basic Information Sheet: Riverine Wetlands

Assessment Area Name: Jamison R2	
Project Name: Jamison Ranch/Madera Terrace Preserve	
Assessment Area ID #: J-R2	
Project ID #: 361	**Date:** 2023-0928
Assessment Team Members for This AA:	
Eric Smith, Amy Merrill	
Average Bankfull Width: 1.89m	
Approximate Length of AA (10 times bankfull width, min 100 m, max 200 m)**:** 100m	
Upstream Point Latitude: 36.985413	**Longitude:** -119.843492
Downstream Point Latitude: 36.985706	**Longitude:** -119.844293
Wetland Sub-type: ☒ Confined ☐ Non-confined	
AA Category: ☐ Restoration ☒ Mitigation ☐ Impacted ☐ Ambient ☐ Reference ☐ Training ☐ Other: Proposed preserve	
Did the river/stream have flowing water at the time of the assessment? ☐ yes ☒ no	
What is the apparent hydrologic flow regime of the reach you are assessing? The hydrologic flow regime of a stream describes the frequency with which the channel conducts water. *Perennial* streams conduct water all year long, whereas *ephemeral* streams conduct water only during and immediately following precipitation events. *Intermittent* streams are dry for part of the year, but conduct water for periods longer than ephemeral streams, as a function of watershed size and water source. ☐ perennial ☒ intermittent ☐ ephemeral	

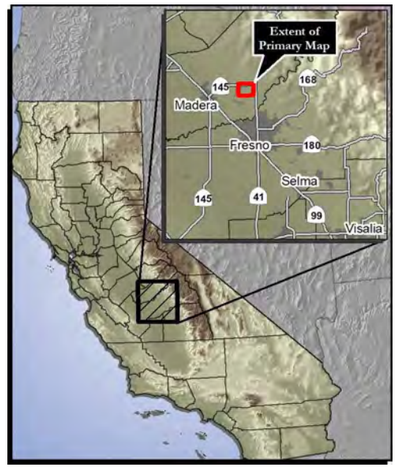
CRAM AA
Locations Map

Jamison Ranch
Madera County, California



Legend

- AA Boundary
- Proposed Preserve (857 ac.)
- Jamison Ranch (1,920 ac.)



Vollmar NATURAL LANDS CONSULTING

Data Sources: VNLC, 2023 | USGS, various ESRI/Maxar, 2023
GIS/Cartography by: E. Smith, Sep. 2023
Map File: 361_Jamison_AP_B-L_2023-0914.mxd

N
W E
S

1:24,000
(1 in. = 2,000 feet. at Tabloid Layout)

0 200 400 800 Meters
0 1,000 2,000 4,000 Feet

Photos and Descriptions:



Looking upstream from top of AA, 36.985464, -119.843538



Looking downstream from top of AA, 36.985464, -119.843538



Looking upstream from middle of AA, 36.985441, -119.843909



Looking downstream from middle of AA, 36.985441, -119.843909



Looking upstream from bottom of AA, 36.98573, -119.844275



Looking downstream from bottom of AA, 36.98573, -119.844275



Stream near AA with clearly-defined bankfull and flood-prone contours (indicated by arrows)

Site Location Description:
The AA is located along North Fork Little Dry Creek, near the center of the Jamison Ranch, and within the proposed preserve area.

Comments:
This AA is within a somewhat incised portion of the stream, where it makes a tight turn against the hillside. The bottom is very sandy and largely unvegetated. The bankfull contour is very clear, and the flood-prone area is also clearly visible within the incised channel, making it clear that the relatively high flows of 2023 did not escape the incised channel. Like J-R1, this stream has pools that support California tiger salamander (*Ambystoma californiense*) breeding; they typically have submergent vegetation such as white water-crowsfoot (*Ranunculus aquatilis*) during the wet season, but that is lacking at the time of assessment. Conducting the assessment in spring would likely increase scores.

Scoring Sheet: Riverine Wetlands

AA Name: J-R2					**Date:** 2023-0928	
Attribute 1: Buffer and Landscape Context (pp. 11-19)					**Comments**	
Stream Corridor Continuity (D)			Alpha. A	Numeric 12	No obstructions	
Buffer:						
Buffer submetric A: Percent of AA with Buffer	Alpha. A	Numeric 12			No non-buffer land covers nearby	
Buffer submetric B: Average Buffer Width	A	12				
Buffer submetric C: Buffer Condition	B	9			Buffer is ranched vernal pool grass-land w/ dominant Eurasian grasses.	
Raw Attribute Score = $D+[C \times (A \times B)^{1/2}]^{1/2}$				22.39	**Final Attribute Score = (Raw Score/24) x 100**	93.30
Attribute 2: Hydrology (pp. 20-26)						
Water Source			Alpha. A	Numeric 12		
Channel Stability			A	12	Channel entrenched, but is now stable	
Hydrologic Connectivity			C	6	Low score due to entrenchment	
Raw Attribute Score = sum of numeric scores				30	**Final Attribute Score = (Raw Score/36) x 100**	83.33
Attribute 3: Physical Structure (pp. 27-33)						
Structural Patch Richness			Alpha. D	Numeric 3	Score of C would be expected in wet season due to algae and submergent plants.	
Topographic Complexity			B	6	B2, 1 bench and bumpy	
Raw Attribute Score = sum of numeric scores				9	**Final Attribute Score = (Raw Score/24) x 100**	37.5
Attribute 4: Biotic Structure (pp. 34-41)						
Plant Community Composition (based on sub-metrics A-C)						
Plant Community submetric A: Number of plant layers	Alpha. C	Numeric 6				
Plant Community submetric B: Number of Co-dominant species	D	3				
Plant Community submetric C: Percent Invasion	D	3				
Plant Community Composition Metric *(numeric average of submetrics A-C)*				4		
Horizontal Interspersion			D	3		
Vertical Biotic Structure			B	9		
Raw Attribute Score = sum of numeric scores				16	**Final Attribute Score = (Raw Score/36) x 100**	44.44
Overall AA Score (average of four final Attribute Scores)					**65**	

CRAM AA R2
Stream Corridor Map
Jamison Ranch
Madera County, California



361_CRAM_Vista_A-P_2023-0927.xd

Worksheet for Stream Corridor Continuity Metric for Riverine Wetlands

Lengths of Non-buffer Segments For Distance of 500 m Upstream of AA		**Lengths of Non-buffer Segments For Distance of 500 m Downstream of AA**	
Segment No.	Length (m)	Segment No.	Length (m)
1	-	1	-
2	-	2	-
3	-	3	-
4	-	4	-
5	-	5	-
Upstream Total Length	0	Downstream Total Length	0

Percent of AA with Buffer Worksheet

In the space provided below make a quick sketch of the AA, or perform the assessment directly on the aerial imagery; indicate where buffer is present, estimate the percentage of the AA perimeter providing buffer functions, and record the estimate amount in the space provided.

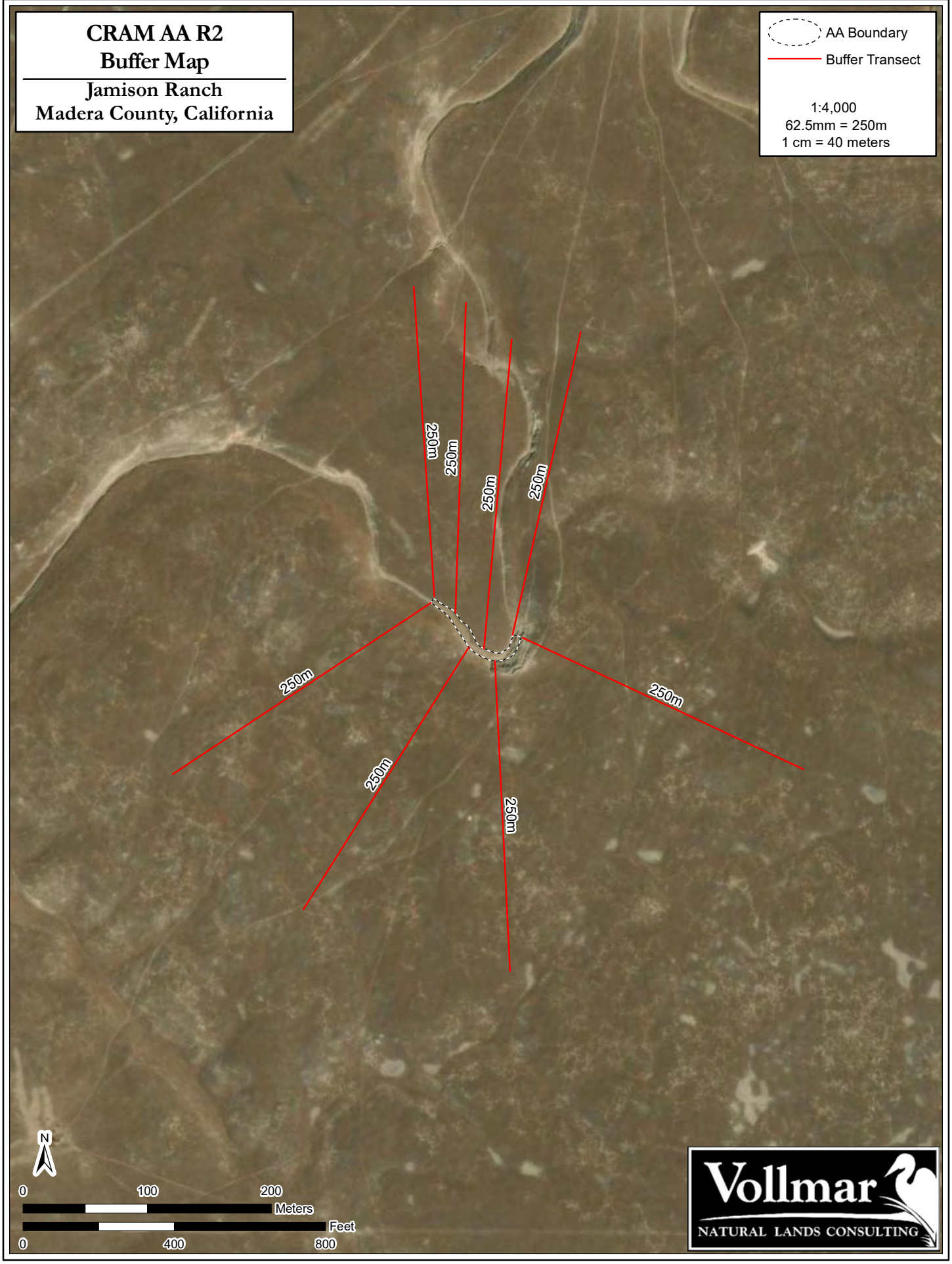
Percent of AA with Buffer: 100 **%**

Worksheet for calculating average buffer width of AA

Line	**Buffer Width (m)**
A	250
B	250
C	250
D	250
E	250
F	250
G	250
H	250
Average Buffer Width ***Round to the nearest integer***	250

CRAM AA R2
Buffer Map

Jamison Ranch
Madera County, California



361_CRAM_Jami_A-P_2023-1004.xd

Worksheet for Assessing Channel Stability for Riverine Wetlands

Condition	Field Indicators (check all existing conditions)
Indicators of Channel Equilibrium	☐The channel (or multiple channels in braided systems) has a well-defined bankfull contour that clearly demarcates an obvious active floodplain in the cross-sectional profile of the channel throughout most of the AA. ☐Perennial riparian vegetation is abundant and well established along the bankfull contour, but not below it. ☐There is leaf litter, thatch, or wrack in most pools (if pools are present). ☐The channel contains embedded woody debris of the size and amount consistent with what is naturally available in the riparian area. ☐There is little or no active undercutting or burial of riparian vegetation. ☐If mid-channel bars and/or point bars are present, they are not densely vegetated with perennial vegetation. ☐Channel bars consist of well-sorted bed material (smaller grain size on the top and downstream end of the bar, larger grain size along the margins and upstream end of the bar). ☐There are channel pools, the spacing between pools tends to be regular and the bed is not planar throughout the AA ☐The larger bed material supports abundant mosses or periphyton.
Indicators of Active Degradation	☒The channel is characterized by deeply undercut banks with exposed living roots of trees or shrubs. ☐There are abundant bank slides or slumps. ☒The lower banks are uniformly scoured and not vegetated. ☐Riparian vegetation is declining in stature or vigor, or many riparian trees and shrubs along the banks are leaning or falling into the channel. ☐An obvious historical floodplain has recently been abandoned, as indicated by the age structure of its riparian vegetation. ☐The channel bed appears scoured to bedrock or dense clay. ☐Recently active flow pathways appear to have coalesced into one channel (i.e. a previously braided system is no longer braided). ☐The channel has one or more knickpoints indicating headward erosion of the bed.
Indicators of Active Aggradation	☐There is an active floodplain with fresh splays of coarse sediment (sand and larger that is not vegetated) deposited in the current or previous year. ☐There are partially buried living tree trunks or shrubs along the banks. ☐The bed is planar (flat or uniform gradient) overall; it lacks well-defined channel pools, or they are uncommon and irregularly spaced. ☐There are partially buried, or sediment-choked, culverts. ☐Perennial terrestrial or riparian vegetation is encroaching into the channel or onto channel bars below the bankfull contour. ☐There are avulsion channels on the floodplain or adjacent valley floor.
Overall	**☒ Equilibrium** **☐ Degradation** **☐ Aggradation**

Riverine Wetland Entrenchment Ratio Calculation Worksheet

The following 5 steps should be conducted for each of 3 cross-sections located in the AA at the approximate midpoints along straight riffles or glides, away from deep pools or meander bends. An attempt should be made to place them at the top, middle, and bottom of the AA.

Steps	Replicate Cross-sections ⟶	TOP	MID	BOT
1 Estimate bankfull width.	This is a critical step requiring familiarity with field indicators of the bankfull contour. Estimate or measure the distance between the right and left bankfull contours.	2.06	1.83	1.78
2: Estimate max. bankfull depth.	Imagine a level line between the right and left bankfull contours; estimate or measure the height of the line above the thalweg (the deepest part of the channel).	30	25	23
3: Estimate flood prone depth.	Double the estimate of maximum bankfull depth from Step 2.	60	50	46
4: Estimate flood prone width.	Imagine a level line having a height equal to the flood prone depth from Step 3; note where the line intercepts the right and left banks; estimate or measure the length of this line.	2.97	2.87	2.34
5: Calculate entrenchment ratio.	Divide the flood prone width (Step 4) by the bankfull width (Step 1).	1.44	1.57	1.31
6: Calculate average entrenchment ratio.	Calculate the average results for Step 5 for all 3 replicate cross-sections. Enter the average result here and use it in Table 13a or 13b.			1.44

Structural Patch Type Worksheet for Riverine wetlands

Circle each type of patch that is observed in the AA and enter the total number of observed patches in Table below. In the case of riverine wetlands, their status as confined or non-confined must first be determined (see page 6) to determine with patches are expected in the system (indicated by a "1" in the table below). Any feature onsite should only be counted once as a patch type. If a feature appears to meet the definition of more than one patch type (i.e. swale and secondary channel) the practitioner should choose which patch type best illustrates the feature. Not all features at a site will be patch types.

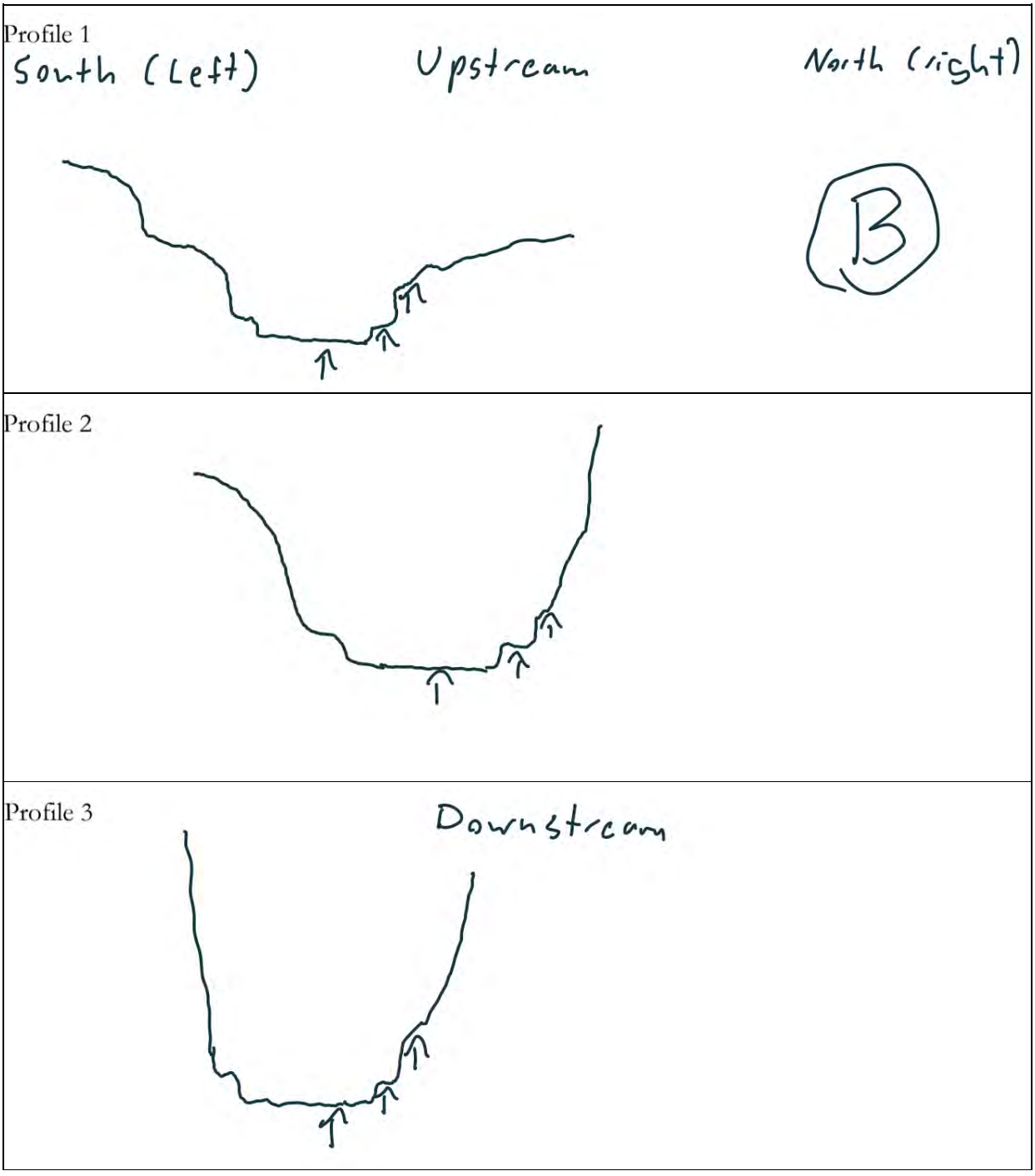
**Please refer to the CRAM Photo Dictionary at www.cramwetlands.org for photos of each of the following patch types.*

STRUCTURAL PATCH TYPE (circle for presence)	**Riverine (Non-confined)**	**Riverine (Confined)**
Minimum Patch Size	**3 m^2**	**3 m^2**
Abundant wrackline or organic debris in channel, on floodplain	**1**	**1**
Bank slumps or undercut banks in channels or along shoreline	**1**	**(1)**
Cobbles and/or Boulders	**1**	**1**
Debris jams	**1**	**1**
Filamentous macroalgae or algal mats	**1**	**1**
Large woody debris	**1**	**1**
Pannes or pools on floodplain	**1**	**N/A**
Plant hummocks and/or sediment mounds	**1**	**1**
Point bars and in-channel bars	**1**	**1**
Pools or depressions in channels (wet or dry channels)	**1**	**1**
Riffles or rapids (wet or dry channels)	**1**	**1**
Secondary channels on floodplains or along shorelines	**1**	**N/A**
Standing snags (at least 3 m tall)	**1**	**1**
Submerged vegetation	**1**	**N/A**
Swales on floodplain or along shoreline	**1**	**N/A**
Variegated, convoluted, or crenulated foreshore (instead of broadly arcuate or mostly straight)	**1**	**(1)**
Vegetated islands (mostly above high-water)	**1**	**N/A**
Total Possible	**17**	**12**
No. Observed Patch Types (enter here and use in Table 14 below)	0	2

Worksheet for AA Topographic Complexity

At three locations along the AA, make a sketch of the profile of the stream from the AA boundary down to its deepest area then back out to the other AA boundary. Try to capture the benches and the intervening micro-topographic relief. To maintain consistency, make drawings at each of the stream hydrologic connectivity measurements, always facing downstream. Include the water level, an arrow at the bankfull contour, and label the benches. Based on these sketches and the profiles in Figure 10, choose a description in Table 16 that best describes the overall topographic complexity of the AA.

Profile 1



Profile 2

Profile 3

Plant Community Metric Worksheet: Co-dominant species richness for Riverine wetlands
(A dominant species represents ≥10% *relative* cover)

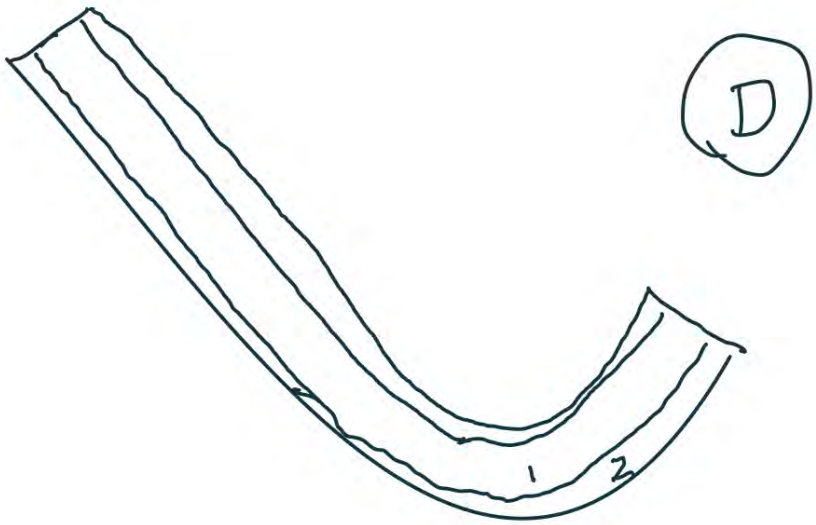
Special Note:

** Combine the counts of co-dominant species from all layers to identify the total species count. Each plant species is only counted once when calculating the Number of Co-dominant Species and Percent Invasion submetric scores, regardless of the numbers of layers in which it occurs.*

Floating or Canopy-forming (non-confined only)	Invasive?	Short (<0.5 m)	Invasive?
		Croton setiger	
Medium (0.5-1.5 m)	**Invasive?**	**Tall (1.5-3.0 m)**	**Invasive?**
Bromus hordeaceus	✓		
Amaranthus albus			
Avena fatua	✓		
Very Tall (>3.0 m)	**Invasive?**	**Total number of co-dominant species for all layers combined (enter here and use in Table 18)**	4
		Percent Invasion *Round to the nearest integer* (enter here and use in Table 18)	50

Horizontal Interspersion Worksheet.

Use the spaces below to make a quick sketch of the AA in plan view, outlining the major plant zones (this should take no longer than 10 minutes). Assign the zones names and record them on the right. Based on the sketch, choose a single profile from Figure 12 that best represents the AA overall.



Assigned zones:

1) **Unvegetated, sandy**
2) **Annual grassland**
3)
4)
5)
6)

Worksheet for Wetland disturbances and conversions

Has a major disturbance occurred at this wetland?	Yes	No (circled)		
If yes, was it a flood, fire, landslide, or other?	flood	fire	landslide	other
If yes, then how severe is the disturbance?	likely to affect site next 5 or more years	likely to affect site next 3-5 years	likely to affect site next 1-2 years	
Has this wetland been converted from another type? If yes, then what was the previous type? **No, N/A**	depressional	vernal pool	vernal pool system	
	non-confined riverine	confined riverine	seasonal estuarine	
	perennial saline estuarine	perennial non-saline estuarine	wet meadow	
	lacustrine	seep or spring	playa	

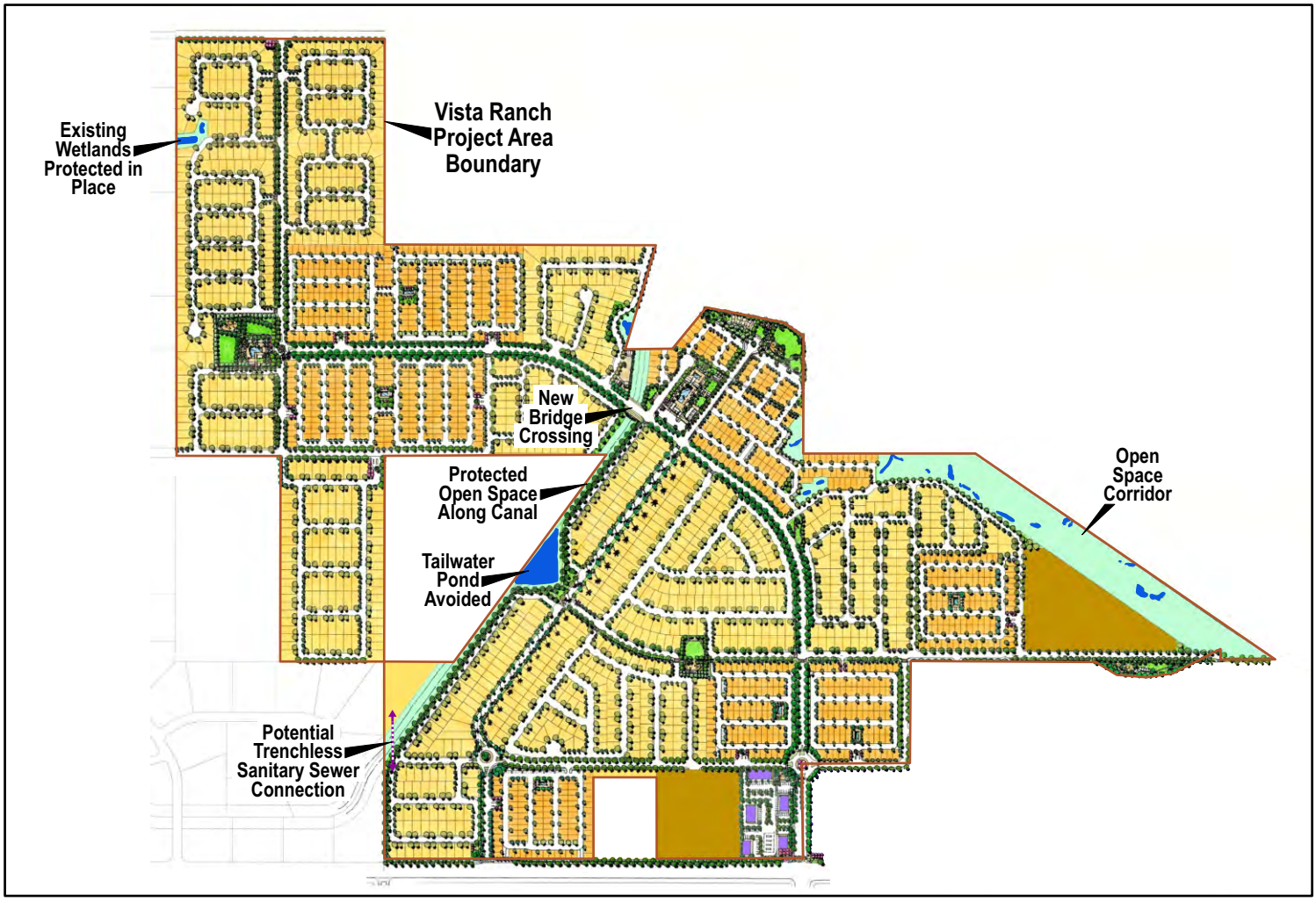
Stressor Checklist Worksheet

HYDROLOGY ATTRIBUTE (WITHIN 50 M OF AA)	Present	Significant negative effect on AA
Point Source (PS) discharges (POTW, other non-stormwater discharge)		
Non-point Source (Non-PS) discharges (urban runoff, farm drainage)		
Flow diversions or unnatural inflows		
Dams (reservoirs, detention basins, recharge basins)		
Flow obstructions (culverts, paved stream crossings)		
Weir/drop structure, tide gates		
Dredged inlet/channel		
Engineered channel (riprap, armored channel bank, bed)		
Dike/levees		
Groundwater extraction		
Ditches (borrow, agricultural drainage, mosquito control, etc.)		
Actively managed hydrology		
Comments		

PHYSICAL STRUCTURE ATTRIBUTE (WITHIN 50 M OF AA)	Present	Significant negative effect on AA
Filling or dumping of sediment or soils **(N/A for restoration areas)**		
Grading/ compaction **(N/A for restoration areas)**	✓	
Plowing/Discing **(N/A for restoration areas)**		
Resource extraction (sediment, gravel, oil and/or gas)		
Vegetation management		
Excessive sediment or organic debris from watershed		
Excessive runoff from watershed		
Nutrient impaired (PS or Non-PS pollution)		
Heavy metal impaired (PS or Non-PS pollution)		
Pesticides or trace organics impaired (PS or Non-PS pollution)		
Bacteria and pathogens impaired (PS or Non-PS pollution)	✓	
Trash or refuse		
Comments		
Assumed minor compaction and bacterial input from cattle; no direct evidence.		

BIOTIC STRUCTURE ATTRIBUTE (WITHIN 50 M OF AA)	Present	Significant negative effect on AA
Mowing, grazing, excessive herbivory (within AA)	✓	✓
Excessive human visitation		
Predation and habitat destruction by non-native vertebrates (e.g., *Virginia opossum* and domestic predators, such as feral pets)		
Tree cutting/sapling removal		
Removal of woody debris		
Treatment of non-native and nuisance plant species		
Pesticide application or vector control		
Biological resource extraction or stocking (fisheries, aquaculture)		
Excessive organic debris in matrix (for vernal pools)		
Lack of vegetation management to conserve natural resources	✓	✓
Lack of treatment of invasive plants adjacent to AA or buffer		
Comments		
Cattle have free access, preventing establishment of any woody vegetation. Invasive grasses are dominant within and near the AA.		

BUFFER AND LANDSCAPE CONTEXT ATTRIBUTE (WITHIN 500 M OF AA)	Present	Significant negative effect on AA
Urban residential		
Industrial/commercial		
Military training/Air traffic		
Dams (or other major flow regulation or disruption)		
Dryland farming		
Intensive row-crop agriculture		
Orchards/nurseries		
Commercial feedlots		
Dairies		
Ranching (enclosed livestock grazing or horse paddock or feedlot)		
Transportation corridor		
Rangeland (livestock rangeland also managed for native vegetation)	✓	
Sports fields and urban parklands (golf courses, soccer fields, etc.)		
Passive recreation (bird-watching, hiking, etc.)		
Active recreation (off-road vehicles, mountain biking, hunting, fishing)		
Physical resource extraction (rock, sediment, oil/gas)		
Biological resource extraction (aquaculture, commercial fisheries)		
Comments		
AA is part of an active cattle ranch. Cattle management within 500m is generally beneficial due to thatch control within the vernal pool grasslands (and associated management by the ranchers).		


Existing Wetlands Protected in Place
Vista Ranch Project Area Boundary
New Bridge Crossing
Protected Open Space Along Canal
Tailwater Pond Avoided
Open Space Corridor
Potential Trenchless Sanitary Sewer Connection

E.4 - Dry Soil Analysis Report

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DRY SOIL ANALYSIS
FOR THE
DETECTION OF
FEDERALLY-LISTED LARGE BRANCHIOPODS
AT THE
VISTA RANCH DEVELOPMENT
FRESNO COUNTY, CALIFORNIA
(USFWS# RP-VISTA RANCH-2023-0927)



Prepared for:

VOLLMAR NATURAL LANDS CONSULTING
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Sacramento, CA 95816
***Contact*: Mr. Eric Smith**
(916) 758-6928

***Prepared by*:**

HELM BIOLOGICAL CONSULTING
4600 Karchner Rd
Sheridan, CA 95681
***Contact*: Brent Helm**
(916) 952-0308

December 2023

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

DRY SOIL ANALYSIS FOR THE DETECTION OF FEDERALLY-LISTED LARGE BRANCHIOPODS AT THE VISTA RANCH DEVELOPMENT, CLOVIS, FRESNO COUNTY, CALIFORNIA (USFWS# RP-VISTA RANCH-2023-0927)

INTRODUCTION

Helm Biological Consulting (HBC), a division of Tansley Team, Inc., was contracted by Vollmar Natural Lands Consulting to perform an analysis of soils collected from dry seasonally inundated depressions (hereafter "features") at the Vista Ranch Development (hereafter "Project"), for the presence of large branchiopods (fairy shrimp, clam shrimp, and tadpole shrimp) that are listed as threatened or endangered under the federal Endangered Species Act (e.g., the endangered Conservancy fairy shrimp [*Branchinecta conservatio*], the endangered vernal pool tadpole shrimp [*Lepidurus packardi*], and the threatened vernal pool fairy shrimp [*Branchinecta lynchi*]).

The Project consists of approximately 368 acres and is located east of North Fowler Avenue, north of East Shepherd Avenue, adjacent to Big Dry Creek Outlet, north of the City of Clovis, Fresno County, California. The Project mainly resides within the E ½ of the NE ¼ of the E ½ of the NE ¼ of the SE ¼ of Section 21 and most of Section 22, Township 12 South, Range 21 East, of the Mount Diablo Base and Meridian within the Clovis and Friant 7.5-minute U.S. Geological Survey topographic quadrangle maps (approximate center coordinates in decimal degrees: World Geodetic System [WGS84] Latitude: 36.874124°, Longitude: -119.669392°) (Figure 1).

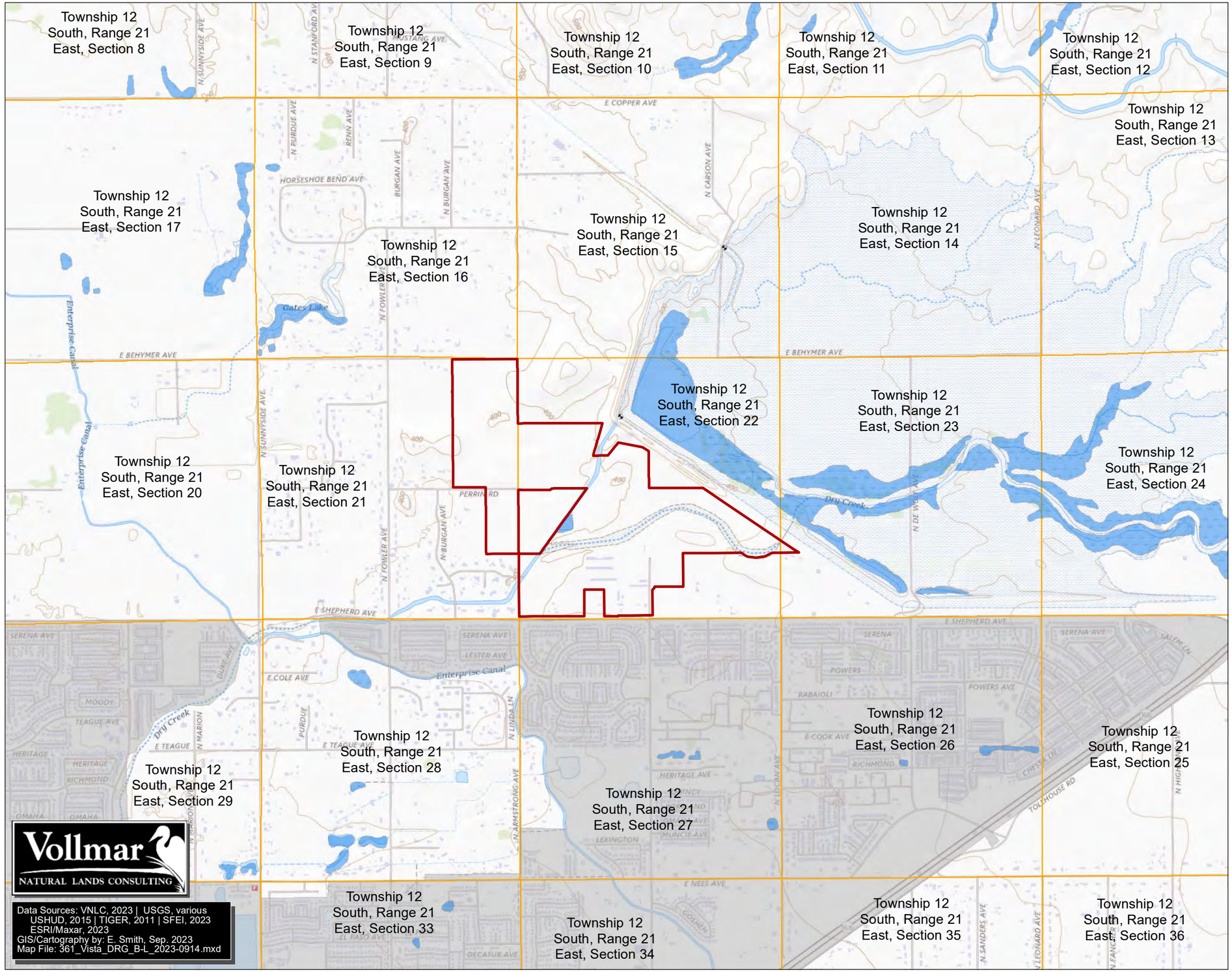
The remainder of this report discusses the methods and results of the soil examinations to determine the presence, or presumed absence, of federally-listed large branchiopods at the Project.

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

Brent P. Helm Signature _____ Date 11-30-2023
(TE-795930-12)

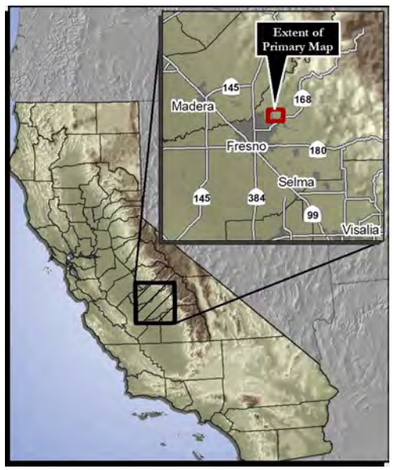
FIGURE 1
USGS Topographic Map

Vista Ranch Development
Fresno County, California



Legend

- Project Site (368 ac.)
- Public Land Survey Boundary
- City of Clovis



N
W E
S

1:24,000
(1 in. = 2,000 feet at Tabloid Layout)

0 250 500 1,000 Meters
0 1,000 2,000 4,000 Feet

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NATURAL LANDS CONSULTING

Data Sources: VNLC, 2023 | USGS, various USHUD, 2015 | TIGER, 2011 | SFEI, 2023 ESRI/Maxar, 2023
GIS/Cartography by: E. Smith, Sep. 2023
Map File: 361_Vista_DRG_B-L_2023-0914.mxd

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 soils were collected on from 24 features on September 27 2023 by Vollmar Natural Lands Consulting permitted biologist Eric Smith as authorized by USFWS under permit number TE-035336-7.1 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.

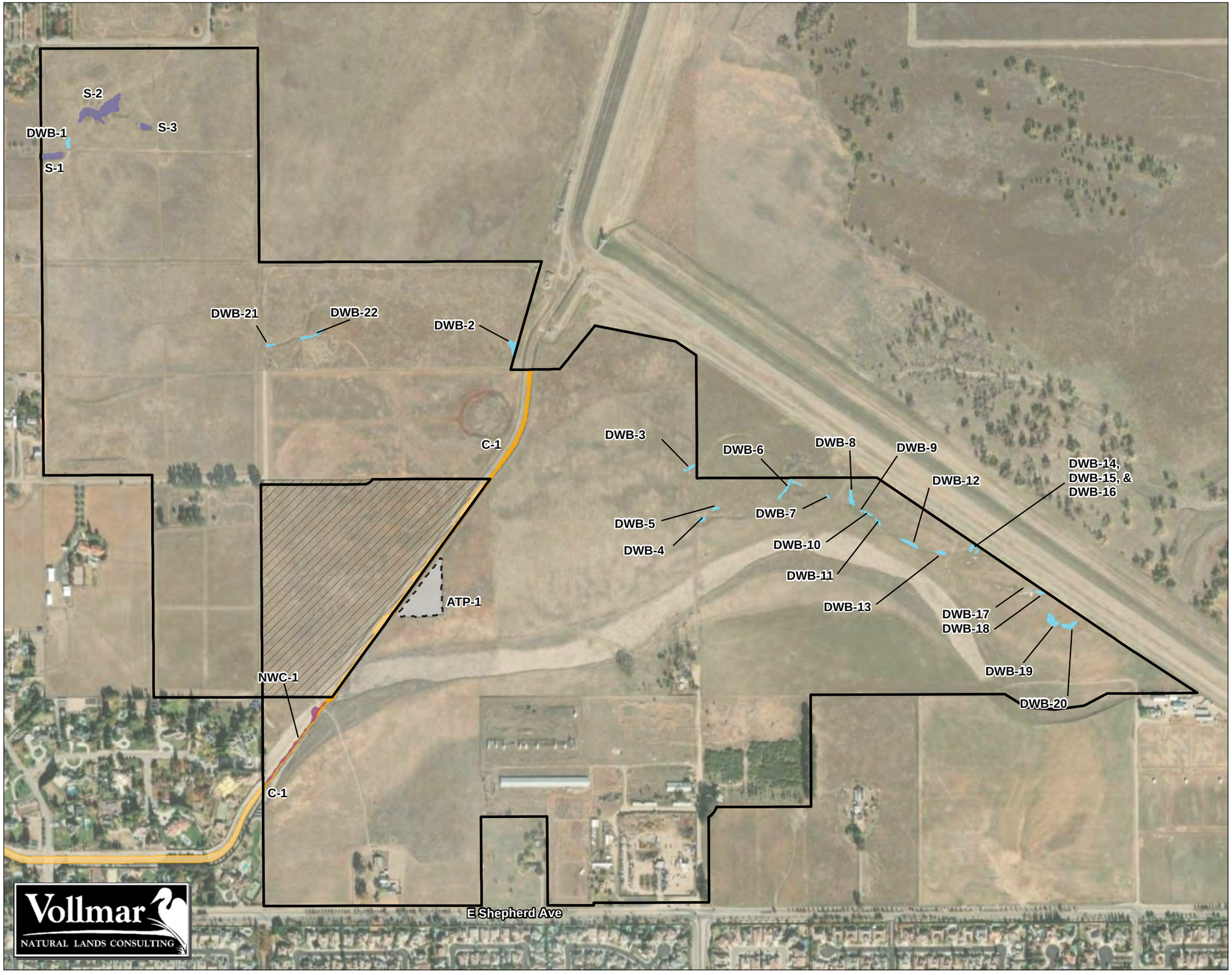
SOIL PROCESSING AND ANALYSIS

Twenty-nine soil samples, obtained from Vollmar Natural Lands Consulting, were processed and analyzed by Dr. Brent Helm of HBC under recovery permit number TE-795930-12 of Section 10(a)(1)(A) of the federal 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. The presence of other aquatic macroinvertebrates encountered was also noted on the laboratory data sheet.

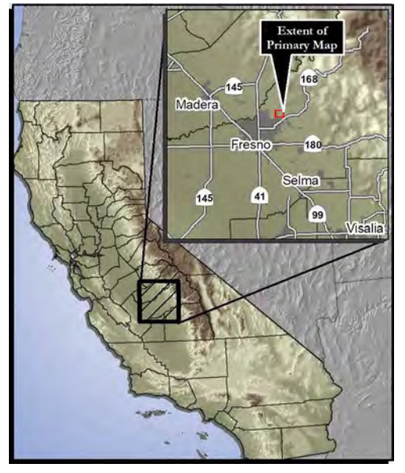
FIGURE 2
Aquatic Resources Map

Vista Ranch Development
Fresno County, California



Legend

- Other Waters; Canal (Non-Wetland Channel) (0.210 ac.)
- Wetland; Canal (Wetland Channel and Fringing Margin) (0.542 ac.)
- Wetland; Depressional Wetland Basin (0.559 ac.)
- Wetland; Stockpond (0.545 ac.)
- Canal (Outside Study Area) (0.858
- Agricultural Tailwater Pond (1.129 ac.)
- Not Part of Study Area



N
W E
S

1:7,200
(1 in. = 600 ft. at Tabloid Layout)

0 100 200 400 Meters
0 300 600 1,200 Feet

Data Sources: VNLC, 2023 | USGS, various | TIGER, 2011
ESRI/Maxar (aerial imagery), 2022
GIS/Cartography by: E. Smith and R. Miller, August 2023
Map File: 361_Wilson_AqRes-Over_B-L_2023-0816.mxd

Vollmar
NATURAL LANDS CONSULTING

RESULTS

SOIL COLLECTION

Soil samples were collected from a total of 24 features by Vollmar Natural Lands Consulting (Figure 2) were processed and analyzed.

SOIL PROCESSING AND ANALYSIS

Visual examinations of the soils after processing revealed the presence of cysts belonging to the genus *Branchinecta* in 23 of the 24 features sampled (Table 1). Three features had cysts belonging to the California fairy shrimp (*Linderiella occidentalis*). There were no features that had cysts belonging to the vernal pool tadpole shrimp. Representative photographs of the features sampled are provided in Appendix B.

Table 1. Results of Soil Examinations

Basin No.	Insect Exo-Skeletons	Cladocera Ephippia	Ostracods Live/Cysts/ Carapaces	Large Branchiopod Cysts		Nematoda	Collembola
				Branchinecta sp.	*Linderiella occidentalis*		
DWB-01	X			Med			X
DWB-02	X	X		High			X
DWB-03	X	X		High			X
DWB-04	X	X		High			X
DWB-05	X			High		X	X
DWB-06	X	X	X	High		X	X
DWB-07	X	X		High			X
DWB-08	X	X	X	Med			X
DWB-09 &10	X	X		High			X
DWB-11	X	X	X	High			X
DWB-12	X			High			X
DWB-13	X			High			X
DWB-14	X	X		High			X
DWB-15	X	X	X	High		X	X
DWB-16	X						X
DWB-17	X			Med			X
DWB-18	X	X	X	High			X
DWB-19	X	X		Med			X
DWB-20	X			Med	Med		X
DWB-21	X	X		High			X
DWB-22	X	X		High+Instars	Med	X	X
S-1	X	X		High	Med	X	X
S-2	X			High		X	X
S-3	X			High		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)

DISCUSSION

Identification to species level for many of the species in the genus *Branchinecta* by their cysts external morphology is not possible due to overlap in the diameter, depth, and number of the cyst pores (depressions). Therefore, it is not possible to differentiate between the federally-listed *Branchinecta* (e.g., *B. conservatio, B. lynchi*) with those with no status (e.g., *B. lindahli* and *B. mesovaliensis*) based on external cyst morphology.

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.

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.

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

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

Survey Requests, RP-Vista Ranch-2023-0927 , VpB

SFWO Permits, FW8 <FW8_SFWO_Permits@fws.gov>

Wed 9/27/2023 2:18 PM

To:Eric Smith <esmith@vollmarconsulting.com>

Cc:Cole, Patricia <Patricia_Cole@fws.gov>

Eric Smith,

By this email message, you are authorized to conduct dry season vernal pool branchiopod season surveys, as specified in your email correspondence with SFWO starting Sept. 25, 2023, per the conditions of your recovery permit (035336-7.1). Surveys will be conducted at the Vista Ranch in Fresno County, CA. Please remember to carry a copy of your permit while doing the work and to follow the terms and conditions therein. This authorization does not include access to the property which must be arranged with the landowner or manager. Please let us know if the activities are not performed as authorized, or if they are done by a different permittee under a separate authorization.

Please send survey reports with the reference # RP-Vista Ranch-2023-0927 to FW8_SFWO_Permits@fws.gov and the San Joaquin Valley Division Supervisor, Patricia Cole (patricia_cole@fws.gov). Reports for vernal pool branchiopod surveys are due in 90 days. Reports for all other species are due in 45 days, unless otherwise specified in your permit. Reports should include, at minimum:

1. The reference number to help ensure that we correctly record the fulfillment of the reporting requirement under this authorization,

2. A copy of this authorization email,

3. The names of all persons involved in each activity and their recovery permit numbers, if applicable,

5. A U.S. Geological Survey topographic map (1:24,000 scale or larger scale) depicting the location of the project site, survey area, and location(s) of species in as precise a manner as possible. All other information required in the 45/90 Day Survey Report section of your permit.

Thank you,

Lauren

ePermits

Pacific Southwest Recovery Permitting

Minimum Qualifications | Survey Protocols | Vernal Pool Branchiopod Practical Exams

We have resumed in-office vernal pool branchiopod practical exams. Please send us an email to schedule your exam.

The Sacramento Fish and Wildlife Office is using this consolidated mailbox for all communications regarding 10(a)(1)(A) recovery permits in our jurisdiction. Please send survey notifications, reports, and permit inquiries to this email address: FW8_SFWO_Permits@fws.gov.

APPENDIX B.
REPRESENTATIVE PHOTOGRAPHS



Photo of S-1 taken by Eric Smith facing west on September 27, 2023.



Photo of S-1 taken by Eric Smith facing east on September 27, 2023.



Photo of soils in S-2 taken by Eric Smith facing west on September 27, 2023.



Photo of S-3 taken by Eric Smith facing west on September 27, 2023.



Photo of DWB-9 and DWB-10 taken by Eric Smith facing east on September 27, 2023.



Photo of DWB-3 taken by Eric Smith facing west on September 27, 2023.



Photo of DWB-6 taken by Eric Smith facing south east on September 27, 2023.



Photo of DWB-12 taken by Eric Smith facing east on September 27, 2023.



Photo of DWB-14 taken by Eric Smith facing north east on September 27, 2023.



Photo of DWB-18 taken by Eric Smith facing east on September 27, 2023.



Photo of DWB-22 taken by Eric Smith facing west on September 27, 2023.

E.5 - Mitigation Overview

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Wilson Premier Homes – Vista Ranch

Mitigation Overview

Introduction

This document briefly describes the mitigation approach proposed to compensate for impacts on special-status species habitat and jurisdictional wetlands and waters as a result of constructing the proposed Vista Ranch mixed-use development (Project). It contains the following information.

- An overview of existing habitat at the Project site
- A brief discussion of the measures incorporated into the Project to avoid and reduce impacts on wetlands/waters and listed species habitat
- An overview of unavoidable impacts on wetlands/waters and listed species habitat
- A description of the proposed mitigation approach for permanent impacts, including
  - an overview of the proposed mitigation site and its regional conservation context
  - brief discussion of planning for long-term management of the mitigation site
- A description of the proposed mitigation approach for temporary impacts
- A list of references cited

Existing Habitat at Project Site

The Project site is bordered to the south and west by suburban residential development and to the northwest by more open rural residential development. To the northeast, the site abuts open rangeland and the Big Dry Creek Dam and Reservoir, which are flood control structures operated by the Fresno Metropolitan Flood Control District (FMFCD). The site is bisected by a constructed canal fed by the Big Dry Creek Dam spillway. When the dam was constructed, the natural Dry Creek drainage was re-routed into the reservoir basin; flow now exits via the spillway and is conveyed via the canal to rejoin the Creek about 2,500 feet below the spillway. The truncated and abandoned channel of Dry Creek remains a conspicuous feature in the east-central portion of the site, but no longer conveys flow, all of which has been re-routed via the Reservoir, Dam, spillway, and canal (Vollmar Natural Lands Consulting 2023a) (Figure 5). The remnant Creek channel exhibits intermittent stream geomorphology but lacks an ordinary high water mark (OHWM). It does not have hydric soils and supports only upland vegetation (Vollmar pers. comms., Vollmar Natural Lands Consulting 2023a).

Site topography is level to gently rolling, with elevations ranging from about 380 to 413 feet above mean sea level. The most pronounced slopes are in the northwest portion of the site. Site soils appear to lack intact claypan or hardpan, which likely contributes to relatively rapid infiltration throughout much of the site, with a

correspondingly low rate of wetland formation even within some depressional features (Vollmar Natural Lands Consulting 2023a).

The majority of the site is non-native annual grassland and degraded pasture land. The northeast and southeast portions of the site appear not to be grazed at present, and grasslands there support a mixture of primarily non-native annual grasses and herbs including invasive weeds. Scattered depressional wetlands are present within the grasslands, especially along the northeast edge of the site, where they occupy a series of what appear to be remnant floodplain swales north of the abandoned Dry Creek channel and are apparently fed in part by seepage from the Big Dry Creek Dam/Reservoir in heavy rain years. Three created stockponds and small depressional wetlands are also present within the grasslands in the northwest portion of the site (Vollmar Natural Lands Consulting 2023a).

The central portion of the site was graded for flood irrigation several decades ago, although flood irrigation is not practiced at this time. This area is divided into several pastures with cross fencing and is at least intermittently used for grazing. It supports degraded pasture with ruderal vegetation dominated by non-native grasses and herbs including invasive weeds. Scattered rural/agricultural development features are also present. Current grazing use appears to be light, leading to build-up of thatch and residual dry matter. A triangular pond located adjacent to the canal was apparently constructed in uplands to capture and allow reuse of irrigation water although it also has a culverted connection to the canal downstream of the Big Dry Creek Dam spillway (Vollmar Natural Lands Consulting 2023a).

A total of 3.053 acres of potentially jurisdictional waters has been mapped on the Project site (Figure 1). This includes 1.646 acres of wetlands and 0.278 acre of other waters (canal) (Vollmar Natural Lands Consulting 2023a). The agricultural tailwater pond mentioned above (1.129 acres; Vollmar Natural Lands Consulting 2023a) was also treated as a potentially jurisdictional feature for project planning purposes. The project wetland delineation was verified by the U.S. Army Corps of Engineers (Corps) in November 2023 (Norton 2023).

Impact Avoidance & Unavoidable Impacts

As noted above, the Project development layout has been configured to avoid and reduce impacts on wetlands/waters and listed species habitat to the extent feasible while still achieving Project objectives (Figure 2). This includes the following.

- Leaving a belt of open space along the northeast Project boundary undeveloped, protecting the chain of depressional wetlands within remnant floodplain swales in this area
- Protecting additional wetlands in smaller open space areas throughout the development
- Avoiding and protecting the agricultural tailwater pond in the central portion of the Project site
- Establishing a protected open space corridor along the FMFCD canal where it bisects the Project site; the “canal corridor” open space boundaries would coincide with FMFCD’s existing easement limits where an easement is in place
- Using a clearspan bridge to link the east and west portions of the new development across the canal. A clearspan bridge is substantially more expensive to construct than the City-standard box culvert bridge, but was selected because it will enable meaningful reduction of impacts on the canal. Wet and dry utilities would connect between the east and west portions of the development via the new bridge and/or via trenchless installation beneath the spillway canal

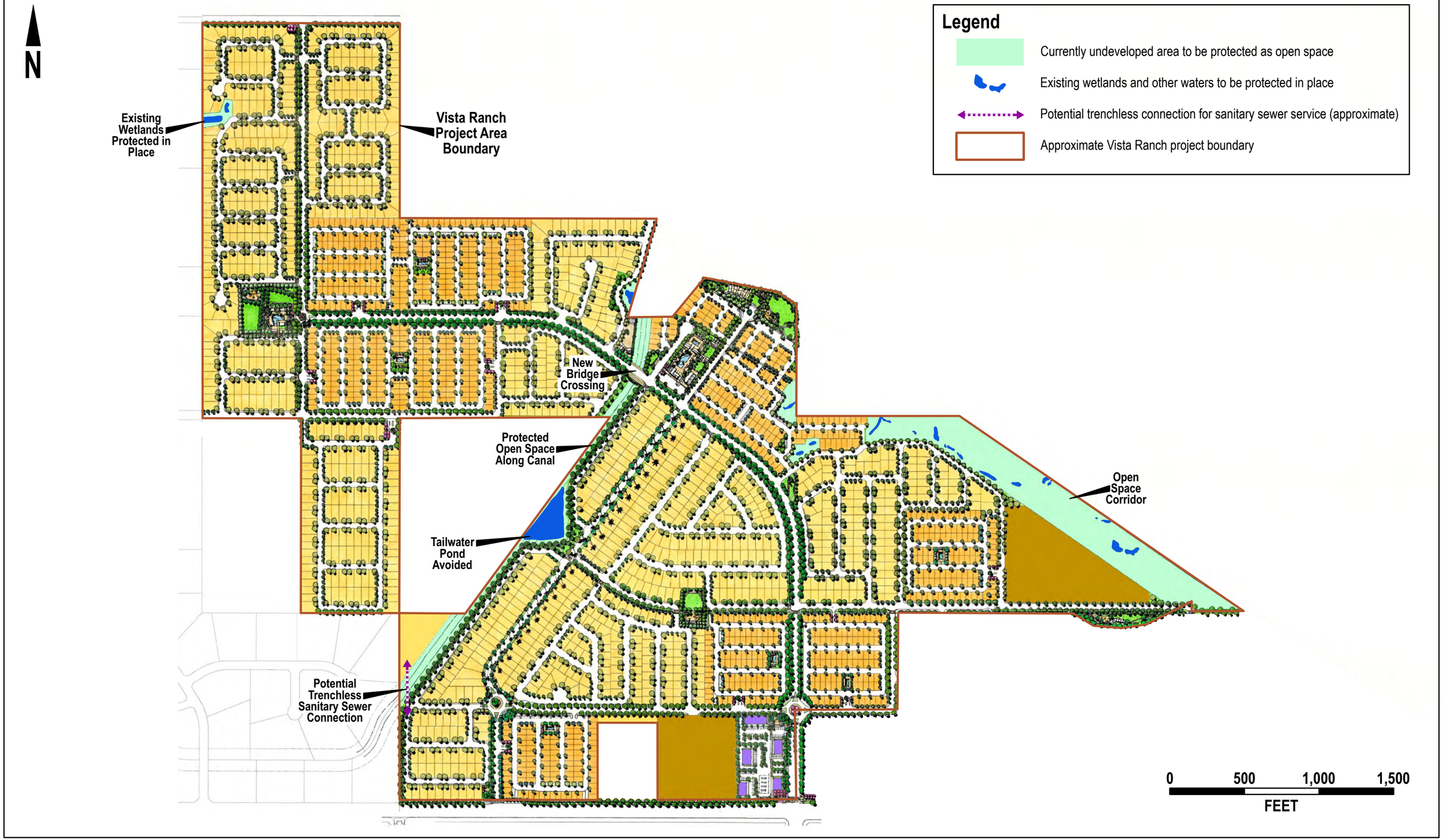
Source: *modified from* Vollmar Natural Lands Consulting 2023a



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Figure 1. Aquatic Resources on Project Site
Vista Ranch Mitigation Overview
Wilson Premier Homes

Source: *modified from* Wilson Premier Homes 2023
For illustration only



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Environment & Community

Figure 2. Vista Ranch Schematic Development Layout
Vista Ranch Mitigation Overview
Wilson Premier Homes

- Connecting sanitary sewer service across the canal to existing City of Clovis infrastructure via a trenchless installation

The open space belt at the northeast Project boundary would be approximately 250 feet wide for most of its length, which provides an approximately 25-foot-wide buffer between the most westerly wetlands and the closest developed feature. Other open space areas have also been configured to provide a minimum 25-foot-wide buffer around depressional wetlands and the agricultural tailwater pond. Post-and-cable fencing and informational signage is planned to discourage entry into the open space areas.

The total footprint of unavoidable impacts on wetlands and other waters of the United States, including known and potential special-status species habitat, is expected to be 0.498 acre. A total of 0.495 acre of wetlands would be removed (graded and/or filled) for Project construction. An additional ~0.003 acre of wetland channel in the FMFCD canal would be temporarily impacted for construction of the new bridge connecting the east and west portions of Vista Ranch across the canal.[1]

Table 1 itemizes these unavoidable Project impacts in more detail. Impacts are broken down two ways in the table: first by type of aquatic resource, and second by the federally listed species affected. Unless noted otherwise in the table, impact acreages reflect direct impacts as a result of development construction. Acreages are rounded to three decimal places/four significant figures for simplicity.

Table 1. Vista Ranch Project Impacts

Impact	Acres Impacted	
	Permanent Loss	Temporary Disturbance
Impacts by Aquatic Resource Type		
Wetlands (total)	0.495	0
Canal, wetland channel and fringing wetland margin	0	0.003
Depressional wetland basin	0.061	0
Stockpond	0.434	0
Other waters (canal, non-wetland channel)	0	0
Impacts by Species		
California tiger salamander, total	332.0*	0
Documented breeding habitat	0.390	0
Documented breeding habitat (avoided and protected in place; long-term indirect habitat impact due to surrounding development and loss of overall connectivity)	0.369	0
Suitable breeding habitat, presumed occupied	0.105	0
Low-suitability breeding habitat (avoided and protected in place; long-term indirect habitat impact due to surrounding development and loss of overall connectivity)	1.129	0
Suitable upland habitat, presumed occupied	189.7	0
Low-suitability upland habitat	140.3	0
Vernal pool fairy shrimp, total	0.806	0

[1] Because of the cost differential between a clearspan structure and the standard box culvert crossing, the length of the bridge must be minimized to render it practicable. Thus, although the abutments would be located outside the OHWM limit and there would thus be no permanent loss of wetlands or waters at the bridge crossing, minor temporary disturbance below OHWM is expected to be necessary to restore the canal banks to their pre-project configuration following construction.

Impact	Acres Impacted	
	Permanent Loss	Temporary Disturbance
Suitable wetland habitat, presumed occupied (direct loss)	0.061	0
Suitable wetland habitat, presumed occupied (avoided and protected in place; long-term indirect habitat impact due to surrounding development and loss of overall connectivity)	0.745	0

Note:
* Total reflects rounded acreages below; when unrounded figures are used, impacts on California tiger salamander habitat total 331.93 acres (see Vollmar Natural Lands Consulting 2023b). Impacts on California tiger salamander breeding habitat include acreages within the Vista Ranch project site as well as suitable aquatic (breeding) habitat within the standard 250-foot U.S. Fish and Wildlife Service indirect impacts buffer.

Source: Vollmar Natural Lands Consulting 2023b

Proposed Compensation for Permanent Impacts

The Project proposes to provide compensatory mitigation for permanent losses of jurisdictional and special-status species habitat through in-perpetuity conservation on a privately owned ranch property (hereafter, Property) located in Madera County about 15 miles northwest of the Project site.

Mitigation Property Overview

The Property consists almost entirely of undeveloped rangeland. It was previously identified as a potential conservation bank site planned to offer credits for purchase (e.g., Vollmar Natural Lands Consulting 2021), and the landowner is amenable to establishment of a conservation easement on the property. Extensive studies were conducted at the Property from 2017 through 2023, beginning in conjunction with the landowner's initial planning to create a commercial mitigation bank at the site. Based on these studies, the site appears to be an excellent candidate for conservation.

Overall, the Property provides a robust network of vernal pool/swale complexes and upland annual grassland habitat, crosscut by a southwest-flowing seasonal stream channel. As identified above, preliminary mapping identified a high density of naturally occurring wetlands (roughly 6.8% cover), estimated to comprise approximately 130 acres of vernal pools, vernal swales, and ephemeral streams as well as approximately 2.7 acres (approximately 12,166 linear feet) of seasonal stream habitat. The remainder of the Property (some 1,700 acres) supports upland annual grassland (Vollmar Natural Lands Consulting 2021, Smith pers. comm.[b]).

Mean annual precipitation at the Property is approximately 13.4 inches, with the majority falling as rain during the winter months (December – March). Pools generally begin to fill with the onset of heavy rains in the late fall and winter and dry down during the spring. The pools vary in size and depth; the larger and deeper pools typically have a longer hydroperiods while the smaller and shallower pools typically have shorter hydroperiods. There is also high degree of hydrologic connectivity between pools, either via surface swales or subsurface flow (Vollmar Natural Lands Consulting 2021).

Both aquatic and upland habitat at the Property is in good condition, and unlike many vacant Central Valley lands the Property has not been cultivated (Vollmar Natural Lands Consulting 2021). California Rapid Assessment Method (CRAM) evaluations conducted on the Property and at the Project site in September 2023 demonstrate that wetland and stream function/value are consistently higher on the Property than at the Project site (Redtail Consulting 2023). Historically, the Property supported low- to moderate-intensity cattle grazing and except for the immediate corral area has not been developed or subjected to other ground disturbance. Past grazing use is not considered a deficit in this context; moderate cattle grazing is generally beneficial for the management of vernal pool grasslands, since it reduces thatch and controls invasive weeds, helping to maintain

vernal pool hydrology and facilitating the establishment and persistence of native forbs—and vegetation observed within the vernal pools and other wetlands on the Property is indeed reflective of healthy conditions, featuring a moderate cover of predominantly native forbs and grasses. Like most San Joaquin Valley grassland habitats, the Property's uplands are dominated by introduced annual grasses, but invasive weeds were generally found to be absent (Vollmar Natural Lands Consulting 2021).

Conservation of lands on the Property is thus expected to create a substantial preserve offering a connective mosaic of high-quality vernal pool/swale, seasonal stream, and annual grassland habitat that is currently documented as supporting at least thirteen special-status species, including those affected by the Project (Vollmar Natural Lands Consulting 2021, Smith pers. comm.).

Regional Conservation Context

As noted above, the Property is located south of the Fresno River and thus is appropriately situated to compensate for California tiger salamander and western spadefoot impacts at the Vista Ranch site. The Property also lies within the Madera Core Recovery Area defined in the U.S. Fish and Wildlife Service's (Service's) 2005 *Recovery Plan for Vernal Pool Ecosystems of California and Southern Oregon* and also within Service-designated Critical Habitat for vernal pool fairy shrimp, which is known to be present at the site.[2] It is also in close proximity to designated Critical Habitat for California tiger salamander. At the same time, located near the intersection of SR 145 and SR 41, it is central to Madera County's Four Corners area, which supports an approximately 33,000-acre block of contiguous vernal pool habitat but is under intensive development pressure from numerous proposed and approved projects. With only about 4,200 acres of the Four Corners vernal pool habitat conserved to date, conservation on the Property has the potential to make a significant contribution to vernal pool recovery in this area (Vollmar Natural Lands Consulting 2021).

Although the proposed mitigation site is located in a different subwatershed from the Project site (USGS HUC-8 18040007, Upper Chowchilla – Upper Fresno vs. USGS HUC-8 18030009, Upper Dry), it is hoped that the opportunity to preserve extensive and valuable aquatic resources in the context of a functional habitat mosaic will outweigh the mitigation site's out-of-watershed location. This is particularly the case as conservation of vernal pools and related habitat in Madera County is an identified priority, and these resources are considered at risk due to expanding development in the region (e.g., U.S. Fish and Wildlife Service 2005, Vollmar Natural Lands Consulting 2021).

Mitigation Proposal

Preservation of documented breeding habitat for California tiger salamander (*Ambystoma californiense*), vernal pool fairy shrimp (*Branchinecta lynchi*), and western spadefoot (*Spea hammondii*), along with adjacent upland habitat, is proposed as compensation for unavoidable Project impacts on these species.

Preservation of aquatic resources on the Property, including vernal pools, vernal swales, and functional seasonal stream corridor, is also proposed as providing at least partial compensation for unavoidable Project impacts on wetlands and waters. Because of the quality, extent, and functionality of the habitat available for preservation, full compensation for the Project's impacts on aquatic resources intended via conservation at the Property. If this is not acceptable to the resource agencies, a 1:1 purchase of aquatic resources credits from an agency-approved source is proposed in addition to substantive preservation at the Property.

[2] Much of the Vista Ranch site also lies within the Madera Core Recovery Area (Vollmar Natural Lands Consulting 2023b). However, as noted elsewhere, soils at the Vista Ranch site are generally less conductive to vernal pool formation and persistence than those at the Jamison Ranch Property.

The proponent is currently engaging the resource agencies—the Corps, Service, Central Valley Regional Water Quality Control Board (RWQCB), and California Department of Fish and Wildlife (DFW)—in discussions to flesh out mitigation details.

Final preservation acreages, and any credit purchases, will reflect input from the Corps, Service, RWQCB, and DFW. The extent and exact location of preserved lands within the Property will also be developed in consultation with the agencies, since the preserve will need to be configured to (1) maximize long-term habitat functionality to support affected species and (2) provide long-term protection for aquatic resources functions, values, and services.

Long-Term Protection & Management of Mitigation Lands

The portion of the Property dedicated for mitigation will be placed under a conservation easement to preclude future development and to control use and management of the preserved lands. The easement holder is tentatively expected to be the Sierra Foothill Conservancy.

The proponent intends to develop a *Long-Term Management Plan* for the site, which will

- define necessary management activities and the range of acceptable methods
- lay out a monitoring process and criteria for routine assessments of site health, and
- establish an adaptive management approach—including triggers for management intervention/corrective action—to ensure that habitat on the site remains in good condition and that aquatic resources and upland functions and values are preserved

A *Grazing Plan* will also be put in place as a step-down from the overall *Long-Term Management Plan*. All of the preserve documents are expected to be subject to review and approval by the Corps, Service, RWQCB, and DFW.

Establishment of the preserve on the Property will also include funding an endowment to pay for species habitat monitoring and management in perpetuity.

Proposed Compensation for Temporary Impacts

As shown in Table 1, the only temporary impacts anticipated as a result of the Project would be the very small area of wetland channel disturbance (~0.003 acre) associated with construction of the new bridge over the FMFCD canal. Following bridge construction, any disturbed areas within the canal channel will be restored to their pre-Project configuration and appropriately stabilized. If vegetation has been removed, damaged, or disturbed by construction, the area will be revegetated in an appropriate palette of native species. Disturbed and revegetated areas in the channel will be monitored annually for 5 years to ensure recovery to the pre-Project reference condition. Remedial measures will be undertaken if revegetation appears to be unsuccessful (i.e., is not meeting interim success criteria). The revegetaion planting palette and monitoring protocols and criteria are expected to be subject to review and approval by the Corps, Service, RWQCB, and DFW.

No compensation for temporal impacts during vegetation recovery at the bridge site is proposed, due to the limited habitat value provided by the canal channel and the fact that a substantial extent of wetland habitat and seasonal stream channel is planned to be preserved in perpetuity and managed for habitat value at the Property.

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E.6 - ITP Application

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WILSON HOMES

Vista Ranch Project

Application for Incidental Take Authorization

Revised March 2025









Redtail Consulting
Environment & Community

Vista Ranch Project

Application for Incidental Take Authorization

WILSON HOMES

Revised March 2025

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Appendix: Mitigation as Originally Proposed

Cover Photograph Credits

Background view of Jamison Ranch Property: Vollmar Natural Lands Consulting

Crotch's bumble bee: Rachel Whitt/iNaturalist

San Joaquin kit fox: Timothy Ludwig/U.S. Fish and Wildlife Service

California tiger salamander: Vollmar Natural Lands Consulting

Burrowing Owl: California Department of Fish and Wildlife (https://wildlife.ca.gov/News/Archive/cdfw-seeks-public-comment-related-to-western-burrowing-owl)

Wilson Premier Homes – Vista Ranch

Application for Incidental Take Authorization

Revised March 2025

Introduction

This application requests authorization from the California Department of Fish and Wildlife (CDFW) per California Fish and Game Code Section 2081 for incidental take of California state-listed and candidate wildlife species resulting from the Vista Ranch mixed-use development project (project, Vista Ranch project) in the Clovis area, Fresno County.

Contact information for the applicant and the applicant's agent is provided in the matrix below.

Applicant	Applicant's Agent
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Consistent with guidance at https://wildlife.ca.gov/Conservation/CESA/Permitting/Incidental-Take-Permits, this application contains the following information.

- A list of species for which coverage is requested (covered species)
- A map showing the project location
- An overview of habitat on the project site, including additional maps
- A description of the Vista Ranch project
- The measures proposed to avoid and minimize take to the extent feasible
- An evaluation of the potential for take resulting from project construction and occupancy
- Analysis of the impacts of the proposed take on the covered species, including the potential to result in jeopardy to covered species, taking into account known population trends, known threats to the species, and reasonably foreseeable impacts on the species from other related projects and activities

- The measures proposed to fully mitigate the impacts of unavoidable take
- Plans to ensure compliance and monitor the effectiveness of minimization and mitigation measures
- Information on the sources and level of funding committed for both minimization and mitigation of take
- Information on the status of project compliance with the California Environmental Quality Act (CEQA)
- Certification of completeness and accuracy

As requested by CDFW staff, this application also provides an assessment of the sustainability of proposed habitat compensation under projected climate change scenarios. A list of references cited follows the text of this application. The required application fee is being remitted separately by the applicant.

Covered Species

This application requests take coverage for the following state-listed species.

- California tiger salamander (*Ambystoma californiense*): state- and federally listed as Threatened (CTS)
- San Joaquin kit fox (*Vulpes macrotis mutica*): state-listed as Threatened, federally listed as Endangered (SJKF)

Take coverage is also requested for Crotch's bumble bee (*Bombus crotchii*) (candidate for state listing as Endangered, no federal status) and Western Burrowing Owl (*Athene cunicularia hypugaea*), Central Valley ESU (BUOW) (candidate for state listing as Threatened, U.S. Fish and Wildlife Service Bird of Conservation Concern).

CTS is well documented as present and breeding on the project site (Vollmar Natural Lands Consulting 2023a), and Crotch's bumble bee was observed foraging onsite during species-specific surveys conducted in April 2024 (Smith pers. comm.[a]). SJKF has not been documented on the project site, and the site is more than 10 miles away from the species' closest occurrence, which is from the 1990s. The U.S. Army Corps of Engineers (Corps) has recently indicated that they are removing SJKF from their interagency consultation request for the project, based on reexamination of available information and discussion with the U.S. Fish and Wildlife Service (USFWS), which led them to conclude that the species is not present in the area (Barnes pers. comm.). However, the site does offers suitable habitat for SJKF and is technically within its geographic range (Vollmar Natural Lands Consulting 2023a). SJKF is therefore included in the request for take authorization out of caution, although it is considered very unlikely to be present.

This application has been revised from the previous May 2024 submittal in response to BUOW's October 2024 advancement to candidacy for state listing. BUOW has not been observed on the project site to date, but the site offers suitable nesting burrows as well as foraging opportunities and is within the species' range (Vollmar Natural Lands Consulting 2023a). Given the long timeline for project completion (anticipated at ~10 years; see discussion of project phasing in *Project Description* below), there may be potential for the species to use the site at a future point before construction is concluded, and it appears prudent to request take coverage rather than risking unauthorized take or project delays.

The project site also offers suitable foraging and nesting habitat and is within the known range of Swainson's Hawk (*Buteo swainsoni*) (state-listed as Threatened, no federal status), although the closest occurrence

documented in the California Natural Diversity Database (CNDDB) is 16.3 miles away and the species has not been observed onsite during extensive surveys conducted for project planning (e.g., Vollmar Natural Lands Consulting 2023a, 2023b, 2023c; Smith pers. comm.[a]). Take coverage is not being requested for Swainson's Hawk, for the following reasons.

- In the event the species is present, direct take of adult individuals during construction is considered extremely unlikely due to the species' mobility and the availability of additional suitable foraging habitat in close proximity to the project site
- Nest disturbance and take of nests, eggs, and young would be prevented by the Avoidance and Minimization Measure (AMM) adopted for the protection of nesting birds in general, which includes nest buffers specific to Swainson's Hawk, consistent with CDFW guidance (see *General Avoidance & Minimization Measures* under *Proposed Avoidance & Minimization Measures* below)
- Long-term indirect impacts on the species due to loss of habitat are expected to be addressed through the same compensation mechanism proposed for SJKF, BUOW, and CTS upland habitat

Table 1 lists the other CESA-listed species that are known from the project region and explains why each is not included in the request for take coverage. Note that AMMs will be adopted for species whose presence on the site is not expected but cannot be entirely ruled out; these are detailed in *Proposed Avoidance & Minimization Measures* below.

Table 1. Species for Which Take Coverage is Not Requested

Species	CESA Status	Discussion
Mammals		
Fresno kangaroo rat *Dipodomys nitratoides exilis*	Endangered	Occupies arid habitats; current range thought to be restricted to central portion of San Joaquin Valley. Recent documented occurrences have all been in alkali sink communities at elevations of 200 – 300 feet Not expected to occur on project site, which is at an elevation of ~400 feet, well outside species' documented elevational range
Birds		
Tricolored Blackbird *Agelaius tricolor*	Threatened	Breeds in large freshwater marshes, in dense stands of cattails (*Typha* sp.) or bulrushes (*Schoenoplectus* sp.). Prefers open habitats such as agricultural fields, pastures, cattle pens, and large lawns for foraging The project site offers suitable foraging habitat, but no nesting habitat. Nesting habitat may be present at the nearby Big Dry Creek Reservoir. Closest documented occurrence is 3.4 miles away, from 1974 May forage but not expected to nest on project site; no take anticipated, and AMMs will be in place for nesting birds in the unlikely event of nesting

Species	CESA Status	Discussion
Yellow-billed Cuckoo *Coccyzus americanus*	Endangered	In the west, mostly found in streamside trees, including cottonwood/willow groves in arid country. Uses woodlands, thickets, orchards, and streamside groves. Breeds mostly in dense deciduous stands, including forest edges, tall thickets, dense second growth, overgrown orchards, and scrubby oak woods, particularly in willow stands around marshes Project site lacks suitable streamside habitat and offers no nesting or foraging opportunities. Opportunities may be available at the nearby Big Dry Creek Reservoir, but species is not expected to use project site Not expected to be present
California Condor *Gymnogyps californianus*	Endangered	Prefers wild open country and rugged hills, nesting in mountainous terrain with forest and steep cliffs, and foraging over open grassland and savanna Project site offers suitable foraging habitat but no nesting opportunities due to generally open, flat terrain. Closest documented occurrence is 61.8 miles away, from 1976 Not expected to be present
Bald Eagle *Haliaeetus leucocephalus*	Endangered	Typically found close to water (coasts, rivers, and large lakes), and locally in open dry country. Uses a variety of waterside settings where prey is abundant. In migration, also found in mountains and open country; winters in some very dry western valleys Project site offers marginal foraging habitat but no nesting habitat. Nearby Big Dry Creek Reservoir likely also provides suitable foraging habitat. Closest documented occurrence is 27.0 miles away, from 2000 Not expected to be present
Least Bell's Vireo *Vireo belli pusillus*	Endangered	Found in willow (*Salix* spp.) growth and along streams; breeds in low dense growth, including riparian thickets, chaparral, woodland edges, or scrub oaks Project site lacks riparian growth, chaparral, and other suitable dense vegetation and thus offers no suitable habitat. Opportunities may be available at the nearby Big Dry Creek Reservoir, but species is not expected to use project site Not expected to be present
Reptiles		
Blunt-nosed leopard lizard *Gambelia sila* [*Gambelia silus*]	Endangered	Found in semiarid grasslands, alkali flats, and washes; prefers flat areas with open space for running, avoiding densely vegetated areas. Uses large shrubs with dense canopy cover for refuge and thermoregulation, and mammal dens and burrows for cover and shelter; number of available burrows determines size of species' local population Project site offers no suitable habitat due to lack of shrub cover, and is outside species' current range. Closest occurrence presumed extant is 27 miles away and from 1990 Not expected to be present

Species	CESA Status	Discussion
Giant garter snake *Thamnophis gigas*	Threatened	Found primarily in marshes, sloughs, drainage canals, and irrigation ditches, especially around rice fields, and occasionally in slow-moving creeks. Prefers locations with vegetation close to the water for basking Project site offers no suitable habitat. Closest documented occurrences are on west side of San Joaquin Valley and lack habitat connectivity with project site. One, from 1992, is 30 miles away and may be extirpated. The closest occurrence presumed extant is 35 miles away, with positive eDNA detection documented in 2017, but is not connective with project site Not expected to be present
Amphibians		
Foothill yellow-legged frog *Rana boylii*	Endangered	Found in streams and rivers with rocky substrate and open, sunny banks; also in forests, chaparral, and woodlands, isolated pools, vegetated backwaters, and deep, shaded, spring-fed pools Project site offers limited aquatic resources and none that are suitable for this species, due to low relief and lack of rocky substrate and shading Not expected to be present
Flowering Plants*		
Tree-anemone *Carpenteria californica*	Threatened	Occurs in foothill woodland, chaparral, streambanks, and oak woodlands at elevations of 1,115 – 4,396 feet Project site offers no suitable habitat and is substantially outside species' documented elevational range. Closest documented occurrence is 17.8 miles away Not expected to be present due to site elevation and lack of suitable habitat; not observed on site during 2023 protocol-level surveys for special-status plants
Succulent owl's-clover *Castilleja campestris* ssp. *succulenta*	Endangered	Occurs in vernal pools, freshwater wetlands, foothill woodlands, valley grasslands, and wetland/riparian settings at elevations below 2,460 feet Seasonal wetlands at the project site may provide marginal habitat for this species, but it is typically found in large vernal pools with high native species richness and diversity, which are lacking from this site. Closest documented occurrence is 3.1 miles away, from 2008. Not observed on site during 2023 protocol-level surveys for special-status plants Unlikely to be present due to suboptimal conditions at site; not observed on site during 2023 protocol-level surveys for special-status plants
California jewelflower *Caulanthus californicus*	Endangered	Occurs in shadescale scrub, valley grassland, pinyon-juniper woodland, non-alkaline grasslands, flats, and slopes at elevations of 230 – 3,281 feet Project site offers valley and foothill grasslands and sandy microhabitats, but no habitat remains in the vicinity. Only documented occurrence in the vicinity is 8.2 miles away, from the late 1890's or early 1900's

Species	CESA Status	Discussion
		Unlikely to be present due to lack of recent occurrences in vicinity; not observed on site during 2023 protocol-level surveys for special-status plants
Boggs Lake hedge-hyssop *Gratiola heterosepala*	Endangered	Occurs on lake margins, vernal pool and freshwater wetland edges, in wetland/riparian settings, and in shallow water at elevations below 5,249 feet Aquatic features on project site may provide marginally suitable habitat for this species; closest document occurrence is 13.6 miles away, from 1994 **Unlikely to be present;** not observed on site during 2023 protocol-level surveys for special-status plants
San Joaquin Valley Orcutt grass *Orcuttia inaequalis*	Endangered	Occurs in vernal pools, freshwater wetlands, valley grasslands, wetland/riparian settings at elevations below 1,312 feet Seasonal wetlands on project site may provide very marginal habitat for this species. Closest documented occurrence is 1.3 miles away, from 1987 **Unlikely to be present;** not observed on site during 2023 protocol-level surveys for special-status plants
Hairy Orcutt grass *O. pilosa*	Endangered	Occurs in vernal pools, freshwater wetlands, valley grasslands, wetland riparian settings at elevations below 656 feet Seasonal wetlands on project site may provide very marginal habitat for this species; closest documented occurrence is 9.8 miles away, from 2010 **Unlikely to be present;** not observed on site during 2023 protocol-level surveys for special-status plants
Hartweg's golden sunburst *Pseudobahia bahiifolia*	Endangered	Occurs in foothill woodlands, valley grasslands, open woodlands at elevations of 328 – 656 feet. Strongly associated with mima mound topography and clay or volcanic soils Project site offers grasslands and is at a suitable elevation, but lacks mima mound topography and clay/volcanic soils; closest documented occurrence is 8.0 miles away, from 2009 **Unlikely to be present;** not observed on site during 2023 protocol-level surveys for special-status plants
San Joaquin adobe sunburst *P. peirsonii*	Endangered	Occurs in foothill woodlands, valley grasslands, and open woodlands at elevations of 328 – 2,953 feet. Strongly associated with bare, dark-colored clay soils Project site offers grasslands and is at a suitable elevation, but lacks areas of bare, dark-colored clay soils; closest documented occurrence is 7.1 miles away, from 2010 **Unlikely to be present;** not observed on site during 2023 protocol-level surveys for special-status plants
Greene's tuctoria *Tuctoria greenei*	Rare	Occurs in vernal pools, freshwater wetlands, valley grasslands, wetland/riparian settings at elevations below 3,245 feet Seasonal wetlands on project site may provide very marginal habitat for this species; closest documented occurrence is 1.8 miles away, from 1987 **Unlikely to be present;** not observed on site during 2023 protocol-level surveys for special-status plants

Species	CESA Status	Discussion
* Protocol-level rare plant surveys were conducted in 2023; rainfall and temperature conditions were good that year, surveys were conducted during the peak blooming period for the species potentially present, and survey results were negative. Results are presumed valid for the 2 subsequent blooming seasons.		

Source: Vollmar Natural Lands Consulting 2023a, 2023c; Maners and Smith pers. comm.[a], pers. comm.[b]

Habitat Conditions on Project Site

Overview

Figure 1 shows the location of the proposed Vista Ranch project site. As Figure 2 shows, the site is largely undeveloped, and is bordered to the south and west by suburban residential development and to the northwest by more open rural residential development. To the northeast, the site abuts open rangeland and the Big Dry Creek Dam and Reservoir, which are flood control structures operated by the Fresno Metropolitan Flood Control District (FMFCD). The site is bisected by the Big Dry Creek Reservoir Outlet Works Channel (Outlet Channel) a constructed feature fed by the Big Dry Creek Dam spillway (Figure 2).

When the Reservoir was constructed, the natural Dry Creek drainage was re-routed into the Reservoir basin; flow now exits via the spillway and is conveyed via the Outlet Channel to rejoin the Creek about 2,500 feet below the spillway, at the southwest edge of the project site. The truncated and abandoned channel of Dry Creek remains a conspicuous feature in the east-central portion of the site, but no longer conveys flow, all of which has been re-routed via the Reservoir, Dam, spillway, and Outlet Channel (Vollmar Natural Lands Consulting 2023b). The remnant Creek channel exhibits intermittent stream geomorphology but lacks an Ordinary High Water Mark (OHWM). It does not have hydric soils and supports only upland vegetation (Vollmar pers. comms., Vollmar Natural Lands Consulting 2023b). Figure 3 provides representative views of the channel up- and downstream of the Big Dry Creek Dam.[1]

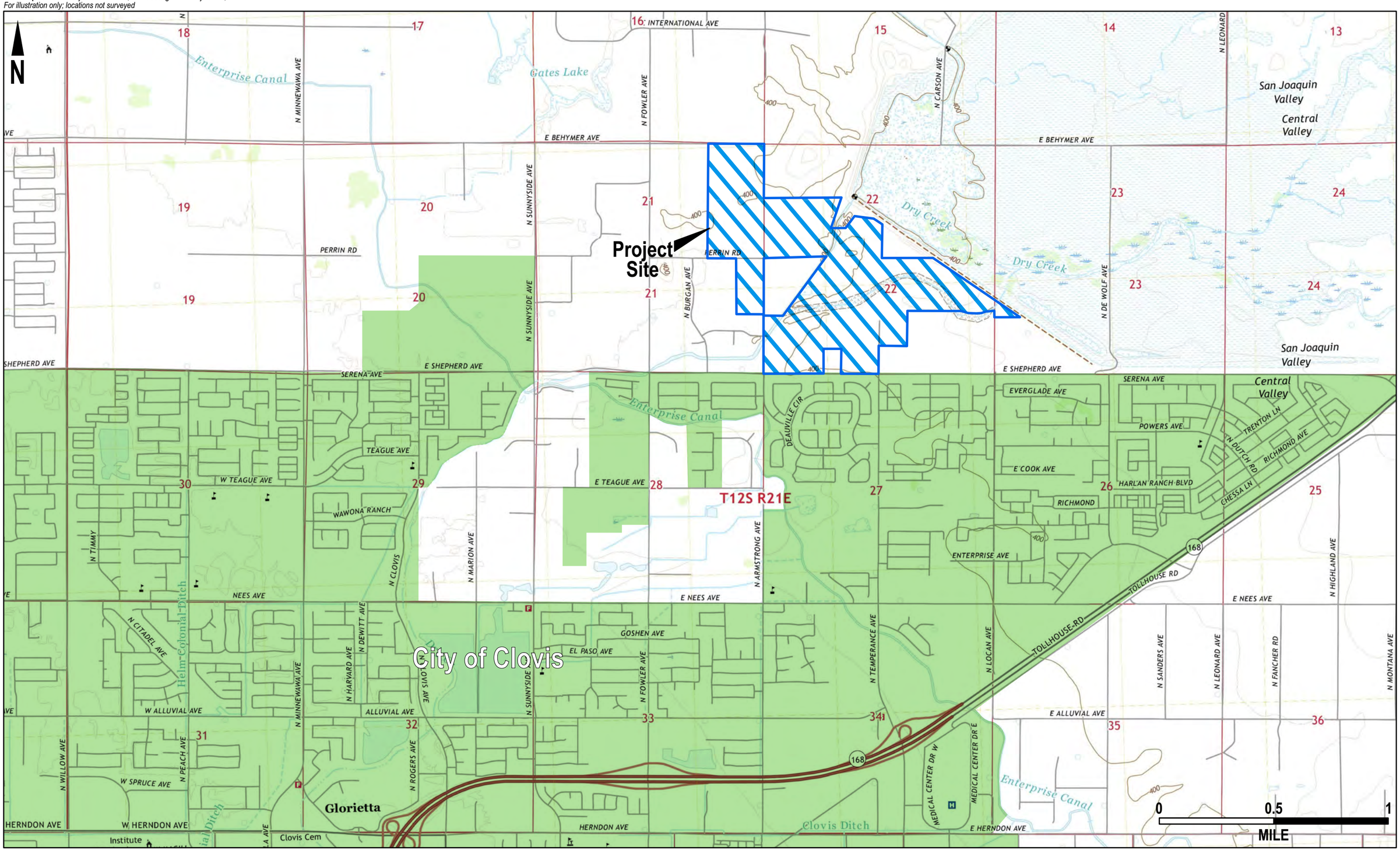
Site topography is level to gently rolling, with elevations ranging from about 380 to 413 feet above mean sea level. The most pronounced slopes are in the northwest portion of the site. Site soils appear to lack intact claypan or hardpan, which likely contributes to relatively rapid infiltration throughout much of the site, with a correspondingly low rate of wetland formation even within some depressional features (Vollmar Natural Lands Consulting 2023b).

The majority of the site is non-native annual grassland and degraded pasture land (Figure 4). Scattered depressional wetlands are present within the grasslands, especially along the northeast edge of the site, where they occupy a series of what appear to be remnant floodplain swales north of the remnant Dry Creek channel. Three created stockponds and small depressional wetlands are also present within the grasslands in the northwest portion of the site (Vollmar Natural Lands Consulting 2023b).

The central portion of the site was graded for flood irrigation several decades ago, although flood irrigation is not practiced at this time. This area is divided into several pastures with cross fencing and is at least intermittently used for grazing. It supports degraded pasture with disturbed, ruderal vegetation dominated by non-native

[1] In early 2024, CDFW Region 4 LSAA staff confirmed that they will not take jurisdiction over the portion of the remnant Dry Creek channel upstream of the confluence with the Outlet Channel. This is understood to be because it has been functionally replaced by the Outlet Channel; although the remnant channel still exhibits bed and banks geomorphology, it has not received surface flows for about 70 years, does not appear to receive meaningful groundwater input, and thus lacks a low-flow channel and OHWM (Byrd pers. comm.). As a result, it no longer provides stream or riparian values.

Base Map Sources: City of Clovis 2014; U.S. Geological Survey 2021a, 2021b
For illustration only; locations not surveyed



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Figure 1. Site Location
Vista Ranch – Application for Incidental Take Authorization
Wilson Premier Homes

Aerial Imagery Source: GoogleEarth (imagery date 05/28/2023, downloaded 08/03/2023)
For illustration only; locations not surveyed



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Figure 2. Aerial View of Project Site
Vista Ranch – Application for Incidental Take Authorization
Wilson Premier Homes

Source: photos courtesy of Vollmar Natural Lands Consulting, Sacramento, CA

Abandoned Dry Creek Channel on Project Site



View to west at angle to channel, from 36°52'18.3"N, 119°39'57.9"W (approximate center of channel on project site)

Functional Channel Upstream of Big Dry Creek Dam



Drone aerial view, looking downstream toward Clovis and Fresno, from upstream of Friant-Kern Canal



View northeast across channel from 36°52'12.2"N, 119°40'23.2"W (just east of Big Dry Creek Dam spillway channel)

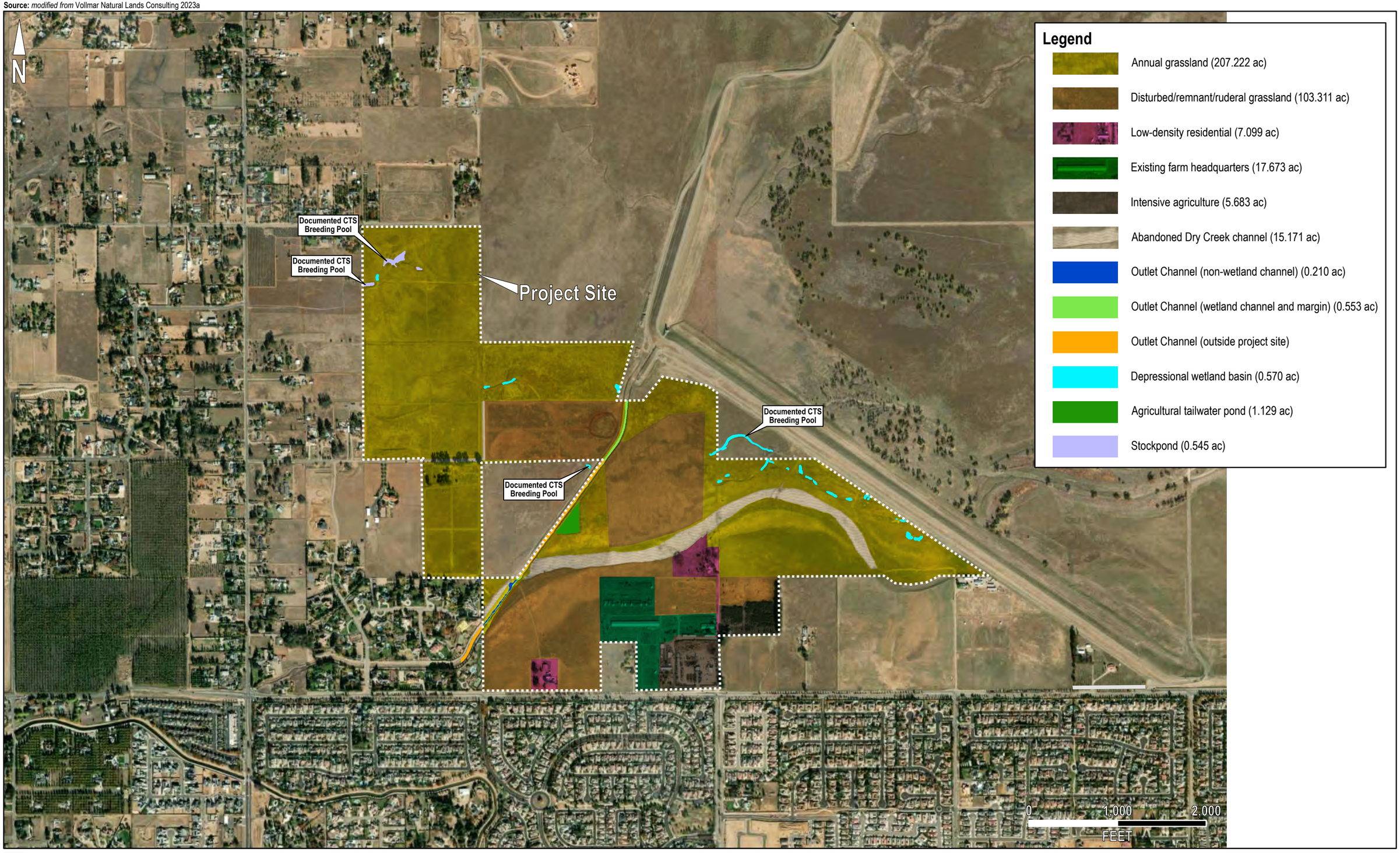


View upstream from bank of reach shown above; flow toward viewer

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Figure 3. Dry Creek Channel Above and Below Big Dry Creek Dam
Vista Ranch Project – Application for Incidental Take Authorization
Wilson Premier Homes

Source: *modified from* Vollmar Natural Lands Consulting 2023a



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Figure 4. Habitat and Land Cover on Project Site
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grasses and herbs including invasive weeds. Scattered rural/agricultural development features are also present. Current grazing use appears to be light, leading to build-up of thatch and residual dry matter. A triangular pond located adjacent to the Outlet Channel was apparently constructed in uplands to capture and allow reuse of irrigation water although it also has a culverted connection to the Channel (Vollmar Natural Lands Consulting 2023b).

A total of 3.053 acres of jurisdictional waters has been mapped on the project site (Figure 5). This includes 1.646 acres of stock ponds and seasonal/depressional wetlands and 0.278 acre of other waters (Outlet Channel), in addition to the agricultural tailwater pond (1.129 acres) (Vollmar Natural Lands Consulting 2023b).

Additional detail on specific habitat types at the project site is provided in the section that follows, followed by a summary of California Rapid Assessment Method (CRAM) scores for representative aquatic features.

Details by Habitat Type

Upland Habitats

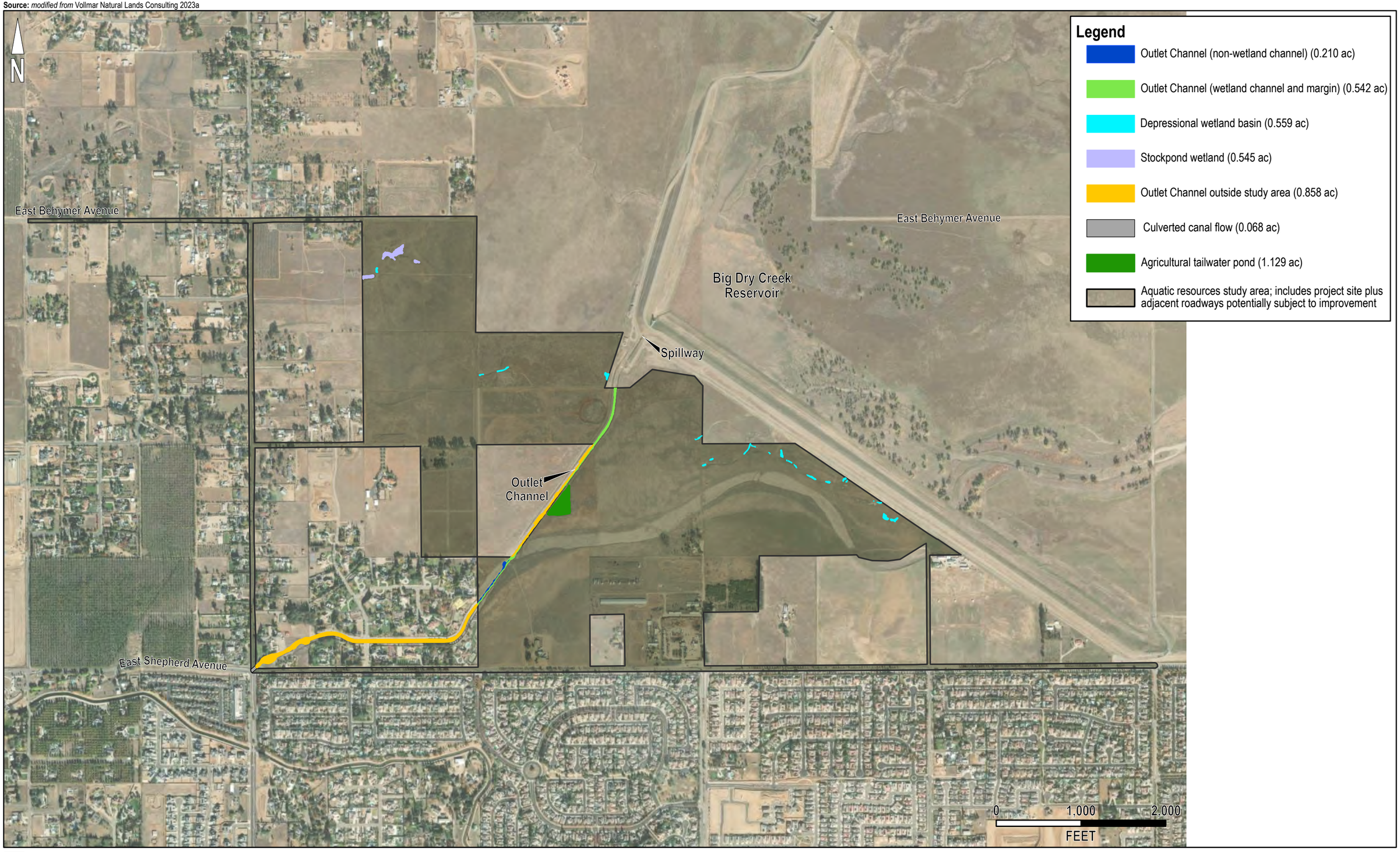
As Figure 4 shows, more than half of the project site supports grassland habitat. Like nearly all California grasslands, the uplands are dominated by non-native European annual grasses. Weedy species are also present, although this habitat is more characterized by forage grasses than noxious weeds *per se*. The areas mapped as grassland have generally been subject only to livestock grazing, but some dirt roads, firebreaks, and other minor infrastructure are present. The northeast and southeast portions of the site appear not to be grazed at present, and grasslands there support a mixture of primarily non-native annual grasses and herbs including invasive non-native species (Vollmar Natural Lands Consulting 2023a).

Approximately another one-third of the project site supports a land cover type referred to here as disturbed/ remnant/ruderal grasslands. This includes areas that were formerly levelled and flood-irrigated but have since been returned to dry pasture, areas that have been dry-farmed or were otherwise subject to severe soil disturbance, and small patches of grassland separated from other habitat by developed land covers. These areas are united by the fact that their land use history has significantly impeded their ability to provide habitat values for listed species (Vollmar Natural Lands Consulting 2023a).

A former small farm occupies about another 5% of the project site. This area includes dilapidated structures and old row crop fields that have been fallowed and are now used as grazing land or are unmanaged. Their function and value is similar to that of the disturbed/remnant/ruderal grassland areas (Vollmar Natural Lands Consulting 2023a).

The abandoned Dry Creek channel is also considered upland habitat, since, as identified above, it no longer provides riparian or aquatic values, and lacks hydric soils and wetland vegetation. The remnant channel, which occupies about 4% of the project site by acreage, is now a sandy area lightly vegetated with plants tolerant of very dry soils. Some of these are native to California, but the very sandy, open habitat is atypical of valley grassland environments and for the most part does not provide grassland habitat values (Vollmar Natural Lands Consulting 2023a), although a large stand of silver bush lupine (*Lupinus albifrons*) observed in the east half of the channel in spring 2024 (Smith pers. comm.[b]) provides suitable forage for multiple pollinator species, and Crotch's bumble bee was observed foraging there during species-specific surveys conducted in April 2024 (Smith pers. comm.[a]).

Source: *modified from* Vollmar Natural Lands Consulting 2023a



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Figure 5. Aquatic Resources on Project Site
Vista Ranch – Application for Incidental Take Authorization
Wilson Premier Homes

Big Dry Creek Reservoir Outlet Works Channel

The Outlet Channel is a constructed feature with a largely straight plan view and a roughly trapezoidal cross section.

The southern portion of the Outlet Channel has been delineated as a non-wetland channel, indicated as *Outlet Channel (non-wetland channel)* on Figure 5. At the time the jurisdictional habitat delineation was conducted for the project (late spring – early summer 2023), it showed a conspicuous lack of vegetation, and its steeply eroded banks suggested that any vegetation previously present may have been washed out in the winter's heavy rains (Vollmar Natural Lands Consulting 2023b).

The Outlet Channel provides minimal habitat value, largely because its sandy soils and lack of vegetation allow moisture to infiltrate rapidly or evaporate when water is not being actively released at the Reservoir spillway. The temporary nature of flows prevents the establishment of any fish species, as well as most aquatic invertebrates. During Reservoir releases, high flows likely flush any fish or invertebrates that might otherwise attempt to use this habitat. Birds and mammals may gain some use from the availability of drinking water during releases. The lack of vegetation or any other source of channel roughness greatly reduces opportunities for natural water quality improvements or other ecosystem services from this habitat (Smith pers. comm.[c]).

Significant portions of the Outlet Channel also support wetlands, including segments of wetland channel and fringing wetlands along the channel margin, called out as *Outlet Channel (wetland channel and margin)* on Figure 5. Vegetation in these areas is dominated by wetland plants including burhead (*Echinodorus berteroi*), rough cocklebur (*Xanthium strumarium* [*X. orientale*]), tall flatsedge (*Cyperus eragrostris*), and common spikerush (*Eleocharis macrostachya*).

The wetland portions of the Outlet Channel and its fringing wetland margins provide some habitat value. Like the non-wetland channel described above, the hydroperiod of wetland channel reaches is restricted almost entirely to the period of Reservoir releases, preventing the establishment of fish. However, the presence of vegetation on the channel bottom provides slightly increased moisture retention, allowing this area to provide some sheltering habitat for invertebrates and amphibians. Birds or mammals may also forage here, though watering opportunities are still very limited. The vegetation in this area likely provides minor water quality improvements locally and downstream. However, the type of vegetation in this channel—relatively small-statured plants at low density—is not well suited to providing significant water quality improvements, carbon sequestration, or other ecosystem services that might be provided by larger, denser marshland plants (Smith pers. comm.[c]).

Depressional Wetlands

Depressional wetlands occupying natural basins and topographic lows (totaling 0.559 acre) are scattered throughout the portions of the site that have not experienced significant grading, with concentrations along the northeast site margin and in the northwest (Figure 5). Some appear to occupy remnant floodplain swales, now beheaded. No wetlands are present in the central portion of the site where there is more history of past grading (Vollmar Natural Lands Consulting 2023b).

Common dominant vegetation within the delineated depressional wetland basins includes common lippia (*Phyla nodiflora*), swamp picklegrass (*Crypsis schoenoides*), and saltgrass (*Distichlis spicata*). Common subdominant species include Mediterranean barley (*Hordeum marinum* ssp. *gussoneanum*), common vernal pool allocarya (*Plagiobothrys stipitatus* var. *micranthus*), coyote thistle (*Eryngium castrense*), hyssop loosestrife (*Lythrum hyssopifolia*), and Italian rye grass (*Festuca perennis*). The wetland delineation team observed that as the

basins dried following the heavy winter rains of 2023, many showed reduced vegetation cover and were colonized by upland species such as pigweed amaranth (*Amaranthus albus*), common sunflower (*Helianthus annuus*), seaside heliotrope (*Heliotropium curassavicum*), lamb's quarters (*Chenopodium album*), alkali mallow (*Malvella leprosa*), and puncture vine (*Tribulus terrestris*) (Vollmar Natural Lands Consulting 2023b).

Because most of the site soils are developed on highly permeable alluvium, the depressional wetlands generally have a shorter hydroperiod than typical vernal pools in the project region. They support some generalist vernal pool species at low densities (e.g., common vernal pool allocarya and coyote thistle), but the vegetation is more typified by generalist seasonal wetland plants. Rare vernal pool plants are not expected to occur in these wetlands (Smith pers. comm.[c], Vollmar Natural Lands Consulting 2023c).

The depressional wetlands provide potential habitat for vernal pool wildlife, including vernal pool fairy shrimp (*Branchinecta lynchi*) (no state status; federally listed as Threatened). Western spadefoot (*Spea hammondii*) (California Species of Special Concern; no federal status) has been documented as breeding in several of these features, and all of them provide potential habitat for western spadefoot. The largest and deepest of these features—which extends off the project site and onto neighboring FMFCD property adjacent to the Big Dry Creek Dam—supports breeding CTS. This feature is underlain by the San Joaquin loam, a hardpan-developing soil, which likely accounts for its longer hydroperiod and greater ability to support special-status species. Two other depressional wetlands on the site that are also located on San Joaquin loam substrate provide additional areas of potential CTS breeding habitat (Smith pers. comm.[c]).

In addition to these special-status species, the depressional wetlands provide potential habitat value for a variety of generalist wetland invertebrates, birds, reptiles, and mammals. However, the relatively short hydroperiod and generalist-dominated vegetation community means that this value is lower than would be expected for a typical vernal pool in the region. Additionally, because the depressional wetlands are (highly) seasonal and lack surface connectivity to other waters, they provide little to no water quality service or carbon sequestration, although they likely make a limited contribution to groundwater infiltration (Smith pers. comm.[c]).

Stockpond Wetlands

Three stockponds totaling 0.545 acre are located in the northwest portion of the site, where they cluster with naturally formed depressional wetlands (Figure 5). They are dominated by a mixture of obligate and facultative wetland plant species, including common spikerush, burhead, and curly dock (*Rumex crispus*). The upper rim of one of the ponds also supports some additional wetland plant species such as coyote thistle, hyssop loosestrife, and Mediterranean barley (Vollmar Natural Lands Consulting 2023b). The stockponds are created features rather than natural vernal pools; their hydrology and soils are not conducive to development of vernal pool vegetation communities or to support of vernal pool specialist invertebrates (Smith pers. comm.[c]).

Two of the stockponds provide documented CTS breeding habitat, and a third provides potential breeding habitat for the species. All of them also provide potential habitat for western spadefoot, as well as for generalist wildlife, including other amphibians, birds, mammals, reptiles, and invertebrates (Smith pers. comm.[c]).

Because the stockponds are seasonal and lack surface connections to other waters, they provide little to no water quality service or carbon sequestration. However, they provide moderate groundwater infiltration service (Smith pers. comm.[c]).

Agricultural Tailwater Pond

A large (1.129 acres) agricultural tailwater pond is located in the central portion of the site adjacent to the outer toe of the levee bordering the Big Dry Creek Reservoir Outlet Channel (Figure 5). Based on historic topographic maps and aerial photographs, it appears to have been constructed in the 1950s when this portion of the site was graded for flood irrigation, to enable capture and recirculation/reuse of irrigation water from irrigated pastures on the site. Flood irrigation is no longer conducted on the site, but the pond likely still receives stormflow from the graded field areas via remnant tailwater ditches (Vollmar Natural Lands Consulting 2023b).

The pond also has a culvert connection to the Outlet Channel. The purpose of the culvert is uncertain; it was probably intended to allow excess irrigation water to drain to the Outlet Channel, but observations during the 2023 – 2024 wet season suggest it also allows flows from the Outlet Channel to enter the pond (Vollmar Natural Lands Consulting 2023b, Maners and Smith pers. comm.[b]).

The pond was fully inundated in 2023's heavy winter rains and remained ponded at least 4 feet deep in June when fieldwork was conducted for the jurisdictional habitat delineation (Vollmar Natural Lands Consulting 2023b). At this time, prolonged ponding had enabled establishment of a narrow (approximately 3-foot-wide) band of wetland vegetation around the rim of the pond. The remainder of the pond was open water in June 2023 (Vollmar Natural Lands Consulting 2023b). Interestingly, although studies in June 2023 documented hydric soils at the pond, a previous investigation mapped this area as annual grassland lacking both wetland soils and wetland vegetation (ECORP Consulting 2023, Vollmar Natural Lands Consulting 2023a). As of the 2023 surveys, vegetation fringing the pond was characterized by northern water plantain (*Alisma triviale*), burhead, common spikerush, and hyssop loosestrife (Vollmar Natural Lands Consulting 2023a).

The pond provides habitat for wildlife, including breeding amphibians, aquatic reptiles, waterfowl, and mammals. As of 2023, western toad (*Anaxyrus boreas*) appeared to be breeding there, but 2023 surveys did not detect CTS (Vollmar Natural Lands Consulting 2023a).[2] While the pond does retain water long enough to allow CTS to breed in some years, its variable hydrology—well outside the normal range for Central Valley wetland systems, and likely the result of intermittent input from Reservoir releases—greatly reduces its habitat value (Vollmar Natural Lands Consulting 2023a, Smith pers. comm.[c]).

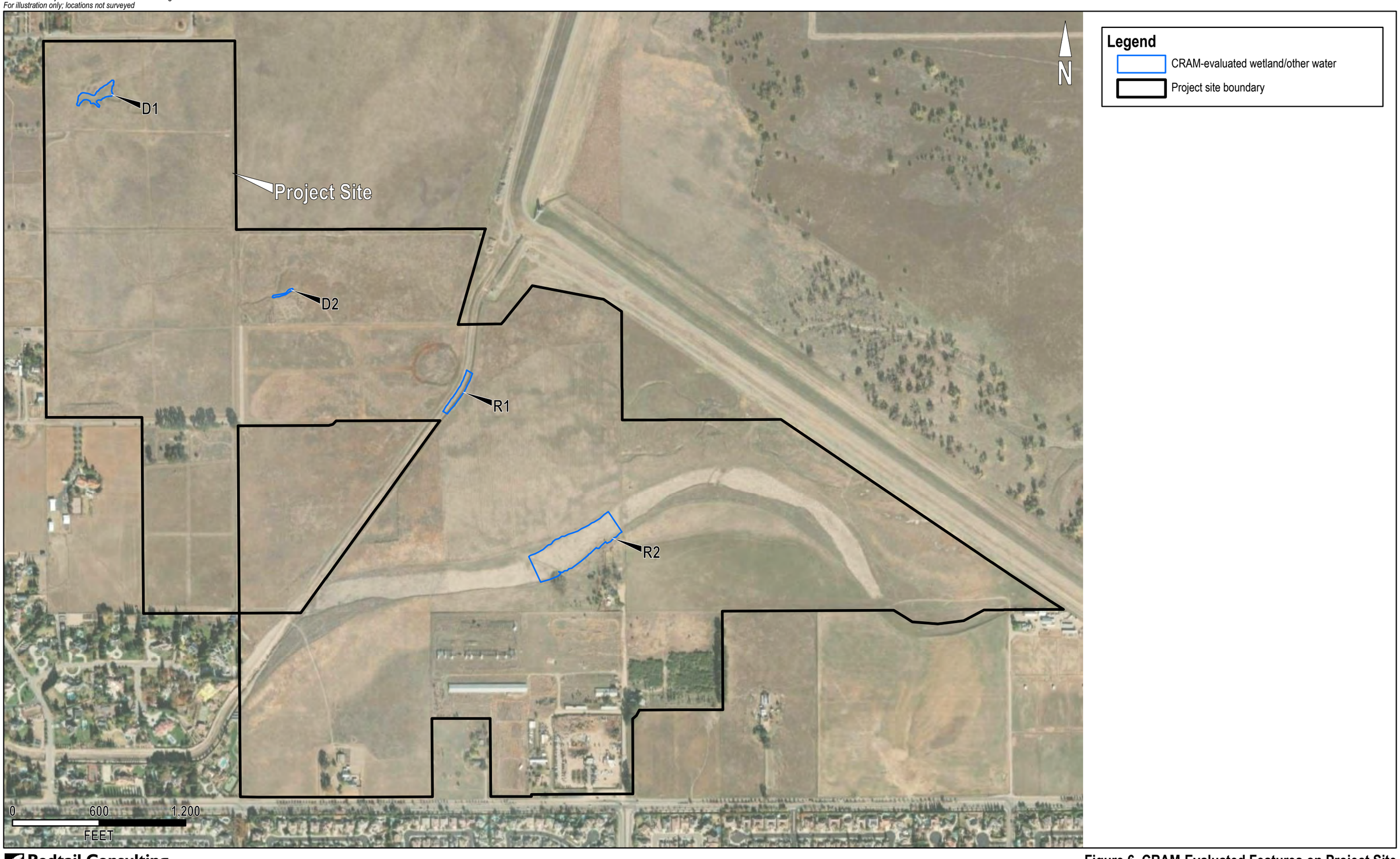
Due to its variable hydrology and uncertain ponding period, the tailwater pond is not expected to provide significant water quality or carbon capture services. However, the same factors considered likely to be responsible for year-to-year differences in ponding duration—i.e., unpredictable input from spillway releases via the Outlet Channel—mean that it intermittently provides a small increase in flood protection to downstream waters, as well as contributing to groundwater recharge (Smith pers. comm.[c]).

CRAM Assessment Scores for Aquatic Features on Project Site

Table 2 shows CRAM scores for representative wetland features on the project site; see Figure 6 for locations of the features evaluated. Wetland Assessment Area D1 consists of the largest stock pond proposed for fill. This feature was selected for evaluation because it was considered likely to offer the highest wetland habitat values of the stock ponds and depressional wetlands, based on its large size and relatively long hydroperiod. Assessment Area D2 is a centrally located depressional wetland in a swale, also planned for fill. This feature is more representative of the smaller wetlands on the project site, both those that would be filled and those that would be avoided. Riverine Assessment Area R1 comprises 100 meters of the Outlet Channel in the central

[2] Protocol-level surveys were not conducted in 2023; however, CTS was notably present in other features onsite at this time, and was not detected in the pond (Vollmar Natural Lands Consulting 2023a).

Source: courtesy of Vollmar Natural Lands Consulting
For illustration only; locations not surveyed



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Figure 6. CRAM-Evaluated Features on Project Site
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project area. This location was selected per CRAM guidelines to allow for evaluation of the area of maximum impact from the bridge that will eventually connect the east and west portions of the project. Assessment Area R2 is a representative reach of the abandoned former Dry Creek channel (Redtail Consulting 2023).[3]

Table 2. CRAM Assessment Scores for Project Site Aquatic Features

Feature	Score by Wetland Attribute				Index Score
	Buffer & Landscape	Hydrology	Physical Structure	Biotic Structure	
Depressional Wetland					
D1	47.88	83.33	50	41.67	56
D2	47.88	58.33	62.5	41.67	53
Riverine					
R1	45.4	66.67	37.5	66.67	54
R2	36	75	25	25	40

Source: Redtail Consulting 2023

Index scores for the two depressional wetland features (56 and 53 respectively) are below the statewide median index score of 60 for depressional wetlands and are just above the range of scores considered to represent Poor condition. Scores for the two "riverine" features (54 for the Outlet Channel and 40 for the abandoned Dry Creek channel) are also unimpressive; 54 is at the low end of Fair condition, and 40 is well within the Poor condition range (Redtail Consulting 2023).[4]

Project Description

Background & Planning Context

The Vista Ranch project represents part of a larger City of Clovis (City) planning undertaking (Figure 7) that comprises

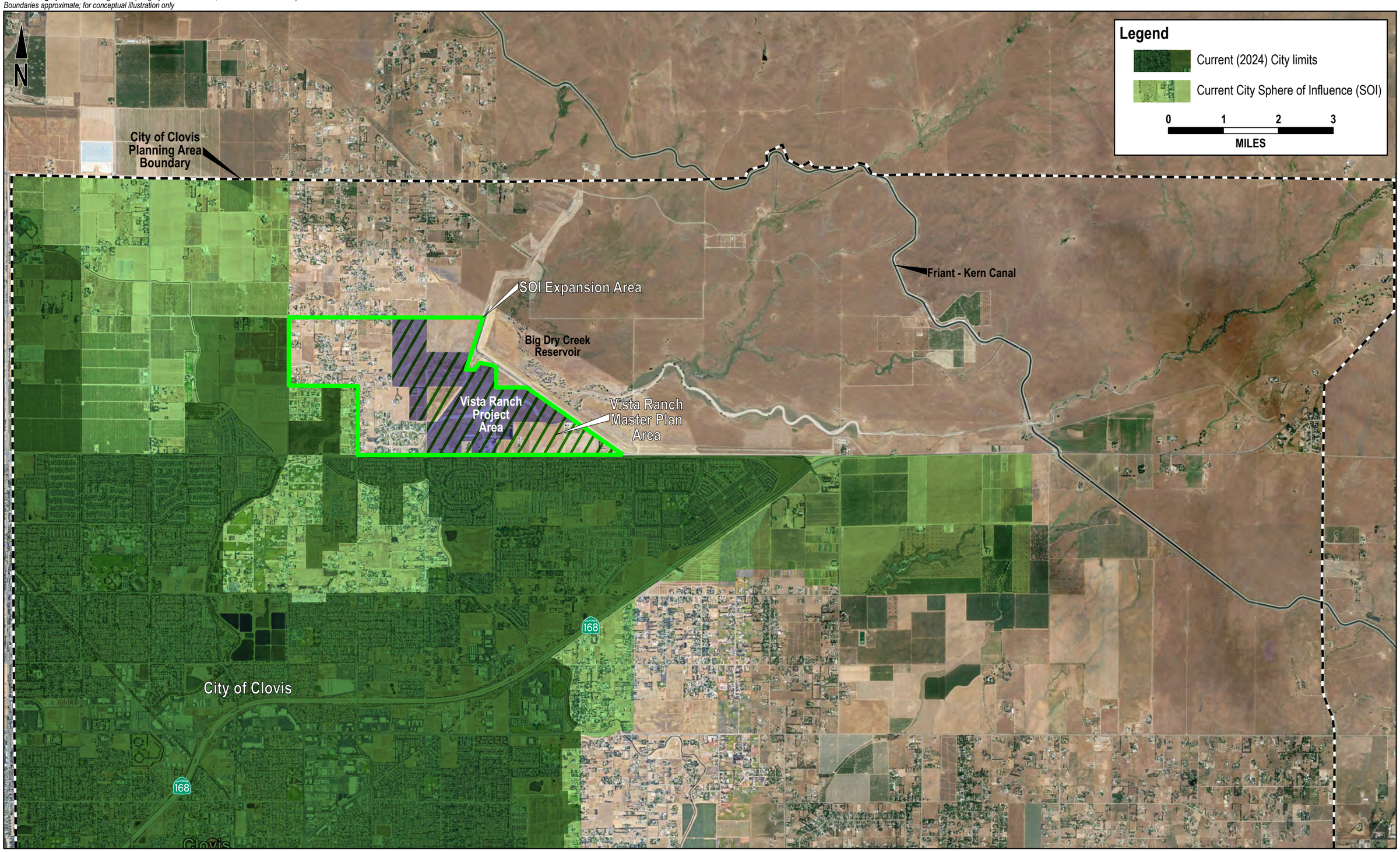
- expansion of the City's Sphere of Influence (SOI) to include an approximately 952-acre area outside the current SOI boundary
- adoption of a comprehensive Master Plan (the Vista Ranch Master Plan) to guide development within approximately 507 acres of the SOI Expansion Area, including pre-zoning and annexation of the Master Plan Area
- approval and implementation of the Vista Ranch project, which would develop some 368 acres of the Master Plan Area

Like other California jurisdictions, the City conducts land use planning, makes land use decisions, and provides services at several scales (Figure 8). City limits define the extent of the incorporated City as recognized under state law. Extending beyond City limits into unincorporated lands, the SOI represents the City's larger area of

[3] CRAM evaluation of the abandoned former channel is arguably inappropriate since it lacks both wetland soils and vegetation and has been truncated from sources of upstream flow, and thus is neither a wetland nor an active stream channel at present. This feature was chosen for evaluation as a means of further examining the initial assessment that it provides little or no riparian/wetland value. Interestingly, as Table 2 shows, it received a score of 75 for the Hydrology attribute, due to the geomorphic stability of the (no longer functional) channel, and its direct connection to overland flow via low banks and a lack of natural levees. This higher single-attribute score elevated the feature's overall score, and the overall score of 40 should probably be considered as overestimating the beheaded channel's actual function and value.

[4] As of this writing, no statewide median score for riverine features has been published (see additional discussion in Redtail Consulting 2023).

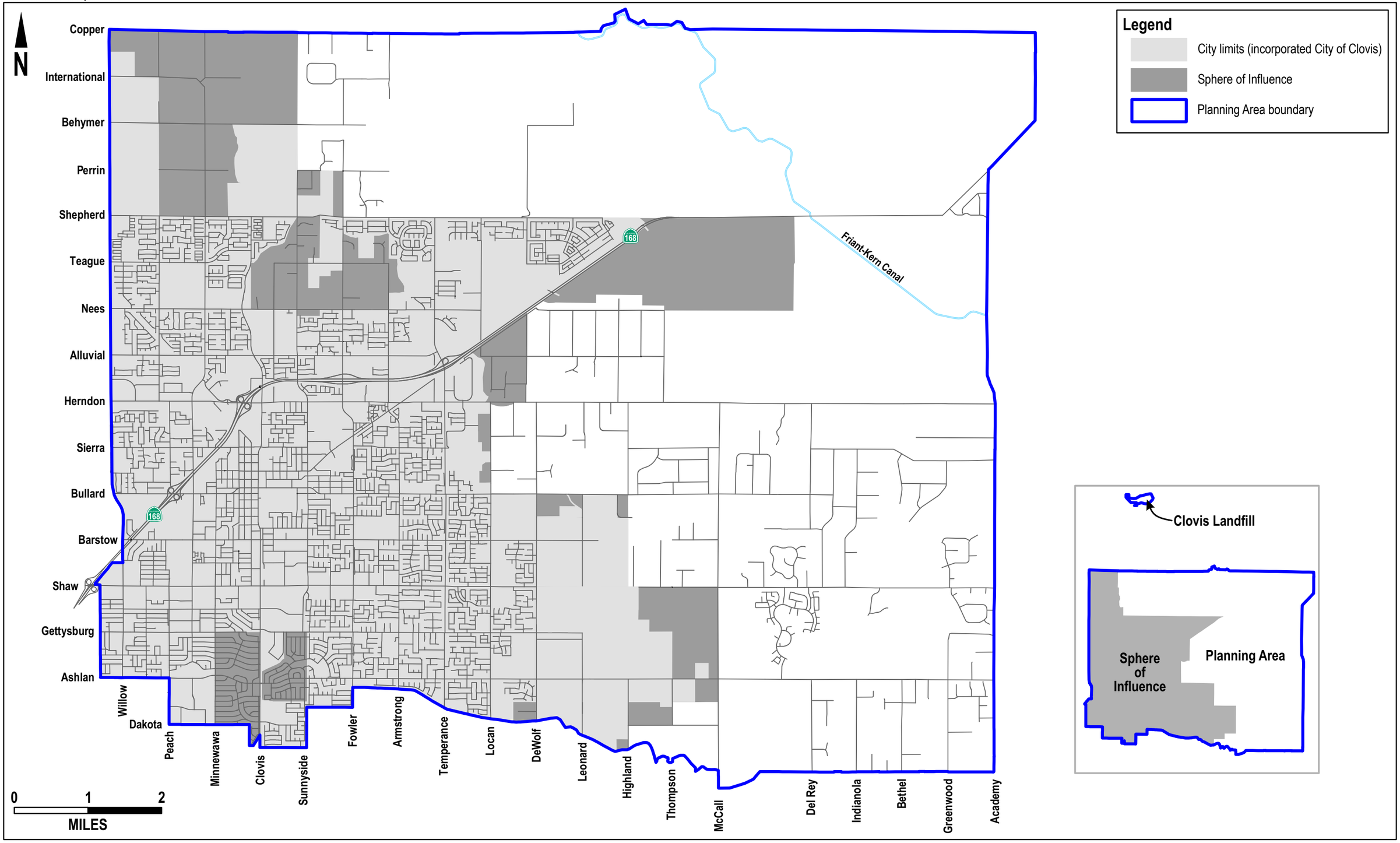
Map Source: *modified from* City of Clovis (2014)
Aerial Photograph Source: GoogleEarth (imagery date: 06/09/2022, downloaded: 08/22/2023)
Boundaries approximate; for conceptual illustration only



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Figure 7. Project Planning Context
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Source: *modified from* City of Clovis 2014



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Figure 8. City of Clovis Planning Boundaries
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service responsibility. More extensive still is the Planning Area, which encompasses lands that are outside both City limits and the Sphere of Influence but where the City nonetheless takes an active interest in forward planning to ensure managed, logical, and orderly growth for the benefit of the community. To that end, the City's General Plan provides a blueprint to guide land use planning decisions for the whole of the Planning Area. Both the SOI and the remainder of the Planning Area outside the SOI thus encompass lands that are contemplated for potential annexation into the incorporated City over the long-term future.

The Land Use Element of the City's current General Plan (City of Clovis 2014) emphasizes maintaining "Clovis' tradition of responsible planning and well-managed growth" in order to

- "preserve the quality of life in existing neighborhoods and ensure the development of new neighborhoods with an equally high quality of life",
- "foster more compact development patterns that can reduce the number, length, and duration of auto trips", and
- "balance residential growth with economic and employment growth".

Land Use Element Goal 3 prescribes "[o]rderly and sustainable outward growth into three urban centers with neighborhoods that provide a balanced mix of land uses and development types to support a community lifestyle and small town character" (City of Clovis 2014). The three urban centers—referred to as the Loma Vista Urban Center, the Northwest Urban Center (later renamed Heritage Grove), and the Northeast Urban Center—are shown on Figure 9. Note that they are all adjacent to dense existing development within the incorporated City and thus are logical loci for "next steps" in managed City growth.

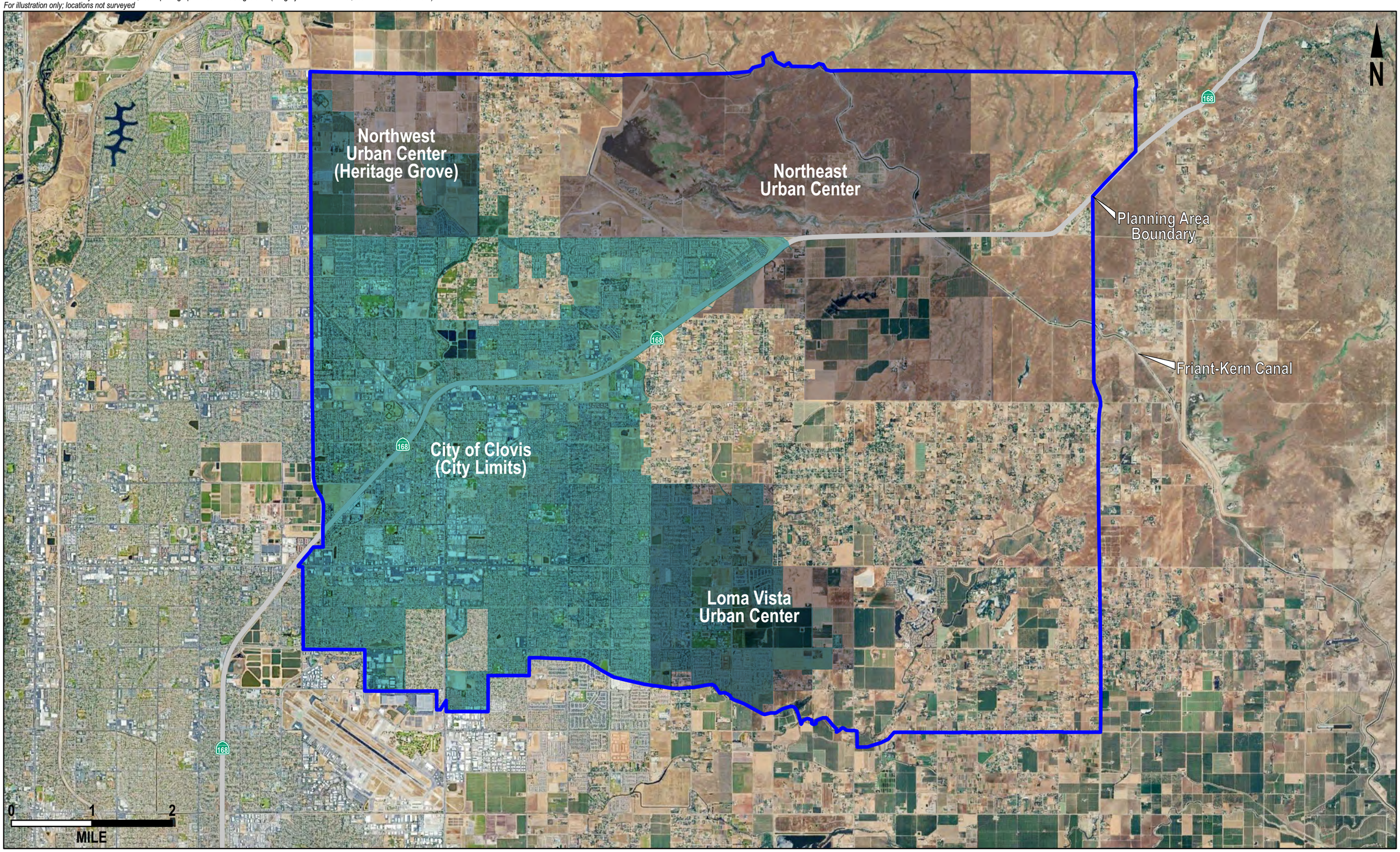
To ensure that growth within the Urban Centers is planned, managed, and consistent with General Plan goals and policies, the General Plan further requires that a comprehensive design document, such as a master plan, specific plan, or design guidelines, be in place before new development is authorized. Additional requirements for Urban Centers may be established via designation in the General Plan as a "Focus Area" for planning. When an individual project is proposed in an Urban Center, a conceptual master plan—representing a "step-down" plan from the comprehensive design document—must be developed, to show how that project would relate to other existing and potential future development in the area and to ensure consistency with the comprehensive design document, the General Plan, and any additional Focus Area–specific requirements (City of Clovis 2014).

Development in the Loma Vista Urban Center southeast of the City's old-town core is governed by the Loma Vista Specific Plan (City of Clovis 2003), adopted more than 20 years ago and amended as growth has progressed. As the Urban Center farthest ahead in the development process, Loma Vista remains the City's priority for development, although growth is allowed to proceed elsewhere (City of Clovis 2014).[5]

The City adopted Design Guidelines for Heritage Grove 9 years ago (City of Clovis 2016). As the comprehensive design document required by the General Plan, the Design Guidelines provide the standards to direct future development and improvements in Heritage Grove. As of 2025, about 20% of the Heritage Grove Urban Center is in various stages of development, with most of the remainder in agricultural production, as shown on on the air photo base of Figure 9. The primary landowner is currently processing a step-down Specific

[5] Note that much of the Loma Vista Urban Center is now within City limits, as shown on Figure 9. This reflects progressive annexation of areas developed under the Loma Vista Specific Plan; the entirety of the Urban Center was originally outside City limits.

Sources: *modified from* City of Clovis 2014; aerial photograph base from GoogleEarth (imagery date: 11/10/2023, downloaded: 05/18/2024)
For illustration only; locations not surveyed



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Figure 9. General Plan–Designated Urban Center Growth Areas
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Plan that would guide development of an additional 40% of Heritage Grove, and several large commercial projects have also been proposed.

By contrast, the Northeast Urban Center (hereafter, the NEUC) remains largely undeveloped. This renders it the logical next focus of expansion to meet local and regional housing demand. As Figure 9 shows, the southwest edge of the NEUC abuts existing development within Clovis City limits and already supports scattered semirural and agricultural uses. Lands immediately north and east of City limits have been cultivated in the past (northwest edge of the NEUC) or are still in agricultural uses (south end of NEUC). Farther to the northeast are open lands transitioning to the Sierra Nevada foothills; this area has not been subject to extensive agriculture due to rocky, inhospitable soils, and is overall in a more natural condition than other parts of the NEUC (see air photo base of Figure 9). The portion of the NEUC southeast of State Route (SR) 168 supports citrus, nut, and olive cultivation, grazing, and some remaining vacant lands, as well as about 160 acres of created ponds fed by Pup Creek.

As identified above, the General Plan prioritizes establishment of compact development to reduce automobile usage (City of Clovis 2014). From this perspective, the ideal location for new growth is immediately north of East Shepherd Avenue, adjacent to dense existing development (Figure 1, Figure 9). This location would also provide straightforward access to utilities such as water, sanitary sewer, and electrical service, in contrast to the south and northeast portions of the NEUC which are currently unserved.

At this time, development of open lands farther to the northeast in the NEUC would create an island of suburbia and render commute trips by car a default, counter to General Plan requirements. To a lesser extent, this is also true of the south, and particularly the southeast, portions of the NEUC. Extension of utilities service into these areas would also be substantially more challenging and costly, and because of the need to cross undeveloped lands—especially in the northeast—would be more environmentally impactive overall. Moreover, some of the lands in the northeast portion of the NEUC are planning establishment of a conservation/mitigation bank, and others are under consideration for alternative energy development easements. Not only would these efforts represent a better use of open, undeveloped land than the “greenfield” development that would be required here, they would further complicate development planning and implementation.

In summary, substantial barriers would be associated with large-scale development in the northeast portion of the NEUC as of 2024 conditions, and the same deficits apply to a lesser degree to the southern NEUC, south of SR 168. The westernmost portion of the NEUC was therefore selected as the logical choice for the next steps in City growth.

The proposed SOI Expansion Area abuts existing City limits to the west and south (Figure 1), connecting with Heritage Grove to the west and extending the City’s area of responsibility northeast to the Big Dry Creek Dam, which is effectively the boundary (and presents a substantial barrier) between existing developed uses and remaining undeveloped lands. Within the SOI Expansion area, the west portion is largely occupied by existing suburban and semi-rural development. The central and eastern portions by contrast are primarily former agricultural and grazing land that is currently vacant but is unsuitable for large-scale agricultural production, and were therefore identified as the most appropriate location for new master-planned development.

Within this framework, the City’s currently proposed planning changes represent the first step in General Plan–mandated comprehensive planning for the NEUC. The Vista Ranch Master Plan would serve as the comprehensive design document for the portion of the NEUC that is most suitable for shorter-term future development, and the Vista Ranch Project would implement the first steps in that development.

As noted above, the proposed Vista Ranch project site represents a 368-acre portion of the Vista Ranch Master Plan area—the majority but not the entirety (Figure 7). Development of the remaining 139 acres of the Vista Ranch Master Plan area would be the purview of a separate future project or projects that are not currently being contemplated and may be undertaken by other parties. It is assumed that separate application(s) will be submitted for future development if warranted, potentially by other parties; this application covers only the initial 368-acre Vista Ranch project.

Project Objectives

The Vista Ranch project is proposed to satisfy the following specific objectives.

- Development of a new master-planned community offering
  - up to 2,718 residential units
  - up to 133,000 square feet of "Gateway" neighborhood commercial and community recreation facilities
  - approximately 43 acres of parks, trails, and open space
  - new public and private roadways providing vehicular, bicycle, and pedestrian access throughout the Development site and connecting to surrounding community areas
  - other associated improvements, including water supply, storm drainage, sewer facilities, and electrical and telecommunications facilities to serve the community

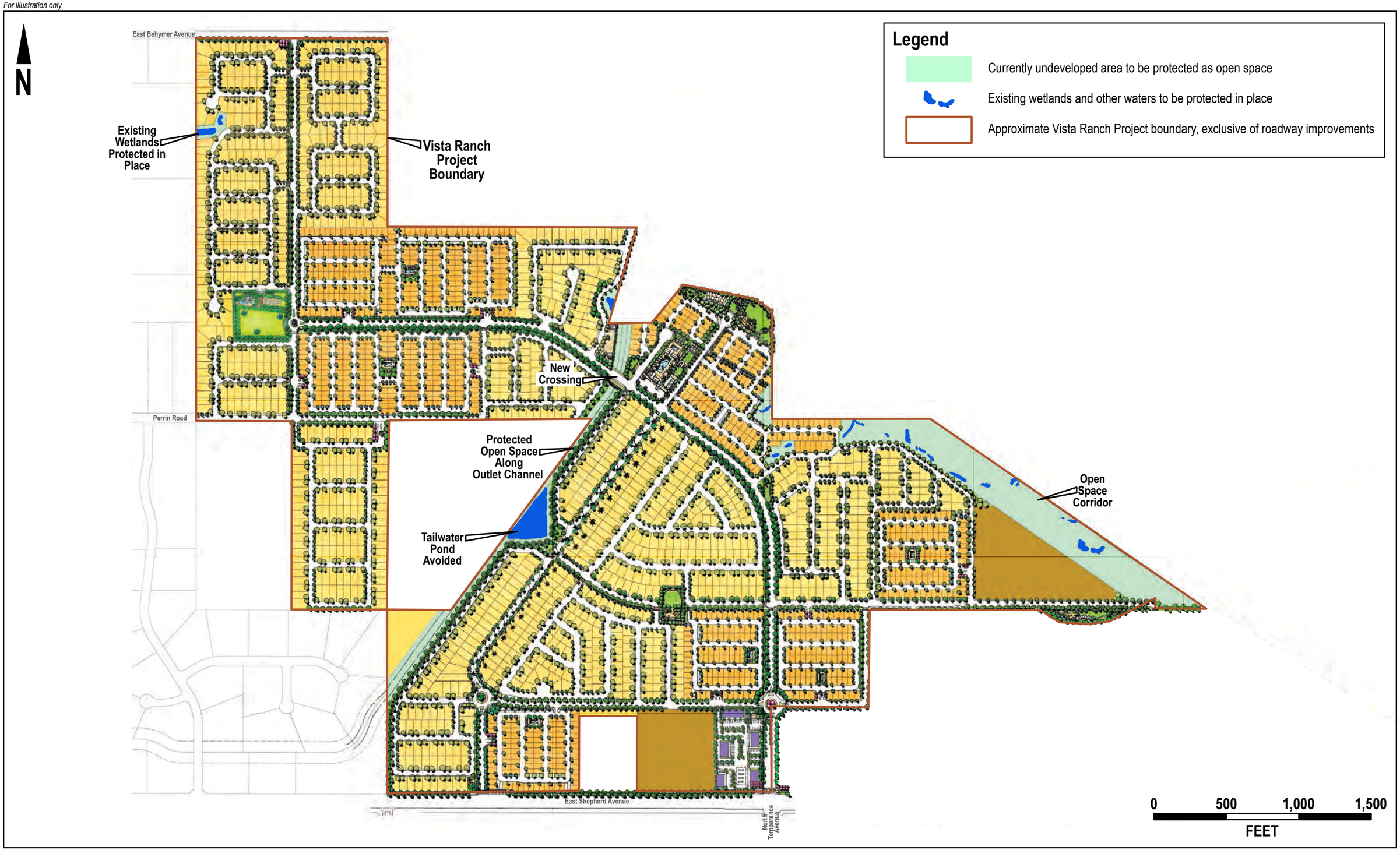
The project will be developed in consistency with the goals and objectives of the Vista Ranch Master Plan, SOI expansion, and related City entitlements.

Project Overview

The project would construct a mixed-use development anticipated to provide up to 2,718 residential units, including both single- and multi-family units at varying densities (Figure 10). Development has been configured to avoid impacts on aquatic resources to the extent feasible. As shown in Figure 10, this includes the following.

- Leaving a belt of open space along the northeast project boundary undeveloped, protecting a chain of depressional wetlands within remnant floodplain swales in this area
- Protecting additional wetlands in smaller open space areas throughout the development
- Avoiding and protecting an existing agricultural tailwater pond in the central portion of the project site
- Discharging stormwater from within the new development to protected wetlands and the tailwater pond to maintain them as aquatic features once they are surrounded by development and no longer receive overland or tailwater input. Stormwater would be routed via appropriate low-impact development (LID) treatment features to manage discharge water quality
- Establishing a protected open space corridor along the Outlet Channel where it bisects the project site. The "Outlet Channel corridor" boundaries would coincide with FMFCD's existing easement limits where an easement is in place. In the southwest portion of the project area, where no easement is currently in place, a new 100-foot-wide easement would be established to protect the Outlet Channel and maintain FMFCD access for operations and maintenance

Source: *modified from* Wilson Premier Homes 2024
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Figure 10. Vista Ranch Project Schematic Development Layout
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Vista Ranch is planned to center on a mixed-use village core area surrounded by higher-density residential development, with lower residential densities toward the edges of the development, transitioning to surrounding rural/agricultural uses (Figure 10). Higher housing densities would also cluster along major circulation corridors and local amenities. Residential areas would offer a variety of housing types and lot sizes to accommodate a range of housing objectives and buyer needs with a goal to ensure housing for a range of families and lifestyles. The village core would provide a Gateway neighborhood commercial center designed to offer local-serving retail and service uses as well as employment opportunities. A private community recreation center and park would also be provided (Wilson Premier Homes 2023; Lewis pers. comm.[a).

Within the development, new public and private roadways would provide access and circulation (Figure 10). Public roadways would include sidewalks per City standards, with bike lanes along the major roadways. The project is also expected to provide for offsite roadway and/or utilities improvements along principal access corridors, potentially including East Behymer Avenue, Fowler Avenue, Perrin Avenue, Locan Avenue, Armstrong Avenue, East Shepherd Avenue, and North Temperance Avenue (Wilson Premier Homes 2023, Lewis pers. comm.[b]).[6] Transit nodes would be located in the village core and adjacent to the community recreation center (Wilson Premier Homes 2023, Lewis pers. comm.[a]).

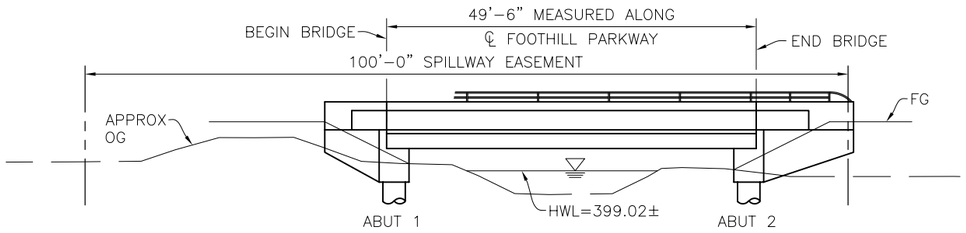
To provide an internal connection between the east and west segments of the development, a new crossing would be constructed across the FMFCD Outlet Channel downstream of the Big Dry Creek Dam spillway (see Figure 10). Figure 11 shows one concept for the crossing, a clear-span bridge. An alternate possibility would be a City-standard box culvert crossing similar to the existing crossing at the intersection of East Shepherd Avenue and North Fowler Avenue. Design of the crossing is being coordinated with FMFCD as the Outlet Channel's owner/operator and with the City Building Official/City Engineer as the local floodplain manager, to ensure that the crossing conforms to FMFCD's operational needs and is consistent with applicable Federal Emergency Management Agency (FEMA) and City requirements for flood protection. Discussion is also ongoing with the Corps; the Big Dry Creek Dam complex was constructed by the Corps and thus qualifies as federal project works, so the crossing will be subject to Corps review under 33 United States Code, Section 408 ("Section 408 review").

Planning also includes an extensive trail system to provide neighborhood connectivity as well as safe and convenient access from residential areas to community amenities and commercial uses. Multiple public parks and trails totaling approximately 20 acres would be dispersed throughout the development (Figure 10). Private parks would also be provided, including mini-parks and/or community pools in medium high– and very high–density gated neighborhoods (Wilson Premier Homes 2023). The applicant is also exploring the possibility of enhancing the reach of the remnant Dry Creek channel on the adjacent parcel to the south as a parkland amenity, potentially including native species plantings and a walking trail; this will need to be coordinated with the owner of the mini-storage facility currently under construction on that parcel.

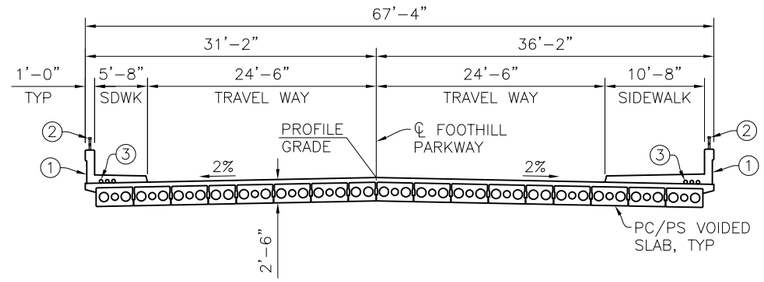
Utility service to Vista Ranch is summarized in Table 3. Wet utilities (water, wastewater, and storm drainage facilities) would be located within dedicated streets and public utilities easements and would be sized to enable future development of the remainder of the Master Plan Area under separate future projects. Private regulated utilities such as electrical and cable/internet service would also be located within dedicated public utility easements along street frontages.

[6] Note that offsite roadway improvements are not included within the project boundary as shown in the figures, because the extent of potential City requirements is not yet certain; however, the likely maximum extent of offsite roadway work was included in the area surveyed for potential jurisdictional waters (see Figure 5), and was found not to support potentially jurisdictional resources (Vollmar Natural Lands Consulting 2023b).

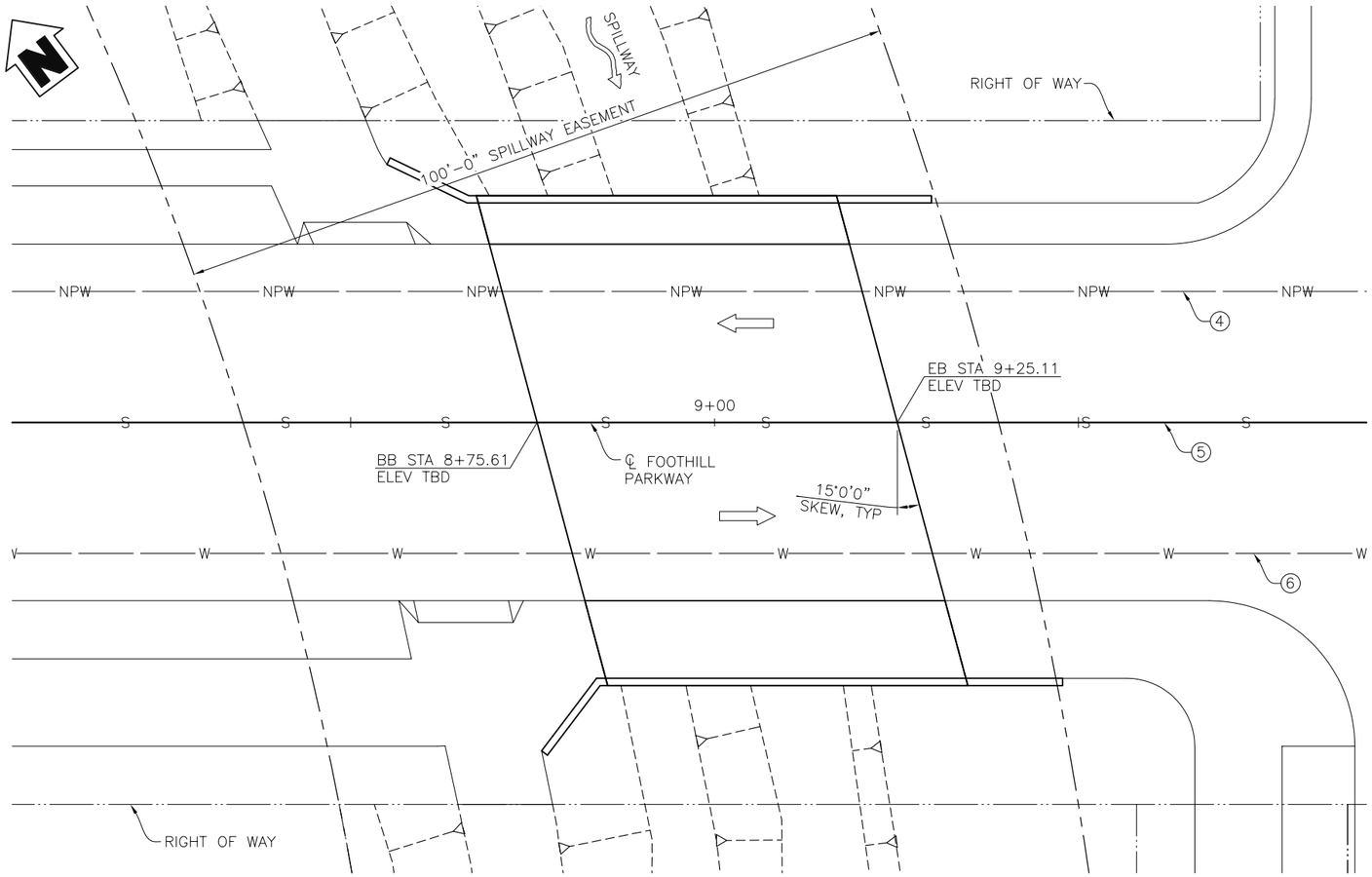
Source: *modified from* Cornerstone Structural Engineering Group 2024
For illustration only



ELEVATION
1" = 20'



TYPICAL SECTION
1/8" = 2' - 0"



PLAN
1" = 20'

LEGEND:

① CONCRETE BARRIER TYPE 732SW (B11–58 / B11–59 / B11–59A)
② TUBULAR HANDRAILING (B11–51)
③ OPENINGS FOR DRY UTILITIES
④ NON–POTABLE WATER MAIN (12" MAX DIA.)
⑤ SEWER MAIN (12" MAX DIA.)
⑥ WATER MAIN (16" MAX DIA.)
⇨ INDICATES DIRECTION OF TRAFFIC

Figure 11. Vista Ranch Bridge Concept
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Table 3. Vista Ranch Utility Service

Utility	Overview
Water system	• Served by new connections to City's existing potable and recycled water infrastructure • City will own, operate, and maintain completed facilities • City potable supply relies on a combination of groundwater from the Kings Sub-Basin and surface water delivered by the Fresno Irrigation District (FID) from the Kings River and the Central Valley Project • Recycled water (tertiary treated effluent) is provided by the City Water Reuse Facility
Wastewater system	• Connected to existing City sanitary sewer mains • City will own, operate, and maintain completed facilities • Wastewater treatment needs served by existing facilities (Fresno-Clovis Regional Wastewater Treatment Plant, located in Fresno; City Water Reuse Facility) • City of Clovis will manage service to optimize the use of available capacity at treatment facilities
Storm drainage	• Connected to existing FMFCD infrastructure except where used to support protected wetlands/waters • FMFCD will own, operate, and maintain completed facilities
Regulated public utilities	• Electrical service provided by Pacific Gas & Electric company (PG&E); the project is not planned for natural gas service • Landline telephone provided by AT&T • Cable and internet provided by Comcast; internet service to be extended to all portions of the new development from existing facilities located along East Shepherd Avenue and in adjacent residential development

Source: Wilson Premier Homes 2023

Water and wastewater infrastructure will be compliant with applicable City plans and standards. Storm drainage infrastructure will conform to applicable City regulations, standards, and specifications as well as those of the State Water Resources Control Board (SWRCB) and the FMFCD, and will incorporate Best Management Practices (BMPs) to control volume, rate, and pollutant loading of storm water runoff delivered to the system.

Private regulated utilities such as electrical and cable/internet service would be located within dedicated public utility easements along street frontages (Wilson Premier Homes 2023). Natural gas service may also be served by a private provider at a later date but is not planned for initial project construction (Lewis pers. comm.[a]).

Required City Entitlements

Implementation of the Vista Ranch project would require multiple entitlements and approvals from the City, listed below. City entitlements are not directly germane to regulatory jurisdiction, but the Vista Ranch project cannot be implemented without them and these approvals can thus be considered as indirectly enabling project impacts on jurisdictional resources and special-status species. Note that the City entitlements are broader in focus than the Vista Ranch project; City approvals reflect the scope of the larger City planning process discussed above but nonetheless represent "upstream" approvals necessary for the Vista Ranch project to proceed.

- Expansion of City SOI to include 952-acre site
- Adoption of the Vista Ranch Master Plan for 507 acres of the SOI Expansion Area and amendments to City General Plan (City of Clovis 2014) to accommodate the Master Plan, including "focus area"

modifications, modifications to the Circulation Element, and modifications to the Parks and Open Space Element

- Pre-zoning. Because the Master Plan Area (including but not limited to the 368-acre project site) is currently outside Clovis City limits, it is not currently under City zoning designations. The proponent will therefore be requesting pre-zoning of the Master Plan area to appropriate City of Clovis zone districts consistent with the proposed development plan
- Annexation of the Master Plan Area to the City of Clovis
- Adoption of Master Plan Overlay District and Master Development Plan
- Approval of vesting Tentative Tract Map for Vista Ranch project area

Project Construction

Project Phasing & Specifics by Phase

Construction of the Vista Ranch project is expected to be phased over about 10 years (Figure 12). The south-central portion of the project (Phases 1 – 3, adjacent to East Shepherd Avenue/North Temperance Avenue) would be constructed first due to proximity to existing development, roadways, and utilities within the City; these Phases would be completed in the first 5 years. Construction of Phase 4 is expected to begin in Year 5, and the remainder of the western phases and the eastern portion of Phase 6 would be built out in Years 5 – 10. The bridge connecting the eastern and western portions of the Vista Ranch project is conceptualized as a separate Phase 4a, to be constructed along with Phase 4, since bridge construction would not begin until (1) the east-west connection becomes necessary, and (2) all necessary permit approvals have been issued. Table 4 provides additional development details by phase.

Table 4. Vista Ranch Development Details by Phase

Phase	Residential Uses	Commercial Uses	Other Uses
1	• ~448 single-family homes on ~57 acres • Demolition and clearing of future R-4 apartment site	• Demolition and rough grading of ~4.4 acre commercial site (construction of commercial uses to follow once homes are occupied)	• 1-acre neighborhood park/trailhead • Trails and trailheads within Phase 1 limits
2	• ~448 single-family homes on ~58 acres	—	• Community Recreation Center on 2.52-acre site; includes office, event space and event gathering areas, pool, and shade structures • 2.7-acre private park • Pocket parks • Trails and trailheads within Phase 2 limits
3	• ~244 single-family homes on ~31 acres	• 4.4-acre commercial site (up to 85,000 square feet) • Exact timing of commercial development will be market-driven	• Pocket parks and green space
4	• ~453 single-family homes on ~51 acres	—	• O.53-acre storage and maintenance yard for Homeowners' Association

Source: *modified from* Wilson Premier Homes 2023

N

Vista Ranch Project Area Boundary

Phase 4

Phase 5

Phase 6

Phase 4a

Phase 2

Phase 3

Phase 6

Phase 1

Phase 2

Legend

Wetlands/waters avoidance area (protected open space; no development)

Note: Development Area boundary as shown does not encompass all adjacent roadway improvements

0 500 1,000

FEET

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Figure 12. Anticipated Project Phasing
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Phase	Residential Uses	Commercial Uses	Other Uses
	• ~200 units in an ~7-acre multi-family development adjacent to E. Shepherd Avenue		• Pocket parks, trails, and green space • Bridge across Outlet Channel (Phase 4a)
5	• ~470 single-family homes on ~60 acres	—	• ~3.32-acre public area park
6	• ~108 single-family homes on ~58 acres • ~264 multi-family units on ~8.8 acres	—	• 1.0-acre area park • Trails

The first step within each Phase would be to construct the backbone facilities: major street access to all lots within the Phase, looped water mains, wastewater infrastructure, and storm drainage infrastructure. Residential lots would then be developed in subphases, with the intent of developing about 200 lots per subphase, at a rate of approximately 22 units/month, subject to market demand. This portion of the process is expected to take on the order of 8 – 12 months per subphase, again dependent on market demand.

Within Phase 1, where commercial uses would be located, residential uses would be constructed first, followed by the accompanying commercial uses. This is because the commercial area is proposed for C-1 (Neighborhood Commercial) zoning (see Figure 12), which provides for local-serving businesses providing convenient, accessible services to nearby residents. Commercial centers of this type—unlike regional "destination shopping" and "big-box" commercial uses—typically do not draw customers from a wide area; rather, they rely on adjacent residential communities for their customer base and thus would not be viable until residential uses are occupied.

Similarly, apartment development would lag behind development of single-family homes, since development and sale of single-family properties for ownership provides the funding to enable construction of apartments for rental/lease.

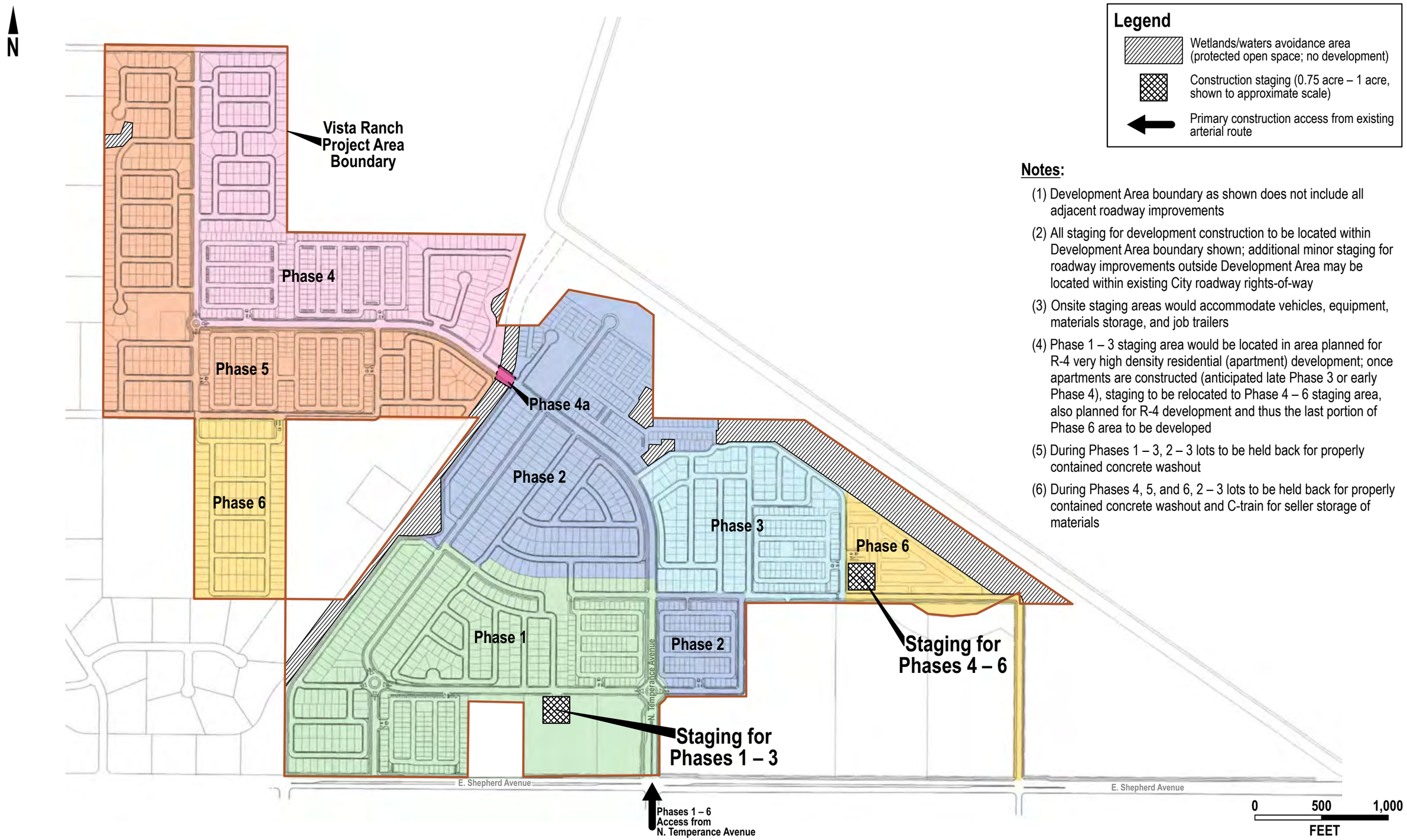
Construction Means & Methods

Project construction would rely on standard land development and construction techniques as practiced in the San Joaquin Valley/Fresno County region. Initial ground disturbance would require equipment such as survey gear, mowers, discers, bulldozers, self-loading scrapers, excavators, loaders, skidsteers, tractors, backhoes, trenchers, dump trucks, water trucks, semi-trucks, pickup trucks, and other heavy equipment. Site development may also include the use of equipment such as motor graders, rollers, compactors, road paving machines, and similar equipment. Construction within developed lots would also be conducted with standard equipment and techniques such as trucks, cranes, forklifts, concrete pumps, and other standard means and methods as determined by the builders.

Access & Staging

Figure 13 shows planned construction access and staging. Construction traffic to the project would follow existing roadways, and construction entry to the site would be via North Temperance Avenue as the principal arterial accessing the site. Equipment would not access the project site until any required preconstruction clearance surveys have been completed and any needed exclusion barriers have been installed to protect special-status species and sensitive resources "to remain".

Base Map Source: Wilson Premier Homes 2023



Legend

- Wetlands/waters avoidance area (protected open space; no development)
- Construction staging (0.75 acre – 1 acre, shown to approximate scale)
- Primary construction access from existing arterial route

Notes:

(1) Development Area boundary as shown does not include all adjacent roadway improvements

(2) All staging for development construction to be located within Development Area boundary shown; additional minor staging for roadway improvements outside Development Area may be located within existing City roadway rights-of-way

(3) Onsite staging areas would accommodate vehicles, equipment, materials storage, and job trailers

(4) Phase 1 – 3 staging area would be located in area planned for R-4 very high density residential (apartment) development; once apartments are constructed (anticipated late Phase 3 or early Phase 4), staging to be relocated to Phase 4 – 6 staging area, also planned for R-4 development and thus the last portion of Phase 6 area to be developed

(5) During Phases 1 – 3, 2 – 3 lots to be held back for properly contained concrete washout

(6) During Phases 4, 5, and 6, 2 – 3 lots to be held back for properly contained concrete washout and C-train for seller storage of materials

Figure 13. Construction Access and Staging
Vista Ranch – Application for Incidental Take Authorization
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All staging for development construction would be restricted to the project site, although additional minor staging for roadway improvements outside the project area boundary shown on Figure 13 may be located within existing City roadway rights-of-way. Onsite staging areas would be 0.75 acre – 1 acre in extent, sufficient to accommodate all needed construction vehicles, equipment, materials laydown/storage, and job office trailers.

The staging area for construction of Phases 1 – 3 would be located in an area planned for R-4 Very High Density Residential (apartment) development; this maximizes efficiency because construction of the apartments would be the last step in the buildout of Phases 1 – 3. Once the apartments are constructed—anticipated in late Phase 3 or early Phase 4—staging would be relocated to the Phase 4 – 6 staging area, which is also planned for R-4 development and thus would be the last portion of the Phase 6 area to be developed.

Proposed Avoidance & Minimization Measures

The project will incorporate a number of measures to avoid and reduce impacts on special-status species and their habitat, detailed in this section. Consistent with standard usage these are being referred to AMMs, although the majority are also being included as CEQA mitigation in the project environmental document. They include the following.

- General measures adopted as a matter of adherence to best practices and to support the efficacy of species-specific measures[7]
- Measures to protect the state-listed species that are known from the region but identified as unlikely to be present in Table 1
- Measures to avoid and reduce the potential for take of covered species (CTS, SJKF, Crotch's bumble bee, and BUOW)

With construction phased, AMMs involving worker training, preconstruction surveys, relocation, and/or exclusion will need to be implemented separately for work in each new area of ground disturbance. This is understood to entail up to 6 complete rounds of survey/relocation/exclusion installation, and may require more if construction phasing is changed.

Additionally, because the project is undergoing CEQA review and is expected to require a full suite of aquatic resources permits in addition to take authorization, it will by important to coordinate and "sync" the adopted AMMs with permit conditions and CEQA mitigation to ensure smooth and effective implementation. The proposed AMMs accordingly include options to substitute equally protective measures identified by CDFW and/or USFWS through the ITP process and interagency consultation per federal Endangered Species Act Section 7. The applicant's consultant team hopes to continue working closely with agency staff and the City's CEQA process to facilitate coordination of requirements.

[7] Note that measures for water quality protection are not proposed because individual project phases would substantially exceed the 1-acre threshold at which coverage under the State Water Resources Control Board's Construction General Permit is required. This requires preparation and implementation of a Stormwater Pollution Prevention Plan (SWPPP) detailing the measures that will be in place to control erosion and sediment runoff and to prevent and respond to spills of potential pollutants. In the extremely unlikely event that construction activities for any portion of project are concentrated on less than 1 acre, those activities would also require Construction General Permit coverage and SWPPP implementation, since they are part of a larger undertaking disturbing more than 1 acre.

General Avoidance & Minimization Measure

AMM-1. Worker Awareness Training

The applicant will require all construction personnel to undergo Worker Awareness Training that provides information on

- the sensitive habitats on the project site
- special-status species known and potentially present on the site, including their
  - listing status and causes of decline
  - habitat preferences
  - distinguishing physical characteristics
- the measures (AMMs, permit conditions, and CEQA mitigation) required to protect sensitive habitats and special-status species, including avoidance of delineated exclusion areas, and next steps and notifications in the event of a special-status species sighting

The training will include a hard copy handout that summarizes the information presented and includes photographs of habitat resources and species to facilitate identification in the field by construction personnel. A readily available copy of the AMMs, permit conditions, and CEQA mitigation will be maintained by the construction foreman on the construction site for reference.

The applicant will ensure that all construction personnel undergo Worker Awareness Training before beginning work on the site. Training will be delivered by a qualified biologist experienced in the Fresno County/San Joaquin Valley area, and will be provided bilingually in English and Spanish if appropriate. Upon completion of training, employees will sign a form stating that they attended the training and understand all of the required CEQA mitigation and permit conditions. Signed forms will be submitted to CDFW and USFWS.

Take Avoidance for Species Unlikely to be Present

AMM-2. Nesting Bird Protection

The following precautions will be required to protect CESA-listed bird species whose presence cannot be ruled out, as well as other special-status birds, and common species protected under the California Fish and Game Code and/or the federal Migratory Bird Treaty Act. With prior written approval from CDFW—and, if federally protected species are involved, USFWS—equally protective measures may be substituted. The applicant will be responsible for implementing all measures.

- If vegetation removal or trimming, clearing/grubbing, or grading for any project phase or sub-phase commences during the nesting/breeding season of native bird species potentially nesting on or near the work site (February 1 – September 15), the applicant will retain a qualified biologist to conduct a preconstruction survey for nesting birds. The survey will employ binoculars and will take place no more than 2 weeks prior to the initiation of work. If work is suspended for more than 1 week during the nesting season, re-survey will be required before work is reinitiated
- If no active nests are documented and no nest-building activity is observed within the area to be disturbed for project construction (including staging and access), no further action is required

- If nest-building activity is observed or active nests are found in areas that could be directly affected by project activities, or in locations where they could be disturbed by construction activity and noise, the following measures will be implemented, at a minimum
    - No-disturbance buffer zone(s) will be established for nest protection. Buffers will remain in place for the remainder of the nesting season or until the biologist determines that all young have fledged or that the nest has been abandoned. No entry of personnel, equipment, or materials into the no-activity buffer will be permitted without authorization from CDFW (and if federally protected species are involved, USFWS)
    - Buffers will be delineated in the field by or under the supervision of the biologist, using temporary construction fencing or another suitable low-impact medium. The size of the buffer zone(s) will be determined by the biologist based on the species involved, their behavior, the amount of vegetative and other screening between the nest and the locations(s) where potentially disturbing activities will be occurring, and, if appropriate, other site-specific factors. The minimum buffer widths will be as follows
        - 500 feet for raptors other than Swainson's Hawk; 0.5 mile for Swainson's Hawk
        - 300 feet for Tricolored Blackbird
        - 50 feet for all other species, unless modified by the biologist based on site-specific observations
    - Buffers may be enlarged by taking into account factors such as the following.
        - Noise and human disturbance levels at the construction site at the time of the survey and the noise and disturbance expected during the construction activity
        - Sensitivity of the nesting species and behaviors of the individual nesting birds

AMM-3. Rare Plant Survey & Protection

If groundbreaking on any project phase or sub-phase occurs after 2025, the applicant will retain a qualified biologist/botanist who is familiar with the rare plants of the project region to conduct an additional round of protocol-level rare plant surveys. Surveys will be conducted consistent with Protocols for Surveying and Evaluating Impacts to Special Status Native Plant Populations and Sensitive Natural Communities (California Department of Fish and Wildlife 2018) or most current equivalent.

Surveys will be conducted prior to construction, with enough lead time to allow for consultation with CDFW (and, if appropriate, USFWS) and additional follow-up actions, if they are warranted. Surveys will be conducted during the peak blooming periods of the target species and will cover all potentially suitable habitats within the project site.

If no special-status plants are documented within the area to be disturbed for project construction (including staging and access), no further action is required.

If any listed plant species, or any plant species assigned to CRPR 1 or 2, is found to be present, the following measures will be implemented. With prior written approval from CDFW—and, if federally listed species are involved, USFWS—equally protective measures may be substituted. The applicant will be responsible for implementing all measures.

- The occurrence(s) will be avoided and protected in place whenever it is possible to do so
- If the occurrence(s) cannot be entirely avoided, a Plant Salvage and Mitigation Plan will be prepared and implemented. The Plan will be prepared by a qualified biologist/botanist who is familiar with the rare plants of the project region and has experience conducting rare plant salvage operations. The plan will be subject to CDFW (and, if federally listed species are involved, USFWS) approval, and will, at a minimum, include the following
  - Quantity and species of plants to be planted or transplanted
  - Location of the mitigation/transplant site(s), which will be suitable to the species involved and within the species' known geographic range(s)
  - Salvage methods, such as relocation/transplantation, seed collection, etc., including storage locations and methods to preserve the plants
  - Procedures for propagating collected seed, including storage methods
  - Planting procedures, including any use of soil preparation and irrigation
  - Schedule and action plan to maintain and monitor the mitigation/transplant site for a minimum 3-year period following transplantation
  - Interim and final success criteria and corrective action thresholds, including growth, plant cover, and minimum survivorship of the transplanted species
  - Corrective actions/contingency measures in the event interim success criteria are not being met (e.g., weed removal, supplemental irrigation, supplemental plantings, etc.)
  - Reporting requirements and procedures, including the contents of annual progress reports, report submittals, review/approval responsibilities, etc.

  The Plan will be implemented under the oversight of the biologist/botanist who prepared it or another individual with equivalent qualifications.

Take Avoidance for Covered Species

AMM-4. San Joaquin Kit Fox Protection

The following measures will be required, unless CDFW issues written concurrence that SJKF is not present in the MPArea 1 vicinity; in this case no further action with regard to SJKF will be required. If, via the state ITP process or the federal interagency consultation process, CDFW and/or USFWS issue alternate requirements that would be equally or more protective of the species, those will be substituted.

- Prior to ground disturbance for each phase or sub-phase (defined as major earthwork associated with rough grading, lot leveling, infrastructure construction, and street improvements; not including construction of individual homes on previously graded pads), the applicant will retain a qualified biologist to survey the project area and a 500-foot-wide buffer for the presence of potential dens and other SJKF sign. The survey buffer will extend to the boundary of property to which the applicant has legal access; survey of property owned/controlled by others will not be required. Potential and confirmed dens will be GPS-located and mapped. Surveys will be conducted no more than 30 days prior to the start of work, and results will be submitted to CDFW and USFWS within 10 days of survey completion

- If no sign of SJKF presence is observed, no further action will be required
- If SJKF is observed onsite or within 500 feet of the work area, work will be delayed until the biologist has confirmed that all kit fox have left the survey area of their own volition
- Additionally, if sign of SJKF is detected, a qualified biologist will be available onsite during all project-related activities that could impact the species such as vehicle or equipment traffic, materials storage, equipment staging, and excavation, grading, and other ground-disturbing activities that could damage or remove dens or rodent burrows
- If SJKF dens are found, they will be buffered and avoided as follows
  - Occupied den: 100 feet
  - Occupied pupping/natal den: 500 feet

  Avoidance buffers will be delineated in the field under the supervision of the biologist, using temporary construction fencing or another appropriate low-impact medium. No entry of personnel, equipment, or materials will be permitted into the den buffers
- If any occupied SJKF pupping dens are discovered once work has begun, work within 500 feet of the den(s) will be suspended, and the applicant will immediately contact the biologist, who will consult with CDFW and USFWS for further guidance
- Absolutely no disturbance to known occupied SJKF dens will be allowed, and no work will occur within the above buffers without written authorization from CDFW and USFWS, which it is understood may entail additional conditions and/or limitations

AMM-5. California Tiger Salamander Protection

The following measures will be required. If, via the state ITP process or the federal interagency consultation process, CDFW and/or USFWS issue alternate requirements that would be equally or more protective, those will be substituted.

- The applicant will develop a CTS Relocation Plan, prepared by a qualified biologist and subject to approval by CDFW and USFWS. The Relocation Plan will include specific areas to which the designated qualified biologist may relocate individual CTS that are at risk from project-related activities. It will also include provisions for the biologist to monitor the translocated animal until it is determined that it is not at risk from predators or other factors. CTS will be relocated to appropriate habitat for their stage in the life cycle; for example, CTS found in burrows will be relocated to burrows and not to aquatic habitat
- If a known or potential CTS individual is encountered during any project-related activity, the following requirements will apply.
  - All work that could result in direct injury or disturbance of the individual animal will cease immediately
  - The foreman and on-call biologist will be notified immediately
  - The biologist will take appropriate action to secure the individual (relocation per the Relocation Plan, and/or veterinary care if appropriate), and will then notify CDFW, USFWS, and the applicant via telephone or email

The applicant will appoint a representative to act as the contact for the biologist, to receive notifications of CTS encounters. The representative will be identified during the Worker Awareness Training program, and their name and contact information will be provided to CDFW and USFWS

- An Herbicide Use Plan will be drawn up prior to the onset of development activities, and will be subject to CDFW and USFWS approval before work on each phase begins. The plan will allow no more than two applications of herbicide per year during development activities. Herbicides will be used only in a manner that avoids primary or secondary poisoning of CTS and the prey populations on which they depend within the phase footprint. All uses of such compounds will comply with label and other restrictions mandated by the U.S. Environmental Protection Agency, California Department of Food and Agriculture, and other appropriate state and federal regulations, as well as any other additional project-specific restrictions required by CDFW and/or USFWS

- Prior to ground disturbance for each phase or sub-phase (defined as major earthwork associated with rough grading, lot leveling, infrastructure construction, and street improvements; not including construction of individual homes on previously graded pads), the disturbance areas will be subject to the following measures to protect California tiger salamander (CTS). These measures will be in force for the duration of ground-disturbing activities, under the oversight of a qualified biologist. After the completion of initial ground-disturbing activities for each phase or sub-phase, the qualified biologist will continue to be available by phone and will be on call to visit the project site as needed throughout phase construction. The biologist's contact information will be provided to CDFW and USFWS

    - First, individual sub-phases or disturbance areas will be identified within each project phase (see Figure 12). Sub-phases will be defined with the input of a qualified biologist such that no undisturbed areas of potential CTS habitat are surrounded or cut off from other CTS habitat as a result of ground disturbance and/or implementation of other AMMs such as wetland exclusion areas. Instead, sub-phases will be developed such that the most direct route from any given patch of potential CTS habitat onsite to the nearest accessible offsite CTS habitat remains open until the onsite patch has been subject to relocation measures, described below. Multiple, or even all, sub-phases may be active concurrently, but no portion of the project or phase site will be disturbed until after CTS relocation and other AMMs have been undertaken on it

    - Following survey and relocation of individuals, exclusion barrier will be installed at the limits of grading for the phase or sub-phase to prevent CTS from reentering the disturbance area. The materials and installation methods for the exclusion barrier will be subject to approval by CDFW and USFWS, and the barrier will be installed under biologist oversight. The exclusion barrier will be inspected weekly and maintained and repaired as necessary to ensure that it is functional and not a hazard to any CTS on the outside of the barrier. The barrier will remain in place until the completion of major ground-disturbing activities within the phase or sub-phase it encompasses

    - Once visual surveys, relocation, and exclusion barrier installation have been completed, the disturbance area may be subject to initial ground-disturbing activities (vegetation clearing, grubbing, scraping, grading, trenching, and other activities that will convert potential CTS upland habitat to non-habitat through the disruption of onsite rodent burrows)

    - A qualified biologist will be onsite to monitor vegetation clearing, grubbing, and rough grading, until or unless the biologist determines that monitoring is no longer necessary. The biologist(s) will have authority to stop any work that may result in the take of CTS, and to ensure the

adherence to all required AMMs. CDFW, USFWS, and the Corps will be notified of any "stop-work" orders issued by the biologist(s)

- The following requirements will apply in areas that have not been "cleared" for CTS and enclosed in exclusion barrier
  - A qualified biologist will be onsite to monitor all work. The biologist(s) will have authority to stop any work that may result in the take of CTS, and to ensure the adherence to all required AMMs. CDFW, USFWS, and the Corps will be notified of any "stop-work" orders issued by the biologist(s)
  - Work will be prohibited when the National Weather Service 72-hour forecast predicts a 70% or greater chance of rainfall; work may resume 24 hours following the cessation of rainfall, if 0% chance of rain is predicted in the next 72 hours
  - Because CTS may take refuge in cavity-like and den-like structures such as pipes and may enter stored pipes and become trapped, all pipes, culverts, and similar structures that are stored at the project site for one or more overnight periods will either be securely capped prior to storage or will thoroughly inspected by the authorized on-call biologist and/or the construction foreman/manager for CTS before the pipe moved, capped, buried, or otherwise used or moved in any way
  - To prevent inadvertent entrapment of CTS during development, the on-call biologist and/or construction foreman/manager will ensure that all steep-walled excavations and trenches more than 1 foot deep are completely covered at the close of each working day by plywood or similar materials or are provided with one or more escape ramps constructed of earth fill or wooden planks and inspected by the on-call biologist. Before excavations or trenches are filled, they will be thoroughly inspected for trapped animals by the on-call biologist and/or construction foreman/manager
- The following requirements will apply on all parts of the project site (within and outside CTS exclusion barrier)
  - Project-related vehicles will observe a 15 mile-per-hour offroad speed limit
  - Erosion control measures will employ tightly woven fiber netting or similar material to reduce the potential for CTS entrapment. This limitation will be communicated to all contractors through the use of Special Provisions included in the bid solicitation package. No plastic monofilament netting (erosion control matting) or similar materials will be used
  - No insecticides or rodenticides will be used in construction or development areas as part of the project development process
  - To reduce the potential that predators of CTS will be attracted to the site, all food-related trash items such as wrappers, cans, bottles, and food scraps will be disposed of in solid, closed containers (trash cans) and removed from the construction site on a regular basis

AMM-6. Crotch's Bumble Bee Protection

The following measures will be required. If, via the state ITP process, CDFW issues alternate requirements that would be equally or more protective, those will be substituted.

- No more than 1 year prior to the initiation of vegetation removal and grading at the project site, the applicant will retain an appropriately qualified biologist (see next paragraph) to conduct surveys for Crotch's bumble bee
- Surveys will be performed by a qualified entomologist familiar with the species' behavior and life history and will include both habitat evaluations and foraging bee surveys consistent with the recommendations in Survey Considerations for California Endangered Species Act (CESA) Candidate Bumble Bee Species (California Department of Fish and Wildlife 2023). Surveys will be conducted during the peak worker activity period for Crotch's bumble bee (April 1 – July 31; Williams et al. 2014) and will cover all areas of onsite habitat determined by the biologist to be suitable for the species, based on habitat mapping conducted for the project to date and observations on the site at the time of survey. A minimum of 3 – 4 surveys will be conducted, spaced 2 weeks apart; the total number, timing, and duration of surveys performed will depend on the biologist's judgment, in consideration of weather, site conditions, and current CDFW recommendations/protocols
- If no Crotch's bumble bee individuals are observed onsite, and no sign of the species' presence is detected, during the surveys, no further action will be required
- If Crotch's bumble bee is observed onsite during the surveys, an additional survey or surveys will be conducted to determine whether a nest or colony is present, unless the biologist is satisfied that the initial survey(s) were sufficient to rule out the presence of nests/colonies
- If a nest or colony is present onsite, the biologist will establish an appropriate avoidance buffer determined in consideration of site conditions and the construction activities planned prior to the close of the nesting season. No entry into the buffer will be permitted. The buffer will be delineated in the field using orange construction fencing or another appropriate medium, under the biologist's oversight, and will remain in place until the end of the Crotch's bumble bee gyne flying season (February 21 – August 7; Williams et al. 2014), or until the biologist determines that the nest has been abandoned
- If no nest/colony is present onsite, no further action need be taken
- To support improved understanding and conservation of Crotch's bumble bee, survey results, including negative findings, will be submitted to CDFW before project-related ground disturbance begins. At a minimum, the survey report will include the following information

    (1) A description and map of the survey area, focusing on areas that could provide suitable habitat for Crotch's bumble bee

    (2) Field survey conditions, including name(s) of qualified entomologist(s) and brief qualifications; date(s) and time(s) of survey; survey duration; general weather conditions; survey goals; and species searched

    (3) Map(s) showing the location of nests/colonies, if any

    (4) A description of physical (e.g., soil, moisture, slope) and biological (e.g., plant composition) conditions where each nest/colony is found, including native plant composition (e.g., density, cover, and abundance) within impacted habitat (e.g., species list separated by vegetation class; density, cover, and abundance of each species)

    (5) The measures that will be implemented to avoid adverse effects on the bumble bee species present (AMMs)

(6) An assessment of potential effects on special-status bumble bees during project construction and project operation/maintenance, with AMMs in place

- Additionally, all workers will be required to avoid injury and mortality to bumble bees they may encounter; this requirement will be discussed during the Worker Awareness Training required for all construction personnel, and will be reiterated to all workers if special-status bumble bees are confirmed onsite

AMM-7. Western Burrowing Owl Protection

The following measures will be required. If, via the state ITP process process, CDFW issues alternate requirements that would be equally or more protective, those will be substituted.

- The applicant will develop a BUOW Exclusion and Relocation Plan, prepared by a qualified biologist and subject to approval by CDFW. The Exclusion and Relocation Plan will provide for installation of BUOW exclusion measures in the event occupied burrows are observed during surveys (see below), as well as artificial burrows to replace occupied and suitable burrows affected by construction ground disturbance. Measures stipulated in the BUOW Exclusion and Relocation Plan will be consistent with CDFW recommendations (California Department of Fish and Wildlife 2012, Appendix E) or most current equivalent document

- Prior to contractor mobilization onsite, a qualified biologist will survey the site for BUOW. Surveys will be conducted per the following methodology.

  - A minimum of 2 pre-construction surveys will be conducted, unless the first survey detects BUOW, in which case a second survey is not needed. Surveys will conclude no more than 2 calendar days prior to construction. Surveys will therefore begin no more than 4 days prior to the date planned for contractor mobilization onsite to allow for 2 days of surveying plus up to 2 days between surveys and mobilization. To avoid the potential for last-minute changes in construction schedule, a preliminary survey may be conducted up to 15 days before mobilization. The preliminary survey will be counted as the first of the two required surveys, as long as the second survey concludes no more than 2 calendar days in advance of construction

  - To maximize the likelihood of detecting BUOW, each survey will last a minimum of 3 hours

  - Surveys will cover all areas of suitable habitat within the footprint of the Phase or sub-Phase where construction is being initiated, plus a 600-foot-wide buffer. Surveys will entail walking straight-line transects spaced 7 – 20 meters (~23 – 65 feet) apart, adjusting for vegetation height and density based on the judgment of the surveying biologist. At the start and termination of each survey and at least every 100 meters (325 feet) along the transect, binoculars will be used to scan the entirety of the visible Phase area and buffer for BUOW. Survey transects will extend to the boundary of property to which the applicant has legal access; where the buffer encompasses property owned/ controlled by others, survey will be visual-only, using binoculars

  - To the extent feasible, surveys will be timed for optimal weather conditions for BUOW detection: ambient temperature >20º C (>68º F), winds <12 kilometers/hour (7.5 miles per hour), and cloud cover <75%. Surveys will not be conducted if wind speeds exceed 20 kilometers per hour (~12 miles per hour) and there is precipitation or dense fog

  - To the extent feasible, surveys will be conducted during the time windows when BUOW detection probabilities are highest: between morning civil twilight and ~10:00 AM, and between 2 hours before sunset and evening civil twilight
  - During the surveys, all burrows known to be or potentially in use by BUOW will be recorded and their locations captured using sub-meter-precision GPS. Potentially used burrows will be determined based on the presence of one or more of the following: BUOW individuals, pellets, prey remains, whitewash, and/or decoration. Survey personnel will also listen for BUOW calls while conducting the surveys
  - Care will be taken to minimize disturbance near known or potentially occupied burrows to avoid flushing BUOW
  - If raptors or other predators that may suppress BUOW activity are present, the biologist will return for a follow-up survey
  - Any BUOW observed will be counted and their location(s) will be mapped
  - If feasible, BUOW observed will be checked for bands; bands/band combinations will be reported to the U.S. Geological Survey's Bird Banding Laboratory

- If occupied burrows are identified during the surveys, passive relocation will be performed in accordance with the CDFW-approved BUOW Exclusion and Relocation Plan. Artificial burrows will be located as close as feasible to the affected existing burrows, but outside the area planned for construction disturbance[8]
- Construction will not proceed until passive relocation per the BUOW Exclusion and Relocation Plan has been accomplished and the biologist has confirmed that burrows can be destroyed without injury or mortality to BUOW
- Known and potentially occupied burrows will be further assessed by the biologist to determine whether nesting activity is taking place. If no eggs or chicks are present, the burrow will be subject to passive relocation per the CDFW-approved BUOW Exclusion and Relocation Plan. If eggs or chicks are present, the burrow will be protected in place by establishment of a no-activity exclusion buffer. Buffer widths will depend on the nature and level of activity planned in the vicinity, as follows

Time of Year	Level of Disturbance		
	Low	Medium	High
April 1 – August 15	200 meters (650 feet)	500 meters (1,625 feet)	500 meters (1,625 feet)
August 16 – October 15	200 meters (650 feet)	200 meters (650 feet)	500 meters (1,625 feet)
October 16 – March 31	50 meters (163 feet)	100 meters (325 feet)	500 meters (1,625 feet)

Nest buffers will be delineated in the field using temporary construction fencing or another appropriate medium installed under direct supervision of the qualified biologist. No entry of personnel, equipment, or materials will be permitted into the buffer area. Buffers will remain in place until the biologist has

[8] Ideally, artificial burrows would be located within 100 meters (325 feet) of the burrows they replace (California Department of Fish and Wildlife 2012). The BUOW Exclusion and Relocation Plan will stipulate this as a target to be achieved where feasible. However, given the size of the overall project area, and the sizes and configurations of the project Phases, this may not always be feasible. It should also be noted that since the entirety of the project site will ultimately be developed, artificial burrows would be intended for temporary use, since they would need to be removed for construction of subsequent Phases/sub-Phases.

confirmed that the young have fledged, are foraging independently, and are no longer dependent on the nest, or that the nest has been abandoned. Once the buffer has been removed, the nest burrow will be subject to passive relocation per the CDFW-approved BUOW Exclusion and Relocation Plan

Potential for Take

San Joaquin Kit Fox

Direct Take of Individuals

No sign of SJKF presence was observed on the project site during extensive field surveys conducted in 2023 and 2024, and due to existing disturbance levels, the site offers less-than-optimal opportunities for the species. There are no CNDDB records of SJKF within 10 miles of the site; the closest recorded sighting is from a location 10.2 miles away, and is from the 1990s (Vollmar Natural Lands Consulting 2023a, Smith pers. comm.[d]). Moreover, current populations of the species are concentrated in the southern San Joaquin Valley, Carrizo Plain, and east/southeastern Coast Ranges (Smith pers. comm.[d]). Additionally, as noted above, the Corps has removed SJKF from their interagency consultation request to USFWS, based on review of available information and discussion with USFWS (Barnes pers. comm.). In this context, SJKF is considered very unlikely to be present on the site, and direct take seems extremely unlikely, although the potential cannot be entirely ruled out. During construction, implementation of AMM-4 would reduce this potential to the extent feasible, and should avoid take entirely. Over the long term, development is expected to render the site and its immediate surrounds less appealing to SJKF, and long-term direct take is therefore also considered unlikely.

Direct & Indirect Effects on Habitat

The project would result in conversion of some 189.683 acres of potentially suitable SJKF habitat in grasslands and another 140.257 acres of potentially suitable habitat in previously cultivated areas to development. These losses have some potential to represent a direct adverse effect on the species, although the potential is probably limited in view of the species' current distribution,the lack of recent documented occurrences within 10 miles of the site, and the unlikelihood of the species' presence. Any such effects which would be incurred progressively as the project phases move forward.

An additional 17.539 acres of potentially suitable grassland habitat and 1.127 acres of potentially suitable habitat in previously cultivated areas would be subject to indirect effects related to proximity to the new development. Indirect effects would include

- disconnection from remaining potentially suitable habitat in the project vicinity
- increased human presence; potential for disturbance due to human activity, habitat incursions, noise, night-time lighting (a key concern for this largely nocturnal species), etc.
- potential for increased trash and pollutant input due to neighboring development
- added vehicular traffic, much of it on new roadways, increasing the potential for death or injury of any SJKF remaining in the area

Indirect effects on SJKF habitat represent a potential indirect adverse effect on the species, with similar qualifiers as those applied to direct impacts. Like direct impacts, any indirect impacts would be incurred progressively.

California Tiger Salamander

Direct Take of Individuals

CTS is known to be present and breeding at the project site. Implementation of AMM-5 would reduce the potential for direct injury and mortality of CTS during construction to the extent feasible, and should prevent take entirely, although there could be some minor residual potential for direct take of individuals. Over the long term, there could be increased potential for direct take of individuals as a result of traffic on new roadways associated with the development, predation by domestic cats *(Felis catus*) and dogs (*Canis familiaris*), and localized pesticide/herbicide use for landscaping maintenance.

Direct & Indirect Impacts on Habitat

The project would also result in both direct and indirect impacts on CTS habitat, itemized in Table 5. Impact mechanisms are discussed below the table.

Table 5. Impacts on California Tiger Salamander Habitat

Habitat Class	Impact Type	Impact Acreage
Itemized Impacts		
Uplands		
Suitable upland	Direct impact	189.683
	Avoided; indirect impact	17.539
Low suitability upland	Direct impact	140.257
	Avoided; indirect impact	1.127
	Total impact on CTS upland habitat:	*348.606*
Breeding (Aquatic)		
Occupied breeding	Direct impact	0.39
	Avoided; indirect impact	0.369
Suitable breeding	Direct impact	0.105
Low suitability breeding	Avoided; indirect impact	1.129
	Total impact on CTS aquatic habitat:	*1.993*
Subtotals by Habitat Suitability		
Occupied and suitable habitat	Direct impacts	190.178
Occupied and suitable habitat	Avoided; indirect impacts	17.908
	Total impact (direct and indirect) on occupied and suitable habitat:	*208.086*
Low-suitability habitat	Direct impacts	140.257
Low-suitability habitat	Avoided; indirect impacts	2.256
	Total impact (direct and indirect) on low-suitability habitat:	*142.513*
	Total impact on CTS Habitat:	*350.599*

Source: Vollmar Natural Lands Consulting 2023a

The project would result in fill of 0.390 acre of documented CTS breeding habitat and 0.105 acre of suitable breeding habitat. The project would also convert approximately 189.7 acres of presumed-occupied CTS upland habitat, as well as approximately 140.3 acres of low-suitability upland habitat, to developed land.

These losses of habitat represent a direct adverse effect on CTS, which would be incurred progressively as the project phases move forward.

CTS depend on the ability to migrate between their breeding pools and the large areas of open grassland where the adults spend most of their lives. Development in the vicinity of breeding pools has the potential to interrupt that migration, reducing the ability of new metamorphs to reach shelter and food and the ability of adults to find their way back to the ponds to breed.

Additionally, conversion of existing grasslands to developed areas may modify breeding pools' watersheds or outlets by increasing the amount of impervious surface and/or redirecting storm runoff. Exotic species may be introduced from landscaping within developed areas, and input of native-species seed and pollen reduced by the decrease in buffer lands supporting native vegetation. Pools near development may also be subject to increased human visitation.

Several aquatic features suitable for CTS would be avoided by the project and protected by buffering open space (see Figure 10), but would be subject to potential long-term indirect effects due to their proximity to developed areas at project buildout. These include the following.

- Three documented CTS breeding pools (totaling 0.369 acre) (Figure 5)
  - Two of these, located in the northwest portion of the project site and totaling 0.127 acre, would be as close as 25 feet to construction during project development, and would be surrounded by developed areas at project buildout, although one would retain limited overland connectivity to the west. At buildout, the remnant habitat patches surrounding these pools would range in size from approximately 0.5 acre to approximately 27 acres
  - The third (0.241 acre) straddles the northeast boundary of the project site. At project buildout, it would be preserved within a strip of open space ~250 feet wide between developed areas and the toe of the Big Dry Creek Dam. It would be as close as 25 feet to developed areas that replace existing annual grassland, but most of its length would be outside the project boundary and would retain overland connectivity to habitat to the north and east
- The agricultural tailwater pond (1.129 acre) (Figure 5), which offers low-suitability CTS breeding opportunities, would be surrounded on two of its three sides by development, with development activities taking place as close as 25 feet. Post-construction, it would be preserved in an approximately 2-acre triangle of land between developed areas and the Big Dry Creek Dam Outlet Channel. It would retain limited connectivity to offsite areas via the protected open space easement along the Outlet Channel

A fourth documented breeding pond located immediately offsite (Figure 5) would be surrounded on two sides by project development, but would retain connectivity to a remaining island of grassland to the southwest, at least until the larger Vista Master Plan Area reaches buildout.

All of these changes would represent a permanent indirect adverse effect on remaining CTS habitat on and adjacent to the project site. Like indirect impacts on SJKF, indirect impacts on CTS would be incurred progressively.

Crotch's Bumble Bee

Direct Take of Individuals

Crotch's bumble bee uses open grassland and scrub habitats, nesting underground. The species' key food plants include the genera *Asclepias* (milkweeds), *Chaenactis* (pincushions/dustymaidens), *Lupinus* (lupines), *Medicago* (burclovers), *Phacelia* (phacelias), and *Salvi*a (sages) (International Union for Conservation of Nature 2015).

Annual grasslands at the project site provide potential habitat and offer occurrences of key forage plants (Smith pers. comm.[c]), including narrow-leaf milkweed (*A. fascicularis*), burclover (*M. polymorpha*), and several species of lupine *(L. bicolor, L. formosus* var. *robustus, L. nanus)* (Vollmar Natural Lands Consulting 2023c). Suitable habitat for the species is also present in depressional wetlands during the dry season, and in portions of the existing farm headquarters, as well as the large patch of silver bush lupine in the remnant Dry Creek channel, mentioned above.

Species-specific surveys and a more detailed habitat evaluation for Crotch's bumble bee on the project site wer conducted in spring 2024, and as noted above, Crotch's bumblebee was observed foraging on the site in April 2024. This included observations of two individuals in the silver bush lupine patch in remnant Dry Creek as well as two additional localities near the northwest property boundary (Smith pers. comm.[a]). It is not yet known whether Crotch's bumble bee nests on the project site (Smith pers. comm.[a]), but the potential has not been ruled out. The closest offsite occurrence of the species documented in the CNDDB is 5 miles away, but is decades old and has not been re-observed in recent years. The closest CNDDB-documented occurrence within the last 20 years is 37 miles away, although there is a "citizen science" report of the species near Millerton Lake, less than 10 miles away, in 2023 (Xerces Society 2024).

Direct take of Crotch's bumble bee could occur if the species is nesting onsite and a nest were to be disturbed or destroyed during project earthwork. Direct take could also occur if individuals are perceived as a nuisance and swatted by construction workers or other personnel. Implementation of AMM-1 and AMM-6 would reduce the potential for both of these scenarios to the extent feasible. Over the long term, Crotch's bumble bee is unlikely to use the area around the new development to any great extent, since development would reduce the availability of grassland resources, including the forage plants currently present. Long-term direct take is therefore considered unlikely.

Direct & Indirect Effects on Habitat

Exact acreages of habitat suitable for Crotch's bumble bee on the site are not yet known; as of May 2024, detailed mapping is in progress. Based on work conducted to date, total foraging habitat is roughly estimated in the range of 10 – 30 acres, with an outside maximum on the order of 50 acres (Smith pers. comm.[e]). All of this would be converted to developed uses. Another 17.539 acres of potentially suitable grassland would be subject to indirect impacts due to increased proximity to significant development. These losses are considered to represent a potential direct adverse effect on Crotch's bumble bee, which would be incurred progressively as the project phases move forward.

Remaining grasslands would be subject to indirect "edge effects" due to the presence of new development, potentially representing a further long-term indirect impact on Crotch's bumble bee.

Western Burrowing Owl

Direct Take of Individuals

As identified above, BUOW has not been observed on the project site to date despite extensive field surveys conducted over the last several years. However, the site is within the species' range and offers both suitable nesting burrows and foraging opportunities (Vollmar Natural Lands Consulting 2023a), and the species has been documented in the general project vicinity, as follows.

- The closest and most recent CNDDB record for BUOW is 7.5 miles northwest of the project site's northwest corner. This observation, along with another record 8.0 miles north of the site, was recorded in May of 2003
- An additional CNDDB record is located 6.3 miles south-southwest of the southwest project boundary. This point is somewhat ambiguous; it indicates that "three breeding pairs were known to have been present sometime during 1981 – 1990" but was updated in 2016 and does not indicate whether BUOW were still present as of that date. It may thus be less relevant
- The most recent and proximal records of BUOW come from citizen science. The Cornell Lab of Ornithology's eBird database (https://ebird.org) indicates that numerous individuals have been observed approximately 0.5 miles east of the project site along De Wolf Avenue (east of the Big Dry Creek Dam). BUOW observations along this stretch of De Wolf Avenue have been recorded almost every year between 2015 and 2025, by a total of 12 unique observers. The most recent observation was on February 10, 2025

Consequently, although BUOW is not documented as using the project site at this time, there may be some potential for it to be present in the future, particularly given the long timeline for project completion (~10 years anticipated). There may thus be some potential for injury, mortality, and/or nest failure as a result of construction activities. This would be addressed to the event feasible by implementation of AMM-7, and should be avoided entirely, although there could be some minor residual potential for direct take of individuals.

Over the longer term, as the site is progressively developed and offers less and less open land for both forage and nesting, the potential for BUOW to be present is expected to decrease somewhat, although even at full build-out some—fairly limited—opportunities for the species would continue to be available in preserved lands onsite (see Figure 10). Preserved lands onsite are not expected to be particularly attractive to BUOW since better opportunities will be easily accessible on remaining open lands to the north and east, including the area behind the Big Dry Creek Dam. Nonetheless, because BUOW are well-documented in urban areas with a moderate level of disturbance (e.g., Baladrón 2020), the potential for their occurrence onsite cannot be ruled out. Any BUOW on the project site would be subject to some risk of "urban take" such as traffic mortality and disturbance-related nest failure, but because the species is not currently known to be using the site, the potential for long-term direct take is currently considered fairly low.

Direct & Indirect Impacts on Habitat

The project would result in direct loss of 189.683 acres of grassland and another 140.257 acres of former agricultural land that currently offers forage and nesting opportunities for BUOW. As with SJKF, these losses have some potential to represent a direct adverse effect on the species, although this is qualified somewhat, in that the species is currently not known to be present onsite and has not been reported closer than about 0.4 mile from the site in recent years. Any such effects would be incurred progressively as the project phases move forward.

An additional 17.539 acres of grassland habitat and 1.127 acres of former agricultural lands potentially suitable for BUOW would be subject to indirect effects related to proximity to the new development, including

- disconnection from remaining potentially suitable habitat in the project vicinity
- increased human presence and disturbance due to human activity, habitat incursions, noise, night-time lighting, etc.
- potential for habitat degradation due to increased trash and pollutant input from neighboring development
- added vehicular traffic

Indirect effects on BUOW habitat represent a potential indirect adverse effect on the species, with similar qualifiers as those applied to direct impacts since the species is not known to be present as of 2025. Like direct impacts, any indirect impacts would be incurred progressively.

Impacts of Take on Covered Species

San Joaquin Kit Fox

Habitat Use & Population Trends

SJKF is the larger of two subspecies of *Vulpes macrotis*, which is North America's smallest native canid. Adapted to arid settings, SJKF is typically found in environments with sparse ground cover, sparse or absent shrub cover, and low-growing vegetation. SJKF is strongly associated with areas offering open, level, sandy ground that is relatively free of rocks and boulders to depths of 3 – 4.5 feet, enabling denning activity. SJKF is typically not found in areas with a shallow water table, impenetrable hardpan, or shallow underlying bedrock, all of which tend to deter denning (U.S. Fish and Wildlife Service 2010).

Historically, SJKF occupied alkali scrub/shrub habitat and arid grasslands across the San Joaquin Valley floor from southern Kern County north to about the latitude of Tracy in San Joaquin County, extending onto gentle slopes in the surrounding foothills and valleys of the eastern interior Coast Ranges. Information from early 20th century reports suggests that the species was abundant at that time (U.S. Fish and Wildlife Service 2010).

As of the late 1960s, when SJKF was federally listed as Endangered, the species' range had been substantially reduced from its historic extent and areas with abundant SJKF were primarily restricted to the western and southern ends of the San Joaquin Valley and adjacent foothills. At the same time, there was some suggestion that SJKF populations were increasing in the foothills and drier valleys of the Coast Ranges, possibly as the result of displacement by expanding agricultural uses on the San Joaquin Valley floor. By 1975, the species had also been documented in Stanislaus and Santa Clara Counties, extending its range (if not its abundance) to include portions of 14 counties (U.S. Fish and Wildlife Service 2010). The species' current range is thought to be similar to that documented in the USFWS SJKF Recovery Plan (U.S. Fish and Wildlife Service 1998), stretching from southern Kern County north to Contra Costa, Alameda, and San Joaquin Counties on the west, and to the vicinity of La Grange in Stanislaus County on the east. However, SJKF is no longer present in all areas of suitable habitat within this range, and populations appear to have become more fragmented, at least in satellite areas (U.S. Fish and Wildlife Service 2010).

Threats to Species

USFWS' SJKF Recovery Plan (U.S. Fish and Wildlife Service 1998) cites several key threats to the species.

- Habitat loss and degradation due to development
- Habitat loss and degradation as well as traffic mortality associated with petroleum field development in the southern San Joaquin Valley
- Use of pesticides and rodenticides, which may impact SJKF directly, secondarily, or indirectly via reduction of their prey base
- Competition with non-native species, particularly red fox (*V. vulpes* Linn)

USFWS' 2010 5-Year Review identified additional considerations.

- Predation by coyote (*Canis latrans*) and bobcat (*Lynx rufus*), as well as domestic dogs, red fox, American badger (*Taxidea taxus*), and golden eagle (*Aquila chrysaetos*)
- Disease, include canine distemper and canine parvovirus

Potential for Proposed Take to Jeopardize Species

As identified above, the project would convert almost 190 acres of potentially suitable SJKF grassland habitat and about 140 acres of potentially suitable habitat in previously cultivated areas to developed land uses, further contributing to loss and fragmentation of SJKF habitat in the San Joaquin Valley, and extending the "edge effect" pressure on remaining open grasslands in the area. These effects would be amplified when taken together with other reasonably foreseeable development in the Clovis area, particularly the completion of buildout under the Vista Ranch Master Plan (under future projects separate and independent from the Vista Ranch project itself; see Figure 7). Over the longer term, although the portion of the SOI Expansion Area outside the Vista Ranch Master Plan Area is not currently slated for development, it is reasonably foreseeable that at some point development would eventually occupy almost the entirety of the currently undeveloped wedge of land (primarily grasslands and agricultural lands) north of the Clovis City limit and west of the Big Dry Creek Dam (see aerial photographs in Figures 2 and 7). While the project's contribution to this long-term effect is considered unlikely to independently jeopardize SJKF at the regional level (particularly as the most concentrated SJKF populations are miles away to the south and west), there may nonetheless be some potential for it to represent an added pressure on the species, to the extent individuals may remain in this portion of Fresno County.

California Tiger Salamander

Habitat Use & Population Trends

CTS is a California-endemic mole salamander (so named because of their use of burrows as refugia) belonging to the family Ambystomatidae (e.g., U.S. Environmental Protection Agency 2010). CTS in the project region belong to the Central California Distinct Population Segment (CC-DPS) (U.S. Environmental Protection Agency 2010, U.S. Fish and Wildlife Service 2017).

Historically, the range of CC-DPS CTS encompassed the San Joaquin River and Sacramento River valleys and bordering foothills, together with the coastal valleys of central California. Historic distribution within this range is not well documented, but the species' current extent suggests it may historically have ranged throughout low-

elevation woodland plant communities of the valleys and foothills in this area. Almost nothing is known about the species' historic abundance (U.S. Fish and Wildlife Service 2017).

Currently, CC-DPS CTS occur in 23 counties, including Sacramento, Stanislaus, Merced, San Joaquin, Fresno, Kings, Tulare, and Kern Counties in the Central Valley; Amador, Calaveras, Tuolumne, Mariposa, and Madera Counties to the east; and Yolo, Solano, Contra Costa, Alameda, Santa Clara, San Benito, San Mateo, Santa Cruz, Monterey, and San Luis Obispo Counties to the west. Occurrences have been documented at elevations from near sea level on the Central Valley floor to a maximum elevation of about 3,940 feet above sea level in the Sierra Nevada foothills. Available data suggest that most present-day populations comprise just a few to perhaps a few dozen breeding adults; occurrence of more than 100 breeding individuals within a local population is rare. Population size is highly variable, however (U.S. Fish and Wildlife Service 2010).

CC-DPS CTS use primarily grassland, scrub, and oak savanna habitats (Laabs 2002), with a strong preference for grassland and scrub. They typically avoid woodlands and forests (U.S. Fish and Wildlife Service 2017). Mammal burrows in upland areas provide critical refugia for adults, who spend most of their lives underground. The species breeds primarily in seasonal aquatic features such as larger vernal pools, sag ponds, and stock ponds. Typically, they require a continuous ponding duration of at least 90 days, and successful breeding ponds generally become wetted in December and retain water through at least May. The species appears to have a particular affinity for highly turbid pools that are sparsely vegetated with seasonal wetland vegetation such as pale spikerush (*Eleocharys macrostachya*). Larger pools are generally preferred to smaller ones, producing greater numbers of larvae and supporting larger populations (Vollmar Natural Lands Consulting 2023a).

Additionally, although CTS require a fairly long ponding duration to complete their reproductive cycle, seasonal ponds are generally more hospitable than perennial features, which have greater potential to support predators such as centrarchid fishes (e.g., bass, bluegill), mosquitofish (*Gambusia* sp.), and American bullfrog (*Lithobates catesbeianus*). Perennial ponds can also build up large populations of aquatic hexapods such as dragonfly larvae (Anisoptera) and backswimmers (Notonectidae), which can also prey on CTS eggs and larvae (Vollmar Natural Lands Consulting 2023a).

Threats to Species

The decline in CTS populations is primarily ascribed to extensive habitat loss and the introduction of non-native predators such as American bullfrog, which reduce breeding success by preying on juveniles, as noted above. Agriculture, housing, and other forms of development have destroyed extensive areas of vernal pools where CTS once bred (Vollmar Natural Lands Consulting 2023a). Additionally, large-scale control of California ground squirrel (*Otospermophilus beecheyi*), which create the upland burrows CTS use for refuge, is considered a serious threat to the species (U.S. Fish and Wildlife Service 2014).

The USFWS Recovery Plan for CC-DPS CTS (U.S. Fish and Wildlife Service 2017) also cites habitat modification adjacent to urban and agricultural uses as an indirect contributor to the species' decline, including factors such as

- degradation of breeding ponds due to increased delivery of contaminants and hydroperiod modifications that favor non-native predator species
- presence of "pet species" such as house cats and dogs, which may predate CTS
- increased predation by opportunistic native species such as raccoon (*Procyon lotor*), whose populations may increase in response to resources offered by urban development

- decreased abundance of burrowing mammals in irrigated pasture areas
- degradation due to off-road vehicle use

Interestingly, although the species has experienced an overall decline, the range and abundance of CC-DPS CTS may have expanded in some areas over the past 150 years due to the construction of stock ponds (Vollmar Natural Lands Consulting 2023a).

Potential for Proposed Take to Jeopardize Species

As itemized above, the project would result in the loss of 0.390 acre of documented CTS breeding habitat, 0.105 acre of suitable breeding habitat, 189.7 acres of presumed-occupied upland habitat, and 140.3 acres of low-suitability upland habitat. A further 0.369 acre of documented CTS breeding habitat would be subject to long-term indirect impacts, along with another 1.129 acre of low-suitability breeding habitat.

Similar to effects on SJKF, effects on CC-DPS CTS would be amplified by loss of habitat due to other reasonably foreseeable development in the north Clovis area, including the completion of (separate) buildout under the larger Vista Ranch Master Plan and potential future densification in the remainder of the SOI Expansion Area, which would ultimately occupy most of the currently undeveloped lands immediately north of the Clovis City limit and west of the Big Dry Creek Dam (see Figures 2 and 7). In view of the wide geographic distribution of CC-DPS CTS, the project's contribution to long-term loss and fragmentation of habitat for the species—which looms large in the immediate project context, but is less substantial in the regional context, especially in view of the project site's less than optimal quality—is considered unlikely to independently jeopardize the species. However, because these losses would represent a locally important change in habitat availability and connectivity, and would further exacerbate "edge effects" decreasing the quality of remaining habitat, they should be taken seriously as a factor for the long-term success of CC-DPS in Fresno County.

Crotch's Bumble Bee

Habitat Use & Population Trends

Crotch's bumble bee is a short-tongued generalist-forager species most easily distinguished from other bumble bees on the basis of hair color, notably the presence of red markings on the abdomen (Xerces Society et al. 2018).

Restricted primarily to California, Crotch's bumble bee was historically common throughout most of the southern two-thirds of the state, including the Central Valley. It is still present within the Central Valley and adjacent foothills, along the Pacific coast and in neighboring "Mediterranean" regions, and in the western desert, but comparisons of recent (2002 – 2012) and historic (1805 – 2001) data suggest that its range has shrunk by some 25% from its historic extent; some estimates suggest as much as an 85% decrease. Populations have also declined substantially since about 2002, particularly in the center of the species' historic range (Xerces Society et al. 2018, Vollmar Natural Lands Consulting 2023a).

In California, Crotch's bumble bee is found in open grassland and scrub habitats. As a short-tongued species, it requires food plants whose flowers are relatively open and have short corollas; plant families most commonly reported in association with the species are the Fabaceae, Apocynaceae, Asteraceae, Lamiaceae, and Boraginaceae. Associated genera include *Asclepias*, *Chaenactis*, *Lupinus*, *Medicago*, *Phacelia*, and *Salvia*, as identified above—although it has been pointed out that both the family- and genus-level associations may not reflect a preference for particular plant taxa, but may instead represent the morphologically suitable taxa that prevail in landscapes where Crotch's bumble bee is present (Xerces Society et al. 2018).

Crotch's bumble bee, like most other bumble bee species, nests underground. The size of their colonies is not well documented (Xerces Society et al. 2018); presumably this applies to their configuration(s) as well.

Threats to Species

Threats to Crotch's bumble bee include the following (Xerces Society et al. 2018).

- Modification and destruction of the species' habitat (for example, as a result of agricultural expansion and intensification, herbicide use, livestock grazing, and urbanization)
- Competition with managed honey bees (apiary operations)
- Pesticide use
- Genetic factors
- Climate change

Pathogens transmitted by livestock and commercial honey and bumble bees are also considered a current threat and may have been a factor in the species' decline (Xerces Society et al. 2018).

Potential for Proposed Take to Jeopardize Species

As discussed above, direct take of Crotch's bumble bee during construction would be minimized or avoided by implementation of AMM-1 and AMM-6, and long-term direct take is evaluated as unlikely. Direct take is therefore considered unlikely to jeopardize the species, either regionally or statewide.

As a predominantly grassland species, Crotch's bumble bee would be subject to indirect take effects similar to those described for SJKF, albeit on a smaller scale due to its more specialized requirements for forage. Based on current estimates (see discussion under *Crotch's Bumble Bee* in *Potential for Take* above), this is expected to include loss of a maximum of about 50 acres of suitable habitat, and "edge effect" pressures on remaining potentially suitable grasslands in the project vicinity. These effects would be amplified when taken in combination with other reasonably foreseeable development in the area over the long term—full buildout under the Vista Ranch Master Plan, and potential densification in the remainder of the SOI Expansion Area. Similar to SJKF, project-related loss and potential additional degradation of habitat would be localized enough that it is considered unlikely to independently jeopardize the survival of Crotch's bumble bee statewide, but it could represent an added pressure on the species, to the extent it is present in the project area. It is difficult to assess the significance of this pressure on Crotch's bumble bee because the species is less well understood than many other at-risk taxa and its distribution in the project vicinity is not well documented.[9] In light of these uncertainties, however, any increased pressure could be a concern and should be taken seriously.

Western Burrowing Owl

Habitat Use & Population Trends

BUOW is a small owl belonging to the family Strigidae (the "true owls", distinguished from family Tytonidae, the barn owls) (California Department of Fish and Wildlife 2016). A year-round resident of the Central Valley region, BUOW is considered primarily a grassland species, but it has also been observed to persist and succeed in landscapes extensively modified by human activity. Key characteristics for habitat suitability are thought to be

[9] Uncertainties about the species' ecology and distribution are a key reason AMM-6 emphasizes not only avoidance of take but also collection and reporting of data on Crotch bumble bee.

relatively low-growing vegetation with sparse if any trees and shrubs, and availability of burrows for roosting and nesting (Gervais et al. 2008). BUOW relocate throughout the day to regulate their body temperature, perching in direct sunlight in the early morning and moving to shaded areas or burrows when temperatures increase (California Department of Fish and Wildlife 2016).

The species' typical diet includes small arthropods such as centipedes, spiders, beetles, crickets, and grasshoppers; small rodents, birds, amphibians, and reptiles; and carrion. Some evidence suggests that rodent populations, in particular those of California vole (*Microtus californicus*), may be an important control on local survival and reproductive success; food supply appears to limit the number of young that fledge in at least some years and locations (Gervais et al. 2008). The species' water requirements are poorly understood, but BUOW have been observed to drink in the wild (California Department of Fish and Wildlife 2016).

BUOW typically nests in burrows dug by small mammals such as ground squirrel, but may also use badger, coyote, and SJKF dens for nesting. In areas with soft soil they may also dig their own burrows (Gervais et al. 2008, California Department of Fish and Wildlife 2016). Various anthropogenic features such as culverts, open pipes, and piles of concrete rubble offer opportunistic nesting opportunities where burrows are scarce, and BUOW has also been shown to make frequent use of nest boxes where they are available (Gervais et al. 2008). In agricultural settings, BUOW may nest along roadways and water conveyance structures such as ditches and canals surrounded by croplands. In urban areas they are found nesting near airport runways and in urban parks (Gervais et al. 2008). BUOW nests have even been documented in buildings (California Department of Fish and Wildlife 2016). In all settings, nests are usually lined with excrement, pellets, debris, grass, and/or feathers, but may be unlined. Clutch sizes can be quite large—as many as 14 eggs have been reported in a single clutch—but, as noted above, the survival of nestlings may be limited by available food supply (Gervais et al. 2008).

The historic range of BUOW encompassed most of California and its offshore islands, with the exception of the coastal counties north of Marin and the state's mountainous areas, and the species has been described as originally common or even abundant throughout its expansive range. By the 1940s, there were still reports of "large" numbers of individuals in "favorable localities", but the species was in decline in settled areas (Gervais et al. 2008); as of the 1970s the decline in BUOW populations was considered "almost universal" throughout the state (Center for Biological Diversity et al. 2024). By the early 2000s, the species' breeding range had also shrunk slightly from its historic extent, and several trends had become apparent (Gervais et al. 2008).

- The overall breeding range of BUOW in California has changed little since the 1940s, but the species' local distribution has altered considerably; in particular
    - declines and local extirpations have been concentrated along the central and southern coast, driven by rapid urbanization
    - sizable breeding populations persist in the Central Valley and Imperial Valley regions, where BUOW has adapted to highly modified habitats
- In at least some areas, the majority of BUOW may occur on privately held lands, primarily due to the species' use of suitable agricultural lands

Threats to Species

Primary threats to BUOW populations in California include the following (Center for Biological Diversity et al. 2024).

- Loss of nesting and foraging habitat due to expansion of urban and agricultural uses
- Direct destruction of nest burrows during urban development and agricultural activities
- Local elimination of burrowing rodent populations; rodenticides can lead to direct mortality of BUOW, and over the long term, loss of rodent populations may render an area unsuitable for BUOW
- Relocation of BUOW out of occupied habitat to accommodate urban development
- Increased predation by native predators as more individuals compete for fewer resources in shrinking grassland habitat
- Predation by non-native and feral animals such as red fox and feral cats
- Direct mortality due to solar and wind energy projects and traffic collisions
- Lack of vegetation management, leading to grasslands overgrown with tall, weedy vegetation that reduces their suitability for both ground squirrels and BUOW

Factors related to climate change may also play a role. For instance, extended periods of drought have the potential to decrease prey populations, while extreme storm events can temporarily limit the availability of roosting, nesting, and foraging habitat, and may also have longer term effects if flooding decreases ground squirrel or other rodent populations (Center for Biological Diversity et al. 2024).

Potential for Proposed Take to Jeopardize Species

As discussed above, the project would convert almost 190 acres of grassland and an additional 140 acres of previously cultivated land potentially suitable for BUOW to developed uses, further contributing to loss and fragmentation of BUOW habitat in the San Joaquin Valley, and extending the "edge effect" pressure on remaining open grasslands in the area. As discussed above for SJKF, these effects would be amplified when taken together with other reasonably foreseeable development in the Clovis area, particularly the completion of buildout under the Vista Ranch Master Plan (under future projects separate and independent from the Vista Ranch project itself; see Figure 7). Additionally, although the portion of the SOI Expansion Area outside the Vista Ranch Master Plan Area is not currently slated for development, it is reasonably foreseeable that at some point development would eventually occupy almost the entirety of the currently undeveloped wedge of land (primarily grasslands and agricultural lands) north of the Clovis City limit and west of the Big Dry Creek Dam (see aerial photographs in Figures 2 and 7). While the project's contribution to this long-term effect is considered unlikely to independently jeopardize BUOW at the regional level—particularly as extensive areas offering better opportunities for the species are likely to remain available northeast of the Dam—there may nonetheless be some potential for it to represent an added pressure on the species.

Proposed Mitigation

Wilson Premier Homes proposes to provide compensatory mitigation for losses of CESA-listed species habitat by dedicating substantive conservation lands in the project region. As of May 2024, when this application was initially submitted, it was anticipated that the mitigation site would occupy a portion of the 1,920-acre Jamison Ranch property (Property), located in Madera County about 15 miles northwest of the project site. With that in

mind, the applicant acquired an option on the Property, and extensive studies were conducted on the site to further assess its value for covered species and determine the best configuration for the mitigation preserve (see Appendix, which describes the mitigation proposal presented in May 2024). The current option will expire in May 2025 and it is uncertain whether it can be renewed. With this uncertainty introduced, the applicant may have no choice but to consider other mitigation sites, since the original commitment to dedication of conservation lands remains unaltered.

If Jamison Ranch becomes unavailable, other alternatives will be evaluated for their potential to provide an appropriate offset for project-related habitat losses. Evaluation will consider the presence of covered species and the nature and quality of habitat onsite, including its extent, on- and offsite connectivity, and suitability for the covered species. Regardless of the site ultimately used for mitigation, compensation at the following ratios is proposed, consistent with the May 2024 application.[10]

- CTS (known to be present on project site): minimum of 3:1 for occupied and suitable habitat (breeding and upland), minimum of 2:1 for low-suitability breeding and upland habitat
- Crotch's bumble bee (known to be present on project site): minimum of 3:1 for suitable habitat
- SJKF and BUOW (not documented on project site to date despite repeated and intensive site studies): minimum of 2:1 for all potentially suitable habitat

Based on these ratios, Table 6 itemizes specific criteria that would be used for evaluation of alternate mitigation properties if this becomes necessary.

Table 6. Mitigation Site Rubric

Covered Species	Habitat Impact[a]	Mitigation Ratio	Acreage Required
SJKF	Potentially suitable habitat: 348.606 acres	2:1	697.212
CTS	Suitable upland habitat (direct impact only): 207.222 acres[b]	3:1	621.666
	Occupied + suitable breeding habitat: 0.864 acre	3:1	2.592
	Low-suitability breeding habitat (agricultural tailwater pond) (indirect impact only): 1.129 acres[c]	N/A	—
Crotch's bumble bee	Suitable habitat (direct impact only): estimated at a maximum of 50 acres	3:1	150.000
BUOW	Potentially suitable habitat: 348.606 acres	2:1	697.212

Notes:

[a] Impact acreages include both direct and indirect impacts unless indicated otherwise; see Table 5 for detailed breakdown of impacts on CTS habitat.

[b] No compensation is proposed for indirect impacts on upland habitat since the project would effectively push the existing urban development boundary outward but would not result in further substantive disconnection of remaining habitat.

[c] No compensation is proposed for indirect impacts on the agricultural tailwater pond. It is marginally suitable for CTS breeding but showed no evidence of breeding activity during the 2023 site surveys, when CTS were breeding conspicuously elsewhere on the site. Moreover, the pond would be preserved in place and surrounded by a protected open space buffer, would receive stormwater input via LID treatment features, and although it would be surrounded by development on three sides, would retain external connectivity via open space along the Outlet Channel corridor. Its habitat value is therefore not expected to be materially altered by the project.

[10] As detailed in the May 2024 *Application for Incidental Take Authorization* and the Appendix to this updated application, all of these ratios would be exceeded by the original mitigation preserve proposed for the Jamison Ranch Property.

In summary, based on the calculations shown in Table 6, an acceptable alternate mitigation site would need to provide

- a minimum of about 697 acres of upland habitat suitable for SJKF and BUOW, of which at least 622 acres is suitable for CTS and 150 acres is suitable for Crotch's bumble bee
- a minimum of about 2.6 acres of aquatic habitat suitable for CTS breeding; CRAM scores for these features should match or exceed the average CRAM score for impacted resources at the project site (preferably the latter)

Any alternate site would also need to be south of the Fresno River, which represents a key boundary from the species perspective, and would need to be documented as supporting CTS. Ideally, the site would also be documented as supporting Crotch's bumble bee, although this may be more problematic since this is such a cryptic species.

In the event the applicant is forced to seek an alternate site, only sites satisfying these criteria will be considered.[11]

Monitoring Plans

AMM Monitoring & Enforcement

All AMMs will be incorporated in project bid packages via Special Provisions. Consequently, the immediate responsibility for monitoring and enforcing AMM compliance will rest with the applicant's construction management staff. However, the AMMs proposed for adoption by the applicant require biologist surveys, monitoring, and oversight, and we anticipate that biologist oversight for key activities will also be required by permit conditions. Ultimately, permit submittals and reporting requirements will also ensure resource agency oversight.

Mitigation Preserve Monitoring

The mitigation preserve ultimately selected will be placed under a conservation easement to preclude future development and to control use and management of the preserved lands. The easement holder is expected to be the Sierra Foothill Conservancy, the California Rangeland Trust, or another approved entity.

The applicant will develop a *Long-Term Management Plan* for the selected preserve lands, which will

- define necessary management activities and the range of acceptable methods
- lay out a monitoring process and criteria for routine assessments of site health, and
- establish an adaptive management approach—including triggers and approaches for management intervention/corrective action—to ensure that habitat on the site remains in good condition and that

[11] Evaluation of potential alternate sites will also take into account the federally listed and federal candidate species that are known to be present on the project site (vernal pool fairy shrimp, western pond turtle, and western spadefoot), with compensation for direct losses of suitable and known/presumed occupied habitat proposed at a 3:1 ratio, and compensation for indirect impacts proposed at a 2:1 ratio, consistent with ratios for state-listed species. Based on the locations and general characteristics of the potential alternate sites, vernal pool fairy shrimp habitat may be the hardest to provide on a site other than Jamison Ranch. If the Jamison Ranch property becomes unavailable and a site that meets all other selection criteria except ability to compensate for losses of vernal pool fairy shrimp habitat is identified, the applicant proposes to satisfy requirements for vernal pool fairy shrimp mitigation through the purchase of credits at a USFWS-approved bank serving the project area.

aquatic resources and upland functions and values are preserved

If grazing use is anticipated, a *Grazing Plan* will also be put in place as a step-down from the overall *Long-Term Management Plan*.

All of the preserve documents are assumed to be subject to review and approval by CDFW, as well as USFWS, the Corps, and the RWQCB. They will be provided for review as soon as they are available.

Funding

AMM implementation during project construction will be funded by the applicant as a development cost. Tentative budgets based on the recommended AMMs and anticipated CEQA mitigation are currently being prepared for the applicant's review.

The applicant is aware of the potential cost of compensatory mitigation and is committed to providing the funding necessary to ensure long-term success of the mitigation preserve. One option—the more traditional approach—would be to fund an endowment to pay for species habitat monitoring and management in perpetuity. Endowment calculations are in process as of February 2025; if this approach is preferred, the final calculations will include an evaluation using the Center for Natural Lands Management's PAR approach (see https://www.cnlm.org/par/), which will be submitted for CDFW review. An alternative would be to cover the costs of preserve monitoring and management through annual payments supported by Homeowners' Association (HOA) fees. If this approach is selected, similar calculations will be provided to demonstrate long-term financial feasibility and provide financial assurances.

Climate Change & Future Site Conditions

In discussions prior to submittal of the May 2024 *Application for Incidental Take Authorization*, CDFW requested that the application include consideration of the sustainability of the proposed mitigation under reasonably foreseeable climate change scenarios. This analysis, which also compared potential climate changes outcomes for the project site and the proposed mitigation site, was conducted for the Jamison Ranch Property and included in the May 2024 application submittal (see Appendix). If the applicant is unable to use the Jamison Ranch site and an alternate site must be identified, a similar analysis can be provided for that site.

CEQA Compliance

As the local entity with primary discretionary approval authority for the Vista Ranch project, the City of Clovis is serving as CEQA lead agency. A Notice of Preparation (NOP) for the project Environmental Impact Report (EIR) was filed with the State Clearinghouse in October 2023 (see https://ceqanet.opr.ca.gov/2023100508). The Draft EIR—which also analyzed the effects of the larger Vista Ranch Master Plan and SOI expansion—was circulated for public and agency comment in mid-2024. Following review of comments received on the Draft EIR, the City has elected to revise and recirculate the document. As of February 2025, the NOP for the revised/recirculated Draft EIR is in preparation by the City's third-party consultant, FirstCarbon Solutions (FCS) (https://www.firstcarbonsolutions.com/). The revised Draft EIR is expected to circulate for public/agency review in late spring – summer 2025, with completion of the CEQA process and filing of the Notice of Determination anticipated in late 2025.

Certification of Completeness & Accuracy

I certify that the information submitted in this application is complete and accurate to the best of my knowledge and belief. I understand that any false statement herein may subject me to suspension or revocation of this permit and to civil and criminal penalties under the laws of the State of California.

	March 13, 2025		March 13, 2025
Goldie Lewis, PE Wilson Premier Homes	Date	Anna Buising, PhD, PG Redtail Consulting	Date

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Appendix

Mitigation as Originally Proposed

Appendix

Mitigation as Originally Proposed

Introduction

This Appendix presents the applicant's mitigation approach as contained in the May 2024 *Application for Incidental Take Authorization*. It includes the following information, which is bookmarked for easier navigation.

- An overview of the compensation approach as originally proposed
- A brief discussion of the mitigation site's context with respect to regional conservation efforts
- A description of habitat conditions at the proposed mitigation site
- Comparison of habitat value at the project site and the proposed mitigation site, including overall habitat quality as well as value to the covered species
- An assessment of the potential impacts of climate change on mitigation sustainability, including comparison of likely climate change outcomes at the project site and the mitigation site

A list of references cited in this Appendix follows the text. Please note that the applicant's approach to monitoring and funding—unchanged from the original proposal—is discussed in the main body of this application. Acronyms for the covered species are the same as those used in the main body of the application.

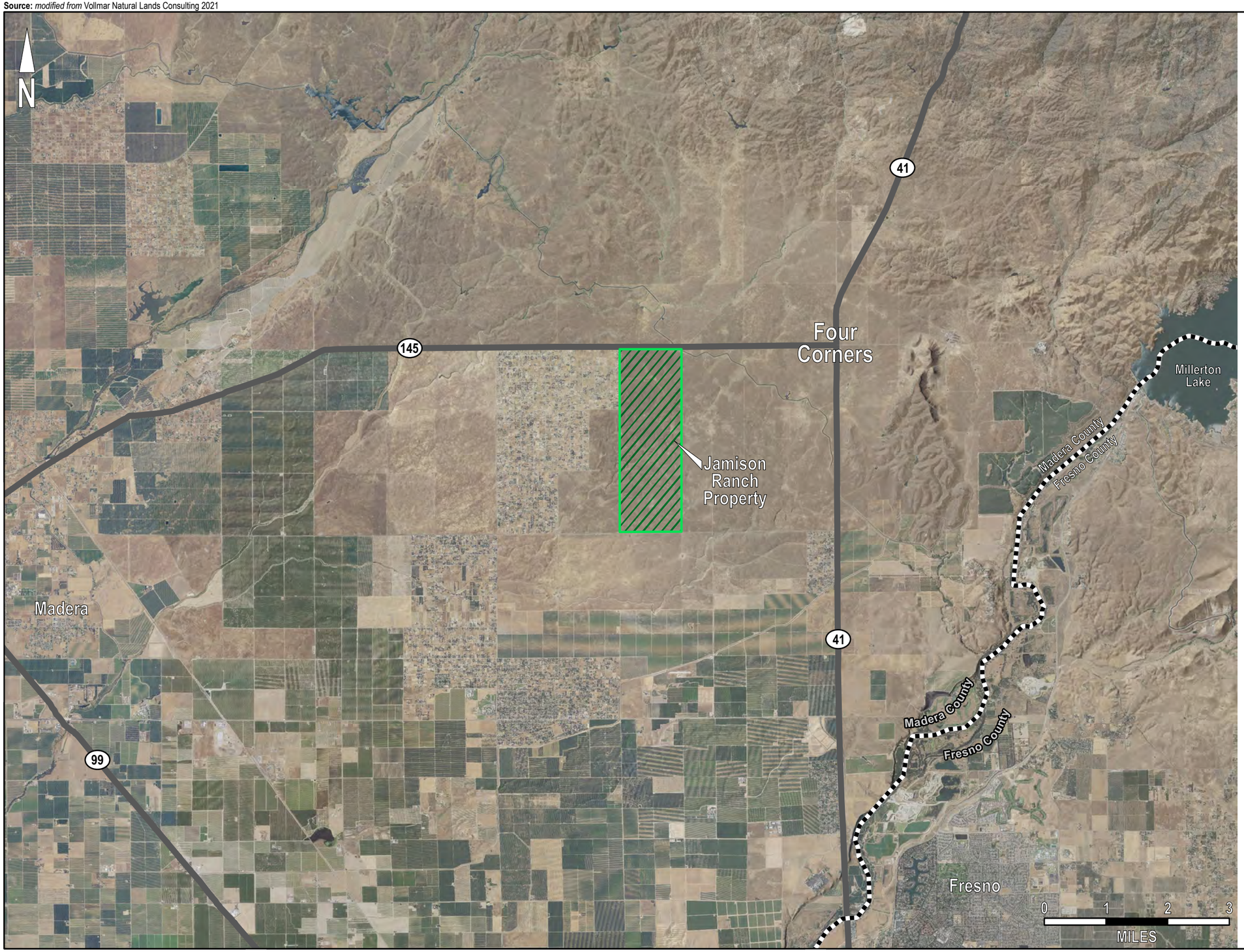
Discussion of the original mitigation proposal has been updated to include information on BUOW.

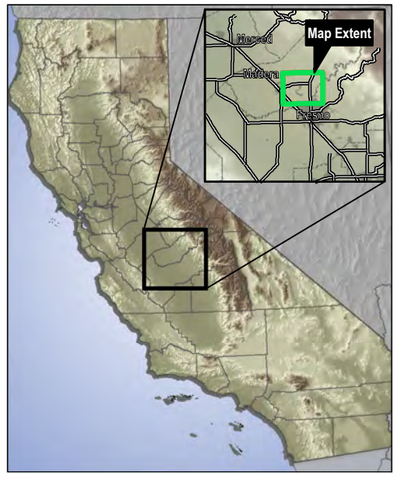
Overview of Compensation Approach

Wilson Premier Homes had originally proposed, and still hopes, to provide compensatory mitigation for losses of CESA-listed species habitat on a portion of the 1,920-acre Jamison Ranch property (Property), which lies in Madera County about 15 miles northwest of the project site, and—like the project site—is south of the Fresno River, a key boundary from the species perspective (Figure A-1). The Property also offers opportunities to offset losses of aquatic resources.

Conservation of lands on the Property would create a substantial preserve offering a connective mosaic of high-quality vernal pool/swale, stream, and annual grassland habitat that is currently documented as supporting at least thirteen special-status species, including CTS (Vollmar Natural Lands Consulting 2021, Smith pers. comm.[a]), and offers grassland resources suitable for SJKF, BUOW, and Crotch's bumble bee. As discussed for alternate sites in the main body of this application, preservation of documented CTS breeding habitat along with adjacent upland habitat suitable for all three species is proposed as compensation for unavoidable project impacts on these species. The applicant also proposes preservation of aquatic resources at the Jamison Ranch Property as compensation for unavoidable impacts on wetlands at the project site.

Source: *modified from* Vollmar Natural Lands Consulting 2021





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Figure A-1. Jamison Ranch Property Location
Vista Ranch – Appendix to Application for Incidental Take Authorization
Wilson Premier Homes

Regional Conservation Context

As noted above, the Property is located south of the Fresno River and thus is appropriately situated to compensate for CTS impacts at the Vista Ranch site. Moreover, Madera County has one of the lowest proportions of protected vernal pool habitat among California's Central Valley counties coupled with expanding development, and therefore has a strong need for additional protection (Vollmar Natural Lands Consulting 2017).

The Property's specific location also makes it appealing for conservation. It lies within the Madera Core Recovery Area defined in the Service's 2005 *Recovery Plan for Vernal Pool Ecosystems of California and Southern Oregon* and also within USFWS-designated Critical Habitat for vernal pool fairy shrimp[1], which is known to be present at the site.[2] It is also in close proximity to designated Critical Habitat for CTS. At the same time, located near the intersection of SR 145 and SR 41, it is central to Madera County's Four Corners area, which supports an approximately 33,000-acre block of contiguous vernal pool habitat but is under intensive development pressure from numerous proposed and approved projects. With only about 4,200 acres of the Four Corners vernal pool habitat conserved to date, conservation at the Property has the potential to make a significant contribution to vernal pool recovery in this area (Vollmar Natural Lands Consulting 2021).

Mitigation at the Property would also add to a growing network of preserves in the Four Corners region. As Figure A-2 shows, the 765-acre Fenston Ranch preserve adjoins the Property to the east, the 3,602-acre McKinney Ranch preserve is approximately 2 miles to the west, and the 198-acre Caltrans Mitigation Bank Madera Pools preserve is approximately 1.5 miles southeast. The Upper and Lower Jamison Ranch Preserves together form an additional 2,269-acre conservation area approximately 4.8 miles east of the Property, and the 403-acre HOG Hills conservation easement is situated approximately 4.9 miles west of the Property. Numerous public preserved lands are also present in the area (Figure A-2). Additional lands adjacent to the east and west edges of the Property have been proposed as mitigation preserves, and may eventually be preserved, further enlarging the size of the protected habitat block (U.S. Army Corps of Engineers 2023).

Habitat Conditions at Jamison Ranch Property

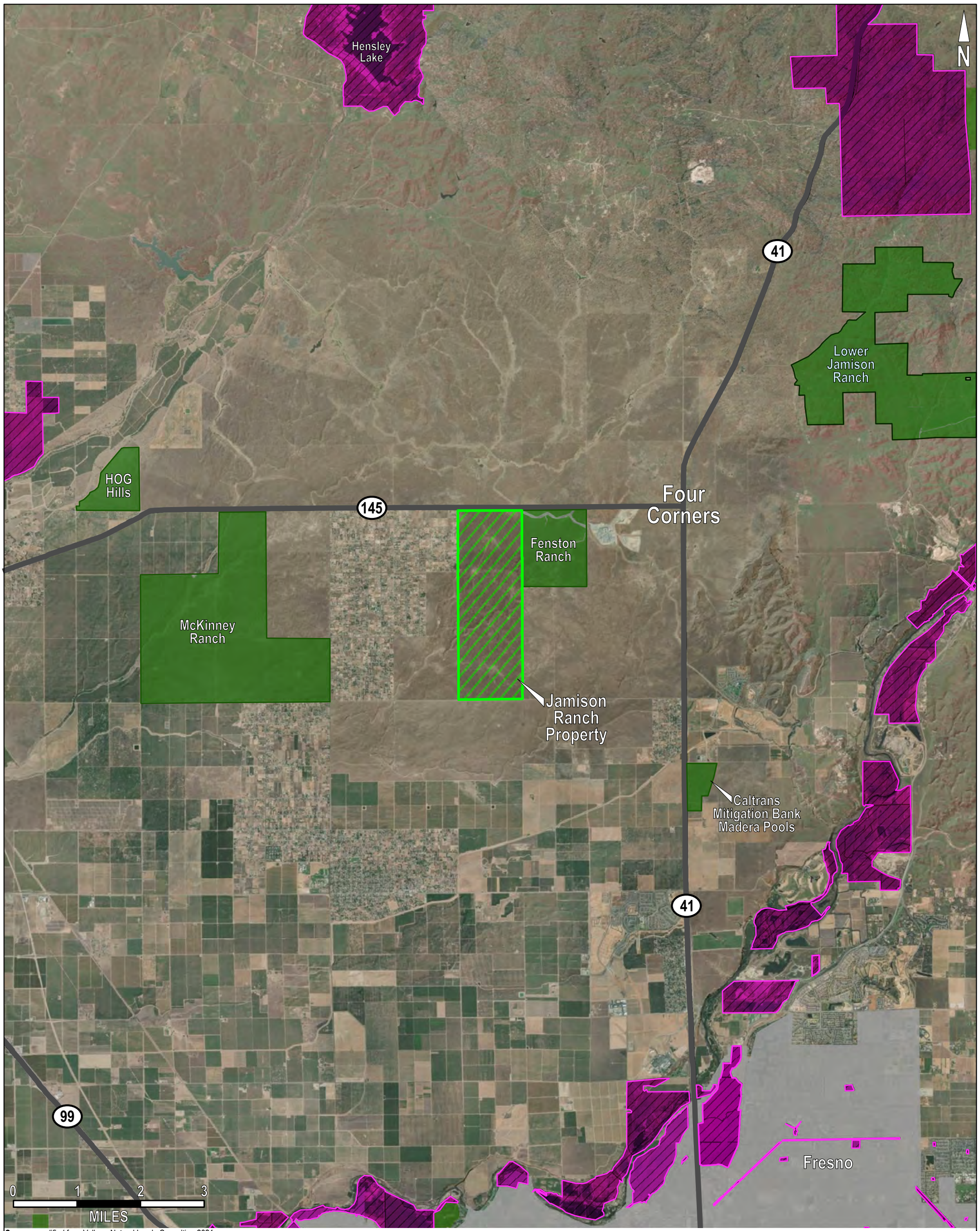
The Property consists almost entirely of undeveloped rangeland; other than fences, the only existing development is a set of corrals in the northwest portion of the site. The few existing roads on the Property, currently used for site access and management, are ungraded and unimproved (dirt surface). About 1,787 acres of the property is upland grassland; the Property also supports an estimated 130 acres of vernal pool and swale habitat as well as 2.7 acres (12,166 linear feet) of seasonal stream corridor where North Fork Little Dry Creek (unrelated to the Dry Creek on the project site) cuts across it from east to west (Vollmar Natural Lands Consulting 2021).[3]

Because of its undeveloped condition and the habitat resources it offers, the Property was previously identified as a potential conservation bank site planned to offer mitigation credits for purchase (e.g., Vollmar Natural Lands Consulting 2021). With the exception of a 5-acre core that encompasses the ranch corrals plus a

[1] Vernal pool fairy shrimp would also be impacted by the project and is discussed in more detail in the project Biological Assessment (Vollmar Natural Lands Consulting 2023a). It is not addressed in this application because it is not listed under CESA.

[2] Much of the Vista Ranch site also lies within the Madera Core Recovery Area (Vollmar Natural Lands Consulting 2023a). However, as noted elsewhere, soils at the Vista Ranch site are generally less conducive to vernal pool formation and persistence than those at the Jamison Ranch Property and the property does not support vernal pools *per se*.

[3] Acreages are approximate, based on field survey and GIS review. If the applicant is able to renew the option on the Property, the team plans to conduct a formal delineation of potential jurisdictional habitat in 2025.



Source: *modified from* Vollmar Natural Lands Consulting 2021

Legend

- Jamison Ranch Property
- Private and single-user preserved lands
- Public preserved lands
- Incorporated urban lands
- State highway

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Figure A-2. Conservation Lands in Vicinity of Jamison Ranch Property
Vista Ranch – Appendix to Application for Incidental Take Authorization
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surrounding 100-foot-wide buffer, the entirety of the Property could be conserved and dedicated for mitigation (Figure A-3). Extensive studies were conducted at the Property from 2017 through 2023, beginning in conjunction with the landowner's initial planning to create a commercial mitigation bank at the site. Based on these studies, the site appears to be an excellent candidate for conservation. Representative views of the Property are provided in Figure A-4.

Soils on the Property are predominantly loamy alluvium assigned to the Cometa soil series, and are generally underlain by a restrictive hardpan at a depth of 20 – 30 inches, contributing to a seasonally perched water table (Vollmar Natural Lands Consulting 2021). This is conducive to wetland formation and persistence, and contrasts with soils at the Vista Ranch site, which are unusually permeable for vernal pool settings in the region (Vollmar Natural Lands Consulting 2023b).

Both aquatic and upland habitat at the Property is in good condition; together, the site's aquatic and upland resources provide a functional, interconnected habitat mosaic—and, unlike many vacant Central Valley lands, the Property has not been cultivated. Historically, it supported low- to moderate-intensity cattle grazing and except for the immediate corral area has not been developed or subjected to other ground disturbance. Past grazing use is not considered a deficit in this context; moderate cattle grazing is generally beneficial for the management of vernal pool grasslands, since it reduces thatch and controls invasive weeds, helping to maintain vernal pool hydrology and facilitating the establishment and persistence of native forbs—and vegetation observed within the vernal pools and other wetlands on the Property is indeed reflective of healthy conditions, featuring a moderate cover of predominantly native forbs and grasses. Like most San Joaquin Valley grassland habitats, the Property's uplands are dominated by introduced annual grasses, but invasive weeds were generally found to be absent (Vollmar Natural Lands Consulting 2021).

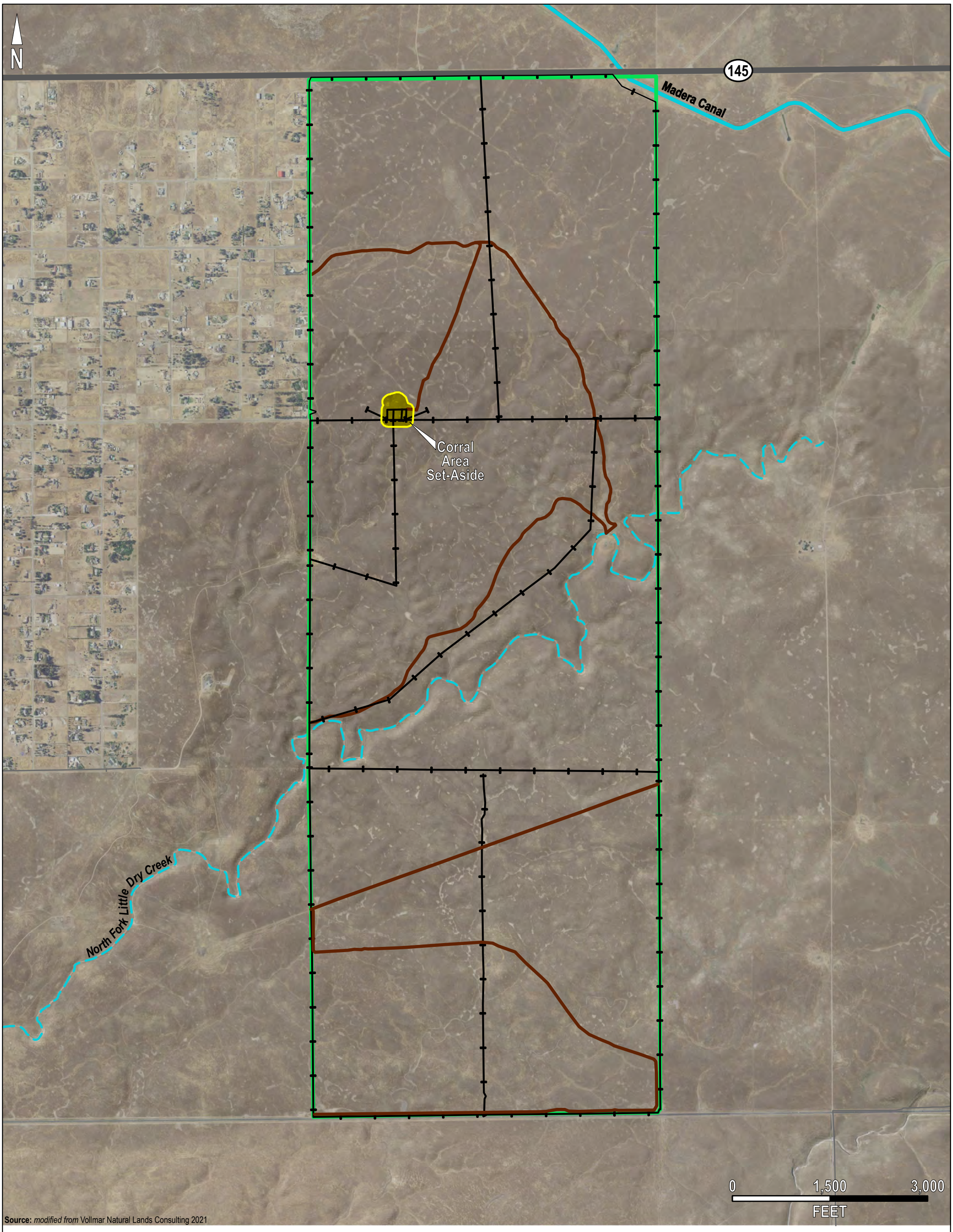
More detail on specific habitat types at the Property is provided in the sections below, followed by a summary of CRAM assessment scores for representative aquatic features and information on special-status species use.

Grasslands

The grasslands on the Property occupy gently rolling topography, allowing the development of a mosaic of different vegetation reflecting minor, localized differences in soil moisture. Typical vegetation consists of Mediterranean barley (*Hordeum marinum* ssp. *gussoneanum*), Italian ryegrass (*Festuca perennis*), soft chess brome (*Bromus hordeaceus*), and slender wild oats (*Avena barbata*), with a mix of associated grasses and forbs (Smith pers. comm.[a]).

The grasslands provide documented habitat for multiple special-status species, including CTS, western spadefoot (*Spea hammondii*), Swainson's Hawk (*Buteo swainsoni*) (state-listed as Threatened; no federal status), Golden Eagle (*Aquila chrysaetos*) (state Fully Protected, state Watch List species; federally protected by Bald and Golden Eagle Protection Act), Ferruginous Hawk *(B. regalis*) (CDFW Watch List species; no federal status), BUOW (candidate for state listing as Threatened, state Species of Special Concern, USFWS Bird of Conservation Concern), and American badger (*Taxidea taxus*) (state Species of Special Concern; no federal status). In addition, many more common wildlife species depend on the grassland. Predator species in particular—such as the raptors listed above, American badger, and coyote (*Canis latrans*)—are dependent on large uninterrupted grasslands like those on the Property and surrounding lands (Smith pers. comm.[a]).

The grasslands provide direct support to aquatic resources onsite at the Property and downstream. They are expected to contribute to carbon sequestration, their intact vegetation helps to control erosion, benefitting downstream water quality, and—as undeveloped permeable surfaces—they also permit infiltration contributing to groundwater recharge.



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Figure A-3. Potential Preservation Lands at Jamison Ranch Property
Vista Ranch – Appendix to Application for Incidental Take Authorization
Wilson Premier Homes

Source: photos by Vollmar Natural Lands Consulting, Sacramento, CA



Drone aerial view, looking southwest across Property toward low-density residential edge of sprawling Madera development



Vernal pools in grassland near south end of Property, south portion of proposed preserve



North Fork Little Dry Creek channel in spring



Vernal swale in central portion of proposed preserve

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Figure A-4. Representative Views of Jamison Ranch Property
Vista Ranch Project – Appendix to Application for Incidental Take Authorization
Wilson Premier Homes

Vernal Pools

Vernal pools are common throughout the Property, and are fairly evenly distributed within level to rolling topography. They are dominated by native vernal pool indicator plants such as coyote thistle (*Eryngium castrense*), Fremont's goldfields (*Lasthenia fremontii*), common vernal pool allocarya (*Plagiobothrys stipitatus* var. *micranthus*), and annual hairgrass (*Deschampsia danthonioides*). The vernal pools also support generalist wetland species such as Mediterranean barley and Italian ryegrass (Vollmar Natural Lands Consulting 2021).

The vernal pools are home to multiple special-status vernal pool species including CTS, western spadefoot, vernal pool fairy shrimp (*Branchinecta lynchi*) (no state status; federally listed as Threatened), midvalley fairy shrimp (*Branchinecta mesovallensis*), California linderiella (*Linderiella occidentalis*)[4], and succulent owl's-clover (*Castilleja campestris* var. *succulenta*) (federally listed as Threatened, state-listed as Endangered, CRPR 1B.2). They also provide habitat for a suite of other more common invertebrates, amphibians, reptiles, birds, and mammals (Smith pers. comm.[a]).

As small ephemeral features with limited surface connectivity to other waters, individual vernal pools are not expected to provide regionally important water quality or carbon sequestration services (Smith pers. comm.[a]); their value in these areas lies in their extent and collective impact. They also contribute individually and collectively to groundwater infiltration, another value increased by their substantial extent on the Property.

Vernal Swales

Vernal swales are low-lying, topographically indistinct areas that can be differentiated from ephemeral drainages based on their lack of clearly defined bed and bank geomorphology and an associated OHWM. On the Property, these features generally support at least 20% cover of vernal pool indicator species associated with shallow ponding, such as meadowfoam (*Limnanthes* spp.), with lesser percentages of generalist wetland species such as Mediterranean barley and Italian ryegrass. Vernal swales commonly provide a hydrologic connection between vernal pools and are thus fundamental to the overall ecological function of vernal pool complexes (Vollmar Natural Lands Consulting 2021).

Like the vernal pools, the vernal swales provide habitat for multiple common invertebrates, amphibians, reptiles, birds, and mammals. Some of the swales also offer low areas where ponding is extended; these are suitable to support various special-status vernal pool species, including western spadefoot, vernal pool fairy shrimp, midvalley fairy shrimp, and California linderiella (Smith pers. comm.[a]).

As vegetated drainages with surface connectivity, the vernal swales provide important water quality services to downstream aquatic habitats (Smith pers. comm.[a]) as well as contributing to groundwater recharge.

Ephemeral Drainages

Ephemeral drainages are small channels with some bed and bank development that convey rain run-off for a short period following storm events and often retain isolated ponded areas throughout the rainy season. They typically support flow for only 1 – 2 weeks after heavy rains, and because of their relatively short active period, channel development is less marked than in seasonal streams, although they display characteristics of an OHWM. On the Property, these features typically support a mix of vernal pool indicator plants and generalist seasonal wetland plants (Vollmar Natural Lands Consulting 2021).

[4] Neither midvalley fairy shrimp nor California linderiella has formal federal or state status, but both are treated as special-status species by CDFW.

The ephemeral drainages provide habitat for both generalist and vernal pool–specialist species; their habitat value for special-status species in particular is likely similar to that of annual grasslands, described above (Smith pers. comm.[a]).

Like the other aquatic resources on the Property, the ephemeral drainages contribute to groundwater recharge. Where they are vegetated, they also provide water quality services to downstream aquatic habitats (Smith pers. comm.[a]) and some carbon sequestration.

Seasonal Stream

North Fork Little Dry Creek is a tributary of Little Dry Creek. West of the Property, the downstream reaches of Little Dry Creek have been significantly channelized and are largely managed as agricultural ditches, but the Creek continues to function as a minor tributary of the San Joaquin River via the Chowchilla Canal, which flows northwest on the valley floor some 13 miles west of Madera (Smith pers. comm.[a]).

Within the Property, North Fork Little Dry Creek occupies a meandering channel incised tens of feet below the dominant land surface. Much of the stream channel is sandy-bottomed and lightly vegetated. Most of the stream dries relatively early in the spring, but relatively deep and long-lasting pools in many of the meanders hold water until early summer. These pools support significant aquatic vegetation such as white water crowfoot (*Ranunculus aquatilis*) (Smith pers. comm.[a]).

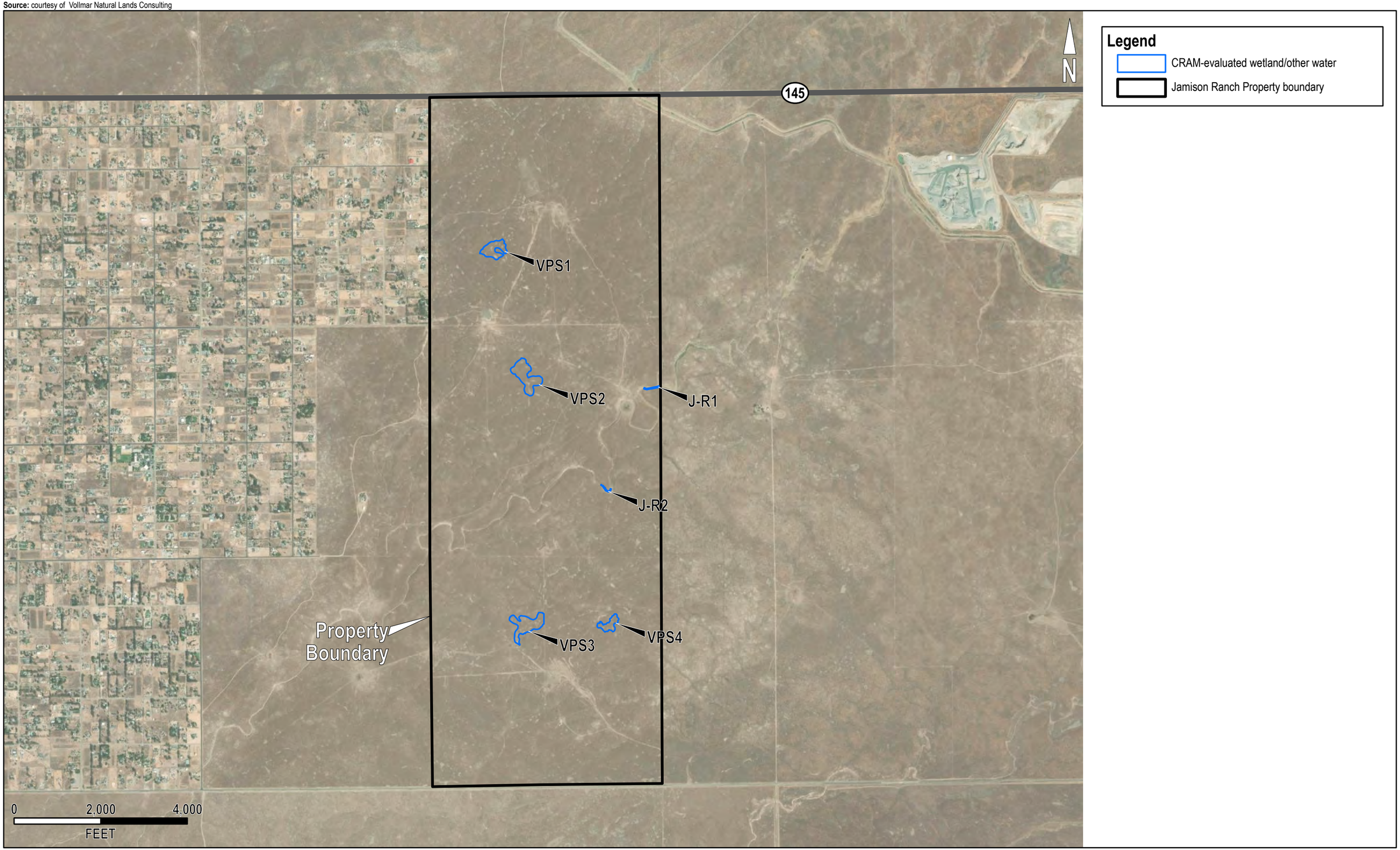
CTS is documented as breeding in the Creek, particularly in the deeper pools. The stream also provides habitat for small fish that may migrate in from downstream, and for other amphibians, birds, mammals, reptiles, and invertebrates. In addition, the steep sides of the incised channel provide vertical walls that are used by BUOW and other wildlife for nesting (Smith pers. comm.[a]).

Due to overall light vegetation cover, North Fork Little Dry Creek likely provides minor water quality services to downstream waters and limited carbon sequestration. However, the sandy bottom enables infiltration contributing to groundwater recharge (Smith pers. comm.[a]). Longer pooling periods in the meander areas amplify this benefit.

CRAM Scores for Aquatic Features at Jamison Ranch Property

CRAM scores for representative aquatic features on the Property are provided in Table A-1 on the next page; the locations of the evaluated features are shown on Figure A-5. Four assessment areas were chosen for vernal pool systems, in order to give a sense of the range of habitat values across the large site. Assessment Areas VPS-1 and VPS-2 are located in the northern half of the property while VPS-3 and VPS-4 are located within the proposed preserve (discussed in more detail below). Two reaches of North Fork Little Dry Creek were also evaluated. Assessment Area J-R1 is located near the eastern (upstream) end of the Property, beginning just below the confluence of an unnamed ephemeral tributary with North Fork Little Dry Creek and extending 100 meters downstream. This location is outside of the proposed preserve, but was selected per CRAM guidelines as representative of the stream on the Property. Assessment Area J-R2 is located within the proposed preserve, in an area typical of the relatively steep-banked meanders present along many reaches of North Fork Little Dry Creek on the Property (Redtail Consulting 2023).

Source: courtesy of Vollmar Natural Lands Consulting



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Figure A-5. CRAM-Evaluated Features at Jamison Ranch Property
Vista Ranch – Appendix to Application for Incidental Take Authorization
Wilson Premier Homes

Table A-1. CRAM Assessment Scores for Jamison Ranch Property Aquatic Features

Feature	Score by Wetland Attribute				Index Score
	Buffer & Landscape	Hydrology	Physical Structure	Biotic Structure	
Vernal Pool					
VPS1	87.5	100	75	66.67	82
VPS2	87.5	100	83.33	54.17	81
VPS3	87.5	100	91.67	87.5	92
VPS4	87.5	100	75	70.83	83
Riverine					
J-R1	93.3	100	50	44.44	72
J-R2	93.3	83.33	37.5	44.44	65

Source: Redtail Consulting 2023

Index scores for the four vernal pool assessment areas range from 81 to 92. Three out of four of these scores are significantly—i.e., ≥ 7 points—above the statewide median value for vernal pool systems (75), with the fourth being only one point away from being significantly above. All fall well within the range of Good condition. Riverine reaches J-R1 and J-R2 received index scores of 72 and 65 respectively. Although far from an ideal condition, these values are in the Fair condition range, and significantly above the scores of the impacted "riverine" reaches on the project site (Redtail Consulting 2023).

Special-Status Species Use

Based on CNDDB records and surveys conducted onsite from 2017 through 2021, at least thirteen special-status species are known to be present on the Property. These are listed in Table A-2.

Table A-2. Special-Status Species Documented at Jamison Ranch

Species	State Status	Federal Status
Succulent owl's-clover *Castilleja campestris* var. *succulenta*	Endangered	Threatened
Hogwallow starfish *Hesperevax caulescens*	CRPR 4.2	—
Adobe navarretia *Navarretia nigelliformis* ssp. *nigelliformis*	CRPR 4.2	—
Vernal pool fairy shrimp *Branchinecta lynchi*	—	Threatened
Midvalley fairy shrimp *B. mesovallensis*	*Neither of these species has official state or federal status, but both are treated as qualifying for special status in California*	
California linderiella *Linderiella occidentalis*		
California tiger salamander *Ambystoma californiense* (breeding and upland)	Threatened, Watch List	Threatened
Western spadefoot *Spea hammondii* (breeding and upland)	Species of Special Concern	Candidate Threatened

Species	State Status	Federal Status
Swainson's Hawk *Buteo swainsoni* (foraging)	Threatened	—
Western Burrowing Owl *Athene cunicularia hypugaea* (wintering/nesting)	Candidate Threatened, Species of Special Concern	Bird of Conservation Concern
Golden Eagle *Aquila chrysaetos* (foraging)	Fully Protected, Watch List	No Take (Bald & Golden Eagle Protection Act)
Ferruginous Hawk *B. regalis* (wintering)	Watch List	—
American badger *Taxidea taxus*	Species of Special Concern	—

Sources: Vollmar Natural Lands Consulting 2021, Smith pers. comm.[a]

Aquatic habitats onsite support breeding CTS and western spadefoot, as well as the three vernal pool branchiopods and occurrences of succulent owl's-clover. As noted above, BUOW nests in the steep, incised sides of the North Fork Little Dry Creek drainage. Grasslands offer upland resources for both CTS and western spadefoot, as well as opportunities for BUOW, Swainson's Hawk, Golden Eagle, Ferruginous Hawk, and American badger. Occasional clay flats provide habitat for hogwallow starfish (*Hesperevax caulescens*) and adobe navarretia (*Navarretia nigelliformis* ssp. *Nigelliformis*) (Vollmar Natural Lands Consulting 2021; Smith pers. comm.[a]).

The Property also offers suitable movement and foraging habitat for SJKF and Crotch's bumble bee, although neither species has been documented on the site to date (Smith pers. comm.[b]). Although the development of shallow hardpan in soils at the Property may reduce denning opportunities for SJKF in some areas, extensive networks of ground squirrel burrows along with the presence of BUOW as well as American badger and other users of deep dens indicates that the Property offers ample denning opportunities.

Comparison of Habitat Value at Project & Mitigation Sites

Overview

Table A-3 provides a summary comparison of habitat value at the project site and the Jamison Ranch Property. More detail on key aspects of habitat value is provided in the sections that follow the table.

Table A-3. Habitat Value at Project Site and Jamison Ranch

Habitat Aspect	Project Site	Jamison Ranch Property
Overall upland quality/value	Low • Unmanaged grassland • Limited documentation of special-status species onsite • Degraded ruderal habitats	Moderate – High • Managed grasslands • Multiple special-status species present • Large non-native vegetation component in uplands
Overall wetlands and waters quality/value	Low – Moderate	High

Habitat Aspect	Project Site	Jamison Ranch Property
	• Unmanaged seasonal wetlands supporting some special-status species • Natural stream drainage beheaded and diverted • Realigned and channelized drainage (Outlet Channel)	• Managed vernal pools supporting high diversity of special-status species • Located in a core recovery area • Functional headwaters stream supporting additional special-status species
Location and connectivity	Low – Moderate • Adjacent to urban/suburban development on two sides; will be surrounded by development over longer term • Not within an identified recovery area	High • Located in vernal pool core recovery area • Adjacent and in proximity to other conserved habitat • In large area of remaining open space threatened by development
SJKF habitat	Low • Great distance to extant populations • Adjacent to urban area; will ultimately be surrounded by development	Low – Moderate • Great distance to extant populations • Part of a large, increasingly connective open space corridor
CTS upland habitat	Low – Moderate • Unmanaged grasslands and ruderal habitat • Extensive leveled and previously cultivated lands	High • Managed grazing of grasslands • Never leveled or cultivated
CTS breeding habitat	Moderate – High • Multiple ponds with documented breeding	High • Multiple ponds with multiple years of documented recruitment
Crotch's bumble bee habitat	Moderate • Unmanaged grasslands • Limited wildflower resources	Moderate • Managed grasslands • Limited wildflower resources
BUOW habitat	Moderate • Potential habitat in grasslands and formerly cultivated areas • Species not observed onsite to date	High • High-quality nesting and foraging opportunities • Species documented as present; observed to occupy burrows onsite during breeding season
Value to other special-status species	Low • Four special-status wildlife species documented onsite • No special-status plants present onsite • Location adjacent to developed uses and likelihood of additional adjacent development in future likely decreases long-term value	High • Thirteen special-status wildlife species documented onsite • Multiple special-status plants present onsite • Location in conservation priority area in proximity to other conserved open space likely increases long-term value

General Considerations

While the comparative value of habitat at the project site and habitat at the proposed mitigation Property depends in part on its intrinsic characteristics, it also depends on the accessibility of the habitat to at-risk

species—even the most ideal habitat is useless if the wildlife that need it can't access it. Factors relevant in evaluating this contextual aspect of habitat value include

- connectivity with other usable habitat
- known presence of special-status species (including but not limited to the covered species) at and around each site

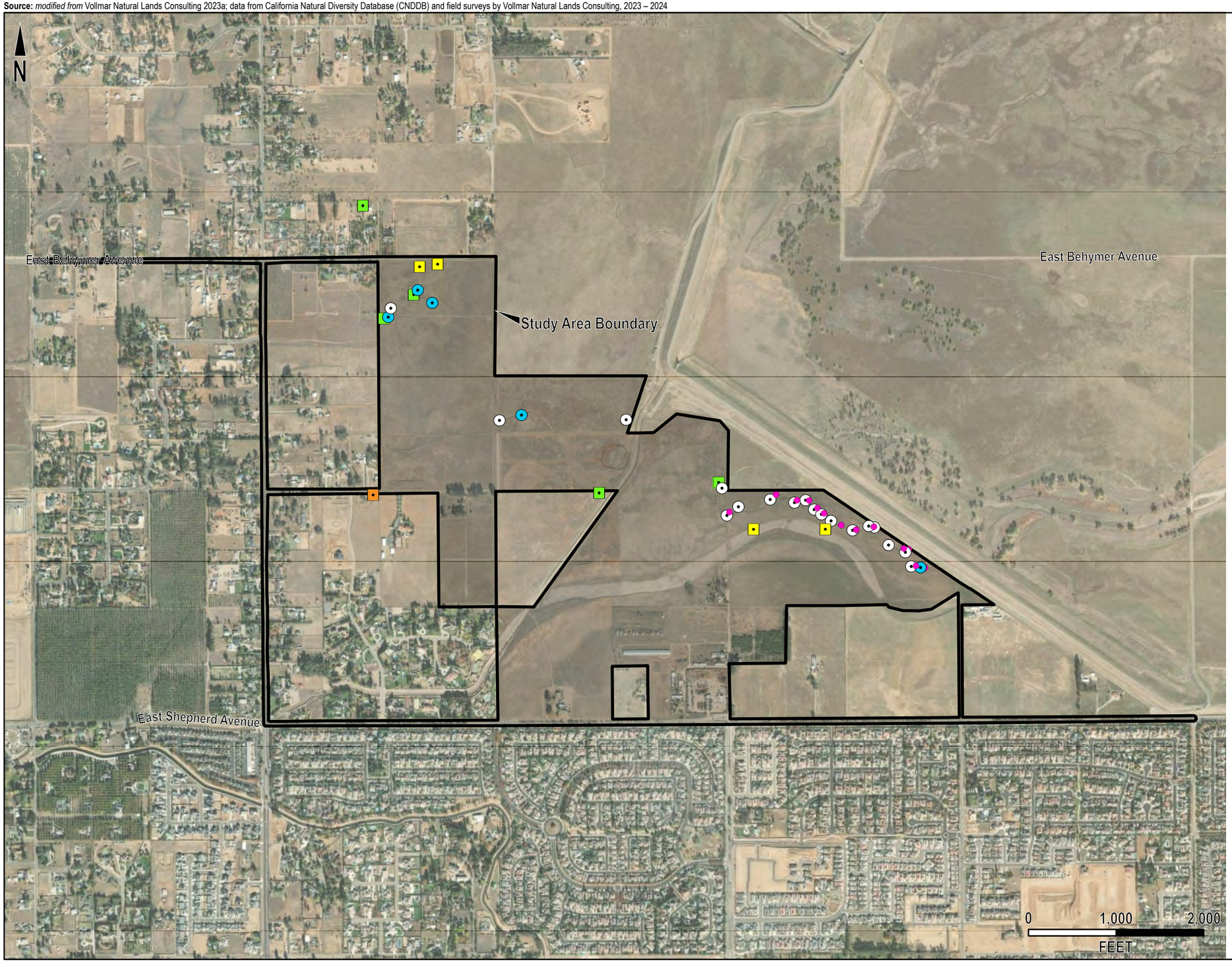
The project site is currently bounded by residential development to the south and by lower-density/semirural residental development to the west (see aerial photographs in Figures 2 and 7 in main body of this application). Connectivity to both the west and south will be further decreased in the foreseeable future, with progressive buildout under the Vista Ranch Master Plan and potential densification in the remainder of the SOI expansion area (see Figure 7). The project site does offer connectivity to the north and northeast (again, see Figures 2 and 7), and will presumably remain connective to at least the northeast since the Big Dry Creek Dam is expected to remain in place for the foreseeable future. This connectivity is probably seasonally limited, however, since aerial photographs document extensive standing water behind the dam during and following the rainy season (e.g., Figure 2).

By contrast, the Jamison Ranch Property abuts low-density/semirural residential development along the north portion of its west boundary (see Figure A-1, and skyline of "drone aerial view to southwest" photograph in Figure A-4), but remains open and connective to undeveloped lands on the south portion of the west boundary and on the other three sides. Additionally, it is immediately adjacent and connected to the 765-acre Fenston Ranch preserve to the northeast, is located in a matrix of additional preserve lands, and is in an area where vernal pool conservation has been identified as a continuing regional priority.

Figures A-6 through A-9 show documented special-status species occurrences on and surrounding the project site and the Jamison Ranch Property. Several things are apparent:

- despite intensive field studies over the last 2 years, only six special-status species have been documented on the project site: Crotch's bumble bee, vernal pool fairy shrimp, California linderiella, CTS, western spadefoot, and Cooper's Hawk (*Accipiter cooperii*), which was observed foraging immediately adjacent to the site and is also presumed to forage on the site itself
- protocol-level surveys in 2023 documented no special-status plants at the project site
- as noted in text above, a total of 13 special-status species are known to be present at the Jamison Ranch Property, including multiple occurrences of CTS as well as other wildlife and special-status plants
- special-status species occurrences in the region around the project site are sparse by comparison with those around the Property, likely reflecting the greater influence of existing development around the project site

Source: *modified from* Vollmar Natural Lands Consulting 2023a; data from California Natural Diversity Database (CNDDB) and field surveys by Vollmar Natural Lands Consulting, 2023 – 2024



Legend

Special-Status Animal Occurrence

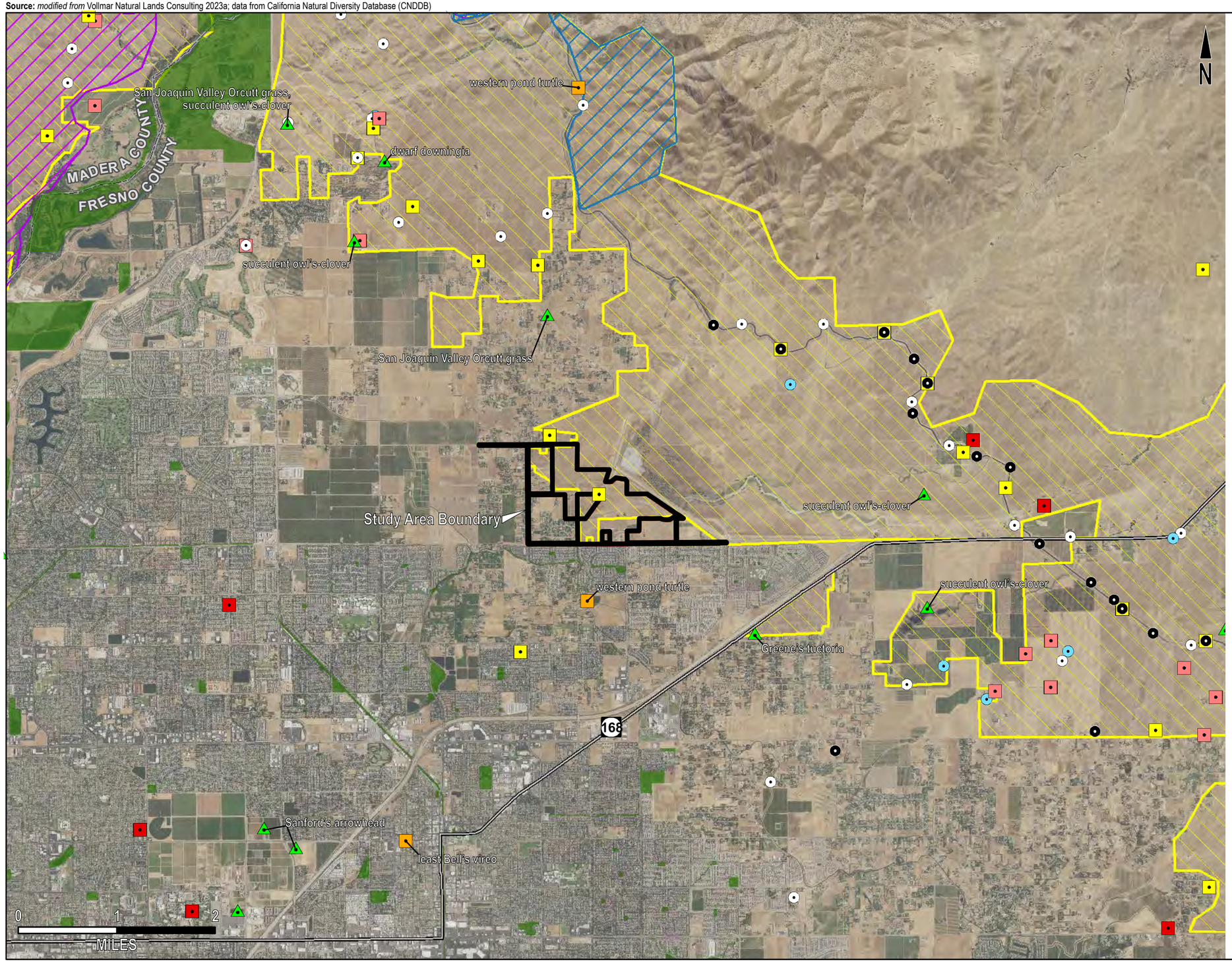
- Crotch's bumble bee
- Vernal pool fairy shrimp
- California linderiella
- California tiger salamander
- Western spadefoot
- Cooper's Hawk (location approximate)

Note: Study Area Boundary includes project site plus anticipated maximum extent off offsite roadway improvements.

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Figure A-6. Special-Status Species Occurrences at Vista Ranch Site
Vista Ranch – Appendix to Application for Incidental Take Authorization
Wilson Premier Homes

Source: *modified from* Vollmar Natural Lands Consulting 2023a; data from California Natural Diversity Database (CNDDB)



Legend

USFWS-designated vernal pool Madera Core Recovery Area

Designated Critical Habitat
- California tiger salamander
- Vernal pool fairy shrimp

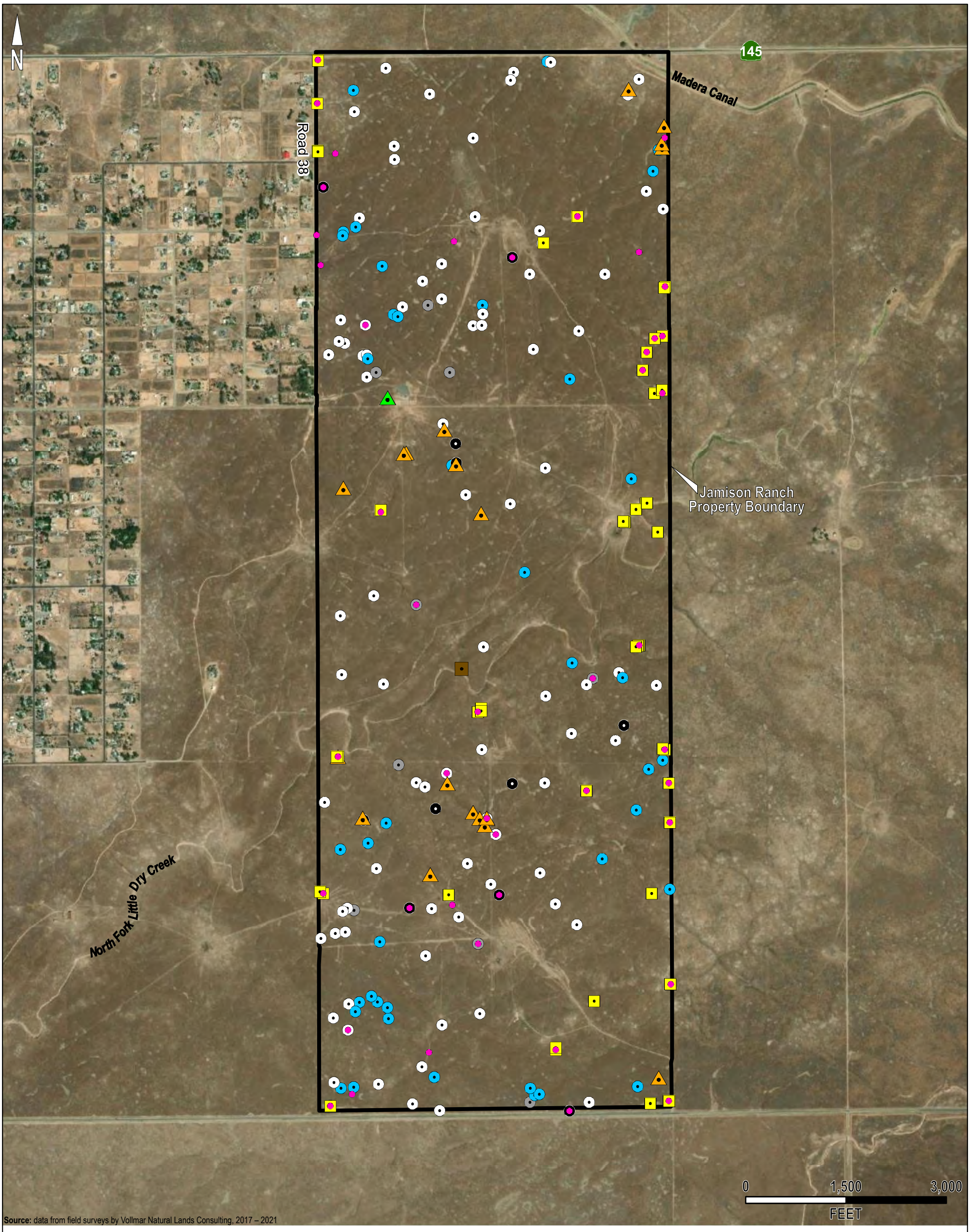
Special-Status Species Occurrence
- California tiger salamander
- Tricolored Blackbird
- Western spadefoot
- Vernal pool fairy shrimp
- California fairy shrimp
- Midvalley fairy shrimp
- Other special-status animal
- Special-status plant

Symbols
- County boundary
- Public or preserved land
- Highway

Note: Study Area Boundary includes project site plus anticipated maximum extent off offsite roadway improvements.

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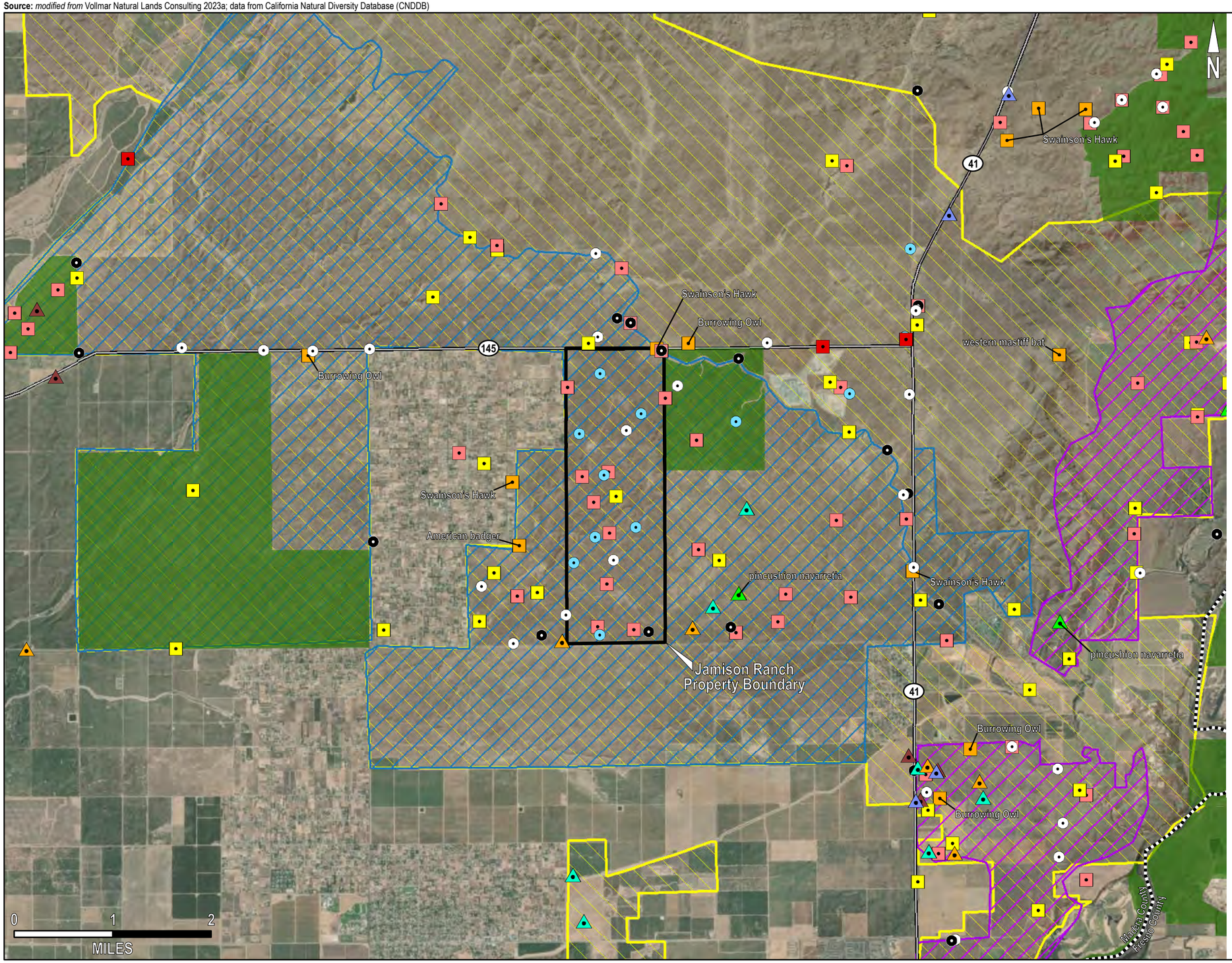
Figure A-7. Special-Status Species Occurrences in Vista Ranch Project Region
Vista Ranch – Appendix to Application for Incidental Take Authorization
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Figure A-8. Special-Status Species Occurrences at Jamison Ranch Property
Vista Ranch – Application for Incidental Take Authorization
Wilson Premier Homes

Source: *modified from* Vollmar Natural Lands Consulting 2023a; data from California Natural Diversity Database (CNDDB)



Legend

USFWS-designated vernal pool Madera Core Recovery Area

Designated Critical Habitat
- California tiger salamander
- Vernal pool fairy shrimp

Special-Status Animal Occurrence
- California tiger salamander
- Tricolored Blackbird
- Western spadefoot
- Vernal pool fairy shrimp
- California fairy shrimp
- Midvalley fairy shrimp
- Other special-status animal

Special-Status Plant Occurrence
- Succulent owl's-clover
- San Joaquin Valley Orcutt grass
- Hairy Orcutt grass
- Spiny-sepaled button-celery
- Other special-status plant

Symbols
- County boundary
- Public or preserved land
- Highway

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Figure A-9. Special-Status Species Occurrences in Jamison Ranch Property Region
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In this context, the Jamison Ranch Property appears to have greater actual and potential value both for the covered species and for special-status species in general than the project site. Additional discussion of value to the individual covered species is provided below.

Expectations for land management and development in areas surrounding the project site and Jamison Ranch Property will also affect the relative value of the two parcels as habitat over the long term.

As described under *Background & Planning Context* in the *Project Description* section above, the project site is within the Vista Ranch Master Plan Area, which in turn is part of a 952-acre parcel proposed for incorporation into the City of Clovis Sphere of Influence. The City's present Sphere of Influence comprises unincorporated lands currently outside City limits but immediately adjacent to the City limit, or entirely surrounded by incorporated lands within the City (City of Clovis 2014; see in particular Figure LU-1). The General Plan does not define the City's understanding of the Sphere of Influence, but such lands are commonly construed as "the probable physical boundary and service area of a local agency", and inclusion in a Sphere of Influence is a prerequisite for annexation within city limits (e.g., Sonoma County Local Agency Formation Commission *n.d.*). Consequently, the entirety of the 952-acre parcel should be considered subject to potential urbanization in coming decades.

Jamison Ranch is located on lands within unincorporated Madera County. As Figure A-10 shows, the Property is within an area where County General Plan land use mapping designates the majority of land as *ARE-40 – Agricultural, Rural, Exclusive, 40 Acre*, reflecting a priority on agricultural/rural uses and a large minimum parcel size, although a mosaic of encroachment by other land uses is evident. The County has a proactive land use planning process in place; over about the last two decades, a number of Area Plans have been adopted to guide expanding development, and several more are currently in progress. None of the adopted plans—which concentrate on areas with existing development in need of guidance and/or areas where new development has become a priority—covers the area around Jamison Ranch. An Area Plan was previously proposed for southeast Madera County; it would have included Jamison Ranch and vicinity, but has been put on indefinite hold and does not appear to be progessing, per conversations with County planning staff (Kephart pers. comm.). It seems likely that the area around Jamison Ranch will remain largely rural for the foreseeable future as development—and development planning—concentrate primarily at the edges of existing developed uses.

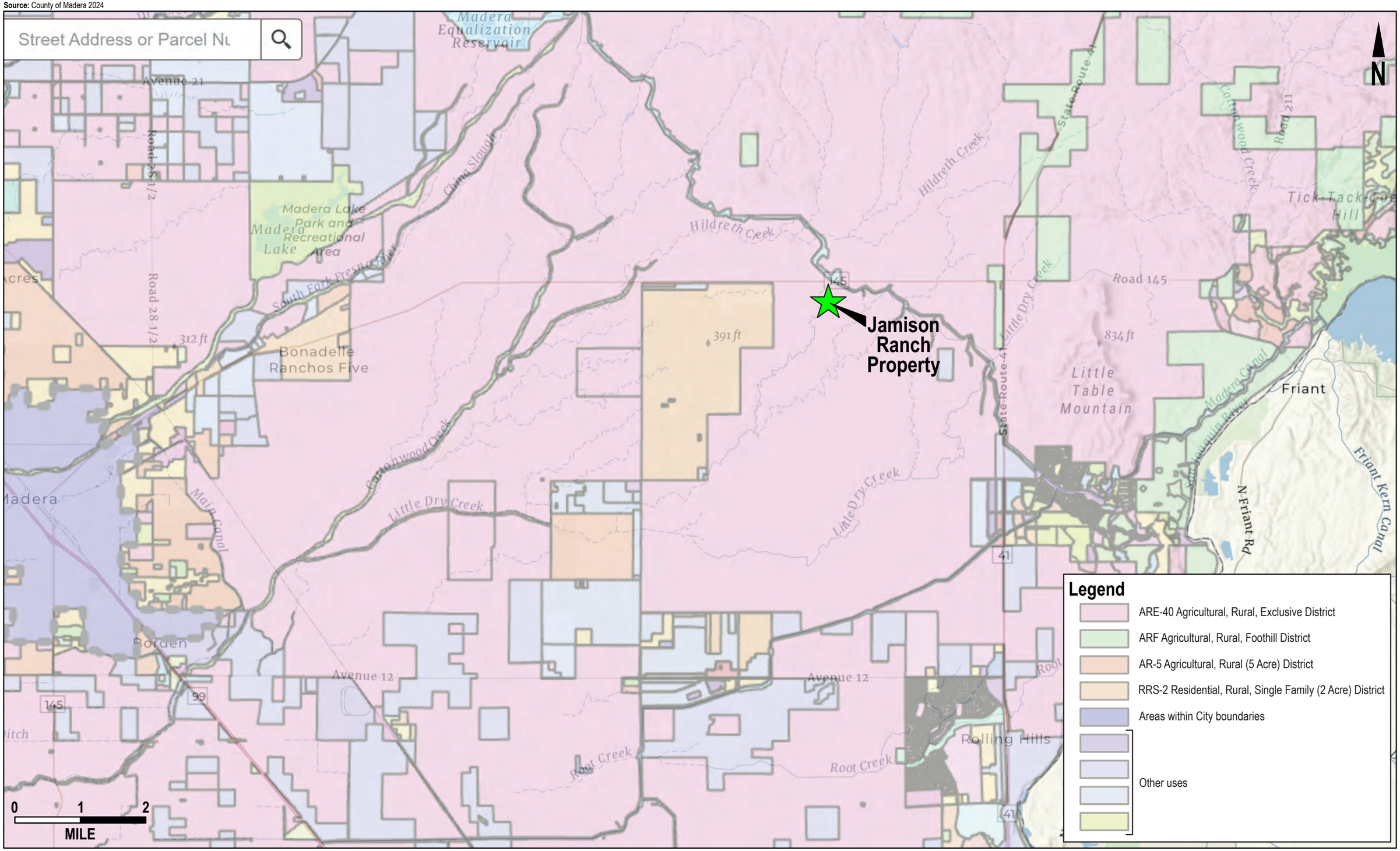
Comparison of CRAM Scores

CRAM scores for aquatic features on the project site are presented in detail in the main body of this application (see Table 2). Table A-4 compares index CRAM scores for aquatic features at the project site and Jamison Ranch Property (see Table A-1 for a detailed CRAM score breakdown by Assessment Area and Figure A-5 for the locations of Assessment Areas at the Property). CRAM scores clearly reflect a higher degree of functionality and better overall habitat quality in aquatic features at the Property.

Table A-4. Comparison of CRAM Index Scores at Project Site and Jamison Ranch

Feature Type	Project Site Assessment Areas		Jamison Ranch Assessment Areas	
Depressional Wetland *Statewide median index score = 60*	D1	56 (Fair)	—	—
	D2	53 (Fair)	—	—
Vernal Pool *Statewide median index score = 75*	—	—	VPS1	82 (Good)
	—	—	VPS2	81 (Good)
	—	—	VPS3	92 (Good)
	—	—	VPS4	83 (Good)

Source: County of Madera 2024



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Figure A-10. County General Plan Land Use Designations in Vicinity of Jamison Ranch
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Feature Type	Project Site Assessment Areas		Jamison Ranch Assessment Areas	
Riverine *Statewide median not identified*	R1	54 (Fair)	J-R1	72 (Fair)
	R2	40 (Poor)	J-R2	65 (Fair

Source: Redtail Consulting 2023

Value to Covered Species

San Joaquin Kit Fox

The project site offers habitat potentially suitable for SJKF use, but is immediately adjacent to the greater Fresno metroplex and is currently bordered to the south and west by urban/suburban development, with additional areas to the south/southeast and north planned for longer-term development. It is also a substantial distance from primary SJKF population centers, which are concentrated to the south and west, in the southern San Joaquin Valley, Carrizo Plain, and eastern and southeastern Coast Ranges regions (Smith pers. comm.[b]). Currently, SJKF approaching the site from larger populations in the south or west would need to traverse a substantial extent of urbanized uses to reach it. Over the long term, even if the project site remains undeveloped, this barrier will become increasingly problematic as the metroplex continues to expand and additional development separates the site from open lands (and SJKF population centers) to the north and west.

Like the project site, the Jamison Ranch Property is also located at a substantial remove from known SJKF population concentrations, although it is slightly closer to populations in the central Coast Ranges. By contrast, however, it remains largely surrounded by open lands (Figure 11) and is thus more accessible, as well as offering grasslands of overall higher quality than those at the Project site. The future for SJKF accessibility and use also appears more promising at the Property than at the project site, since the Property is in an area where conservation has been identified as a priority and continued dedication of sizable tracts of preserve lands is a realistic potential.

California Tiger Salamander

Both the project site and the Property offer documented CTS breeding habitat with adjacent uplands for dispersal, although the quality of both wetlands and uplands at the Property is higher. Comparative function and value of wetlands on the two sites is shown in Table A-4 above, based on CRAM evaluations conducted in 2023, which reflect on overall less-impacted and more functional wetland baseline at the Property than at the Project site. Current-year observations also suggest that the wetlands on the Property fare better during drier years than those at the Vista Ranch site; as of April 2024, CTS larvae were still present in ponds at the Property, but all of the wetlands at the project site were dry except for the tailwater pond (Smith pers. comm.[c]).

Additionally, the Property—historically used for low- to moderate-intensity grazing—has never been leveled or cultivated, unlike the project site, much of which was previously in row crops (see air photo base in Figure 2). This contrast is important for two reasons:

- ploughing/cultivation can result in direct destruction of existing burrow complexes, reducing upland resources for CTS
- leveling decreases the distance between the ground surface and the water table, lessening the space available to accommodate new burrow construction by ground squirrels and other small mammals

Probably as a result of prior leveling, cultivation, and other disturbance, existing burrow densities are currently much lower at the project site than at the Property. This is particularly true for the larger, deeper burrow complexes favored by CTS (Smith pers. comm.[c]).

As noted elsewhere, even if the project site were to remain undeveloped, it would likely be surrounded by development over the long term, and would be subject to increasing "edge effect" pressures, whereas management of the Property for wetland and upland health offers an opportunity to conserve, and potentially increase, its—already greater—value to CTS.

Crotch's Bumble Bee

As noted above, both the project site and the Jamison Ranch Property offer grasslands suitable for Crotch's bumble bee. The project site also supports ruderal/previously cultivated areas and areas of low-intensity agricultural development that may offer additional opportunities for the species. Grasslands at the project site are known to support key forage plants for Crotch's bumble bee, including milkweed, burclover, and several species of *Lupinus* (Vollmar Natural Lands Consulting 2023c), and the generally disturbed nature of the site and presence of weedy and forage-grass species may offer unexpectedly good opportunities for the species (Smith pers. comm.[c]).

Grasslands at the Property are substantially less disturbed than those at the project site; they are also more extensive and more connective with other suitable habitat nearby, and areas of suitable habitat around the Property are also more extensive and generally of higher quality than those around the project site. This is advantageous for Crotch's bumble bee, which is not typically a suburban species and is most commonly documented in open space (Smith pers. comm.[d], Williams et al. 2014). A complete floristic inventory of the Property has not been completed to date; the grasslands are suitable for all of the key forage plants, but their presence is not confirmed.

Overall, the picture for Crotch's bumble bee—especially over the long term, as development around the project site moves forward—is likely brigher at the Property than at the project site. As with CTS and SJKF opportunities at the two sites, this is due to the both the opportunity for local conservation and management for upland quality at the Property, and to the potential for additional open space conservation in the surrounding vicinity.

Western Burrowing Owl

As described for SJKF and Crotch's bumble bee, the project site offers suitable habitat for BUOW but is bordered to the south and west by extensive urban/suburban development and moreover is located in an area planned for expansion by the City of Clovis. The species has not been documented on the project site to date, and citizen science records on the Cornell Lab of Ornithology's eBird website (https://ebird.org) indicate that BUOW activity in the site vicinity is currently concentrated in the area northeast of the Big Dry Creek Dam (see discussion on page 34 of the main body of this Application). This suggests that in the area around the expanding north edge of Clovis, the species favors areas farther from existing development over more disturbed habitat closer to the development margin.

By contrast, BUOW is known to be present on the Jamison Ranch Property. Burrows in the steep walls of North Fork Little Dry Creek drainage offer nest sites, and additional nesting and foraging opportunities are available in the site's extensive grasslands. Moreover, as noted above, the Property is largely surrounded by open land (Figure 11), and is located is in an area where conservation has been identified as a priority and dedication of additional large tracts of preserve lands remains a realistic possibility. In this context, it seems likely that BUOW will experience less "edge pressure" on the Property than on the Project site over the long term, and that the Property not only offers better opportunities for the species than the project site at present, but will continue to do so in the future.

Mitigation Preserve Configuration & Mitigation Ratios

Figure A-11 shows the proposed boundary of the mitigation preserve at the Jamison Ranch Property. The preserve has been configured to provide compensation for losses of covered species habitat at the following ratios.

- CTS: minimum of 3:1 for occupied and suitable habitat (breeding and upland), minimum of 2:1 for low-suitability breeding and upland habitat
- Crotch's bumble bee: minimum of 3:1 for suitable habitat
- SJKF: minimum of 2:1 for all potentially suitable habitat
- BUOW: minimum of 2:1 for all potentially suitable habitat

Compensation for loss and degradation of SJKF and BUOW habitat is proposed at a lower ratio than compensation for CTS and Crotch's bumble bee habitat because

- BUOW has not been observed onsite despite ongoing field studies and the presence of suitable habitat
- SJKF has not been documented within 10 miles of the project site in the last 20 years and is considered unlikely to be present (Barnes pers. comm.).

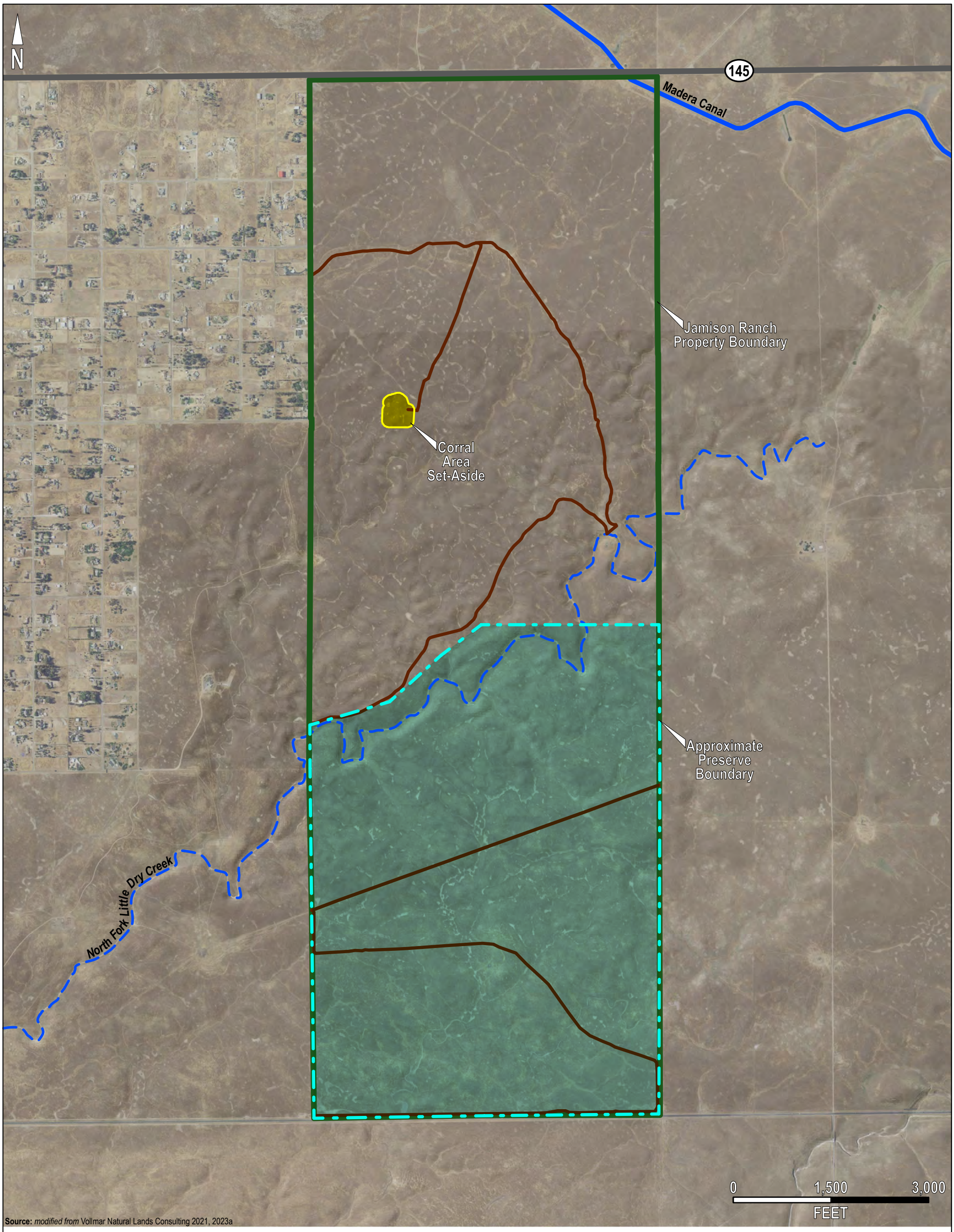
Preserve boundaries as proposed reflect four additional planning priorities.

- Maximizing overall benefit to the covered species (SJKF, CTS, and Crotch's bumble bee), and to wildlife in general; this included
  - providing a block of diverse, connective habitat offering a mosaic of differing opportunites
  - maximizing the length of the North Fork Little Dry Creek stream corridor included in the preserve
- Configuring the preserve such that a meaningful block of habitat remains for potential future use by others, since the landowner would ultimately like to see the entire Property under conservation easement

The preserve is proposed to encompass approximately 857 acres, beginning at the south boundary of the Property and extending north to include most of the North Forth Little Dry Creek stream corridor. Table A-5 itemizes habitat acreages within the preserve boundary shown on Figure A-11.

Table A-5. Approximate Areas Proposed for Preservation by Habitat Type

Habitat Type	Extent
Annual grassland	795.4 ac
Documented CTS breeding pool (documented or presumed vernal pool fairy shrimp habitat)	3.2 ac
Other vernal pool or swale (documented or presumed vernal pool fairy shrimp habitat)*	55.8 ac
North Fork Little Dry Creek**	1.3 ac / 7,449 lf
Ephemeral drainage	1.3 ac



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Figure A-11. Jamison Ranch Property Proposed Preserve Boundary
Vista Ranch – Appendix to Application for Incidental Take Authorization
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Habitat Type	Extent
Total California tiger salamander habitat	854.4 ac
Total vernal pool fairy shrimp habitat	59.0 ac
Total area preserved	857.0 ac

Notes:

* As identified above, the extent of vernal pools and swales is estimated based on percent land cover on the 20% of the ranch that has been mapped, in combination with field survey and air photo/GIS assessment. All CTS habitat identified as documented has been mapped. Comprehensive wetland mapping is planned for 2024.

** CTS larvae have been documented repeatedly in North Fork Little Dry Creek. However, based on prior discussions with CDFW, this analysis does not treat the Creek as breeding habitat for the species.

Source: Vollmar Natural Lands Consulting 2023a

Table A-6 itemizes impact and mitigation acreages by covered species and translates those to mitigation ratios.

Table A-6. Mitigation Ratios Based on Impacted and Preserved Habitat Acreages

Covered Species	Habitat Impact*	Area Preserved	Mitigation Ratio
San Joaquin kit fox	Potentially suitable habitat: 348.606 acres	795.4 acres	2.28:1
California tiger salamander	Suitable upland habitat (direct impact only): 207.222 acres *With all breeding pools protected in place, adjacent uplands should continue to serve as a resource for CTS. "Excess" compensation for suitable CTS upland habitat was therefore considered to offset long-term indirect impacts on uplands*	795.4 acres	3.838:1
	Occupied + suitable breeding habitat: 0.864 acre	3.2 acres	3.7:1
	Low-suitability breeding habitat (agricultural tailwater pond) (indirect impact only): 1.129 acres *No additional compensation is proposed for indirect impacts on the agricultural tailwater pond. It is marginally suitable for CTS breeding but showed no evidence of breeding activity during the 2023 site surveys, when CTS were breeding conspicuously elsewhere on the site. Moreover, the pond would be preserved in place and buffered, and although it would be surrounded by development on three sides, would retain external connectivity via open space along the Outlet Channel corridor. Consequently, the "excess" compensation for documented and suitable CTS breeding habitat was considered to offset indirect impacts on the low-suitability pond*	*See above*	*See above*
Crotch's bumble bee	Suitable habitat: estimated at a maximum of 50 acres direct impact + 18 acres indirect impact	795.4 acres	11.7:1
Western Burrowing Owl	Suitable grassland: 189.683 acres Suitable former agricultural land: 140.257	795.4 acres	2.32:1

Note:

* Impact acreages include both direct and indirect impacts unless indicated otherwise; see Table 4 for detailed breakdown of impacts on CTS habitat.

Climate Change & Future Site Conditions

Background

A key focus of climate change research over the past decade-plus has been evaluating climate change effects and projecting future trends in a manner that is useful to planners and decision makers at the regional to local scale. The most widely used approach uses temperature and precipitation projections from global-scale, long-term General Circulation Models (GCMs), bias-corrected and downscaled for use as input to regional hydrologic models; outcomes of the hydrologic models can then be applied, albeit with some uncertainty, to local systems. Downscaling may rely on "dynamical techiques" based on the physical relationship between larger- and smaller-scale climate manifestations, or on statistical techniques based on the empirical relationship between large-scale atmospheric variables and weather variables observed over the short term on a local scale (see discussion in Kundzewicz et al. 2007). Both of these techniques can be characterized as "top-down".

Decision scaling, a modified approach specifically aimed at local risk assessment and decision making in the water sector—and also relevant to conservation of wetlands and other habitat due to the overlap in concerns about the quantity, timing, and reliability of water supply—necessarily takes global-scale modeling into account but first considers the problem from a bottom-up perspective (Brown et al. 2012, 2019). The decision is framed by identifying "mission" (or project) specifics, relevant metrics, uncertainties affecting decision making, models or functional relationships needed to represent the system being evaluated, and potential adaptation alternatives. A "climate stress test" sensitivity analysis assessing the vulnerability of the system to climate change effects factors is conducted (Brown et al. 2019), essentially asking the question "what would break the system?" (Barsugli pers. comm.). This enables decision makers to focus on the climate factors that are most relevant to a specific system and/or decision. Climate information, such as downscaled projections, can then be considered, either quantitatively, based on probabilistic or other modeling, or qualitatively, based on "weight of evidence" (Brown et al. 2019) to evaluate risk—the potential that the system will in fact break—and choose a course of action.

Approach

Assessment of climate change resiliency at the project site and the Jamison Ranch Property was informed by both the top down perspective and the bottom up decision scaling approach described by Brown et al. (2012, 2019). Evaluation attempted to answer the following questions.

- What are the projected effects of climate change in the project region?
- Can these be downscaled to distinguish any differences between foreseeable changes at the project site and changes at the Property?
- Which reasonably foreseeable climate change effects—at either the regional or local scale—would be expected to have a negative effect on habitat viability, function, and value?
- Will those effects play out differently at the two sites, and if so, how?
- Is one site expected to be more climate-resilient than the other, and if so, how and why?

Projected climate trends for the San Joaquin Valley region, the project site, and the Four Corners area were identified based on the published literature. Effects of these changes on habitats at the two sites, and the resiliency of the two sites to those conditions, were evaluated qualitatively based on the habitats present and expectations for future site management and land uses surrounding each site.

Climate Projections for San Joaquin Valley

As part of the ongoing push by multiple state agencies to address climate change as it applies to their individual remits, statewide Climate Change Assessments have been prepared every 3 years since 2006 as a collaborative venture of the Governor's Office of Planning and Research, the California Natural Resources Agency, and the California Energy Commission. These are intended to provide a scientific foundation for state policymaking, planning, and programs, and to contribute to understanding of climate change vulnerability at the local scale and inform local resilience actions. Reporting includes statewide assessments as well as assessments focused by region.

The most recent projections, issued under the state's Fourth Climate Change Assessment, identify the following general trends for the San Joaquin Valley region (Fernandez-Bou et al. 2021).

- Annual average maximum temperatures in the San Joaquin Valley increased by 1° F between 1950 and 2020, and are projected to rise by another 4° – 5° F by mid-century and as much as 5° – 8° F by the end of the century
- Precipitation is expected to become more intense, with the percentage that falls between November and March increasing from the current 75% to 80% by the end of the century; on the Valley floor, this translates to a slighly longer dry season and heavier rainfall during the wet months
- Sierran snowpack, a critical source of dry-season water supply, has been gradually decreasing at higher elevations and is projected to become scarce at lower elevations by the end of the century
- As temperature continues to increase, earlier snowmelt will shift peak flows by 2 to 4 months by the end of the century
- Multi-year climate extremes such as the 2012 – 2016 drought are becoming more frequent

The California Landscape Conservation and Adaptation Partnership (2018) provides a similar perspective, forecasting

- warming air temperatures
- decreasing snowfall and increasing incidence of precipitation as rain
- more intense droughts and extreme heat
- changes in streamflow; increased flooding
- increase in arid landscapes
- increased stream temperatures
- increased frequency and intensity of wildfire

San Joaquin Valley habitats and ecosystems, identified as particularly at risk due to already-extensive habitat loss resulting from agricultural and urban development, are subject to disturbing projections (Fernandez-Bou et al. 2021).

- Decreasing primary productivity due to more frequent extreme temperatures, flooding, and drought, in combination with changes in land use; corollary effects on the transfer and distribution of energy across trophic levels

- Changes in flow regimes and water conditions due to earlier and more rapid snowmelt, potentially impacting spawning times, reproductive success, and habitat suitability for native fishes
- Effects on wetlands due to both prolonged periods of drought and increased incidence of flooding; increased water temperatures and evaporation rates as a result of increased ambient temperatures

Downscaled Projections for Project Site & Jamison Ranch Property

For a number of years, the U.S. Geological Survey (USGS) has been engaged in climate change modeling at the HUC-4 watershed scale. The most recent iteration creates look-ahead temperature and precipitation summaries by spatially averaging the CMIP6-LOCA2 (Climate Model Intercomparison Project, version 6 – Localized Constructed Analogs) dataset of Pierce et al. (2023). Water balance variables (snow water equivalent, runoff, soil water storage, and evaporative deficit) are simulated using temperature and precipitation values from CMIP6-LOCA2 as inputs to a simple water-balance model that accounts for water partitioning for across various components of the surface hydrologic system but does not factor in groundwater, diversions, or flow regulation by impoundments (Alder and Hostetler 2013, Alder 2023a). Results are accessible in full via the National Climate Change Viewer online application, available at https://www.usgs.gov/tools/national-climate-change-viewer-nccv.

The project site is located within USGS HUC 18030009 (Upper Dry), a subwatershed of USGS HUC 1803 (Tulare – Buena Vista Lakes). The Jamison Ranch Property is within USGS HUC 18040001 (Middle San Joaquin River – Lower Chowchilla River), a subwatershed of USGS HUC 1804 (San Joaquin). Figures A-12 through A-14 compare projected monthly mean temperature, precipitation, and soil moisture storage values for HUC 1803 and 1804 to the historical (1981 – 2020) baseline for each HUC-4 watershed. Each figure shows modeling results for three different time periods: 2025 – 2049, 2050 – 2074, and 2075 – 2099. For each time period, three scenarios—referred to as Shared Socioeconomic Pathways, or SSPs—are considered, reflecting different global greenhouse gas (GHG) emissions levels (Alder and Hostetler 2013). Developed for the Intergovernmental Panel on Climate Change's (IPCC's) most recent assessment report, the three future scenarios are referred to as SSP245 (intermediate GHG emissions), SSP370 (high GHG emissions), and SSP585 (very high GHG emissions) (Intergovernmental Panel on Climate Change 2023).

Climate Risk Factors

For purposes of this evaluation, key factors that could compromise habitat quality ("break the system") were identified as the following.

- Increases in ambient temperature, potentially affecting vegetation success, vegetative composition, and wetland ponding times
- Changes in precipitation quantity and timing, which have the potential to compromise water supply to stream systems and wetlands, or to deliver excess supply; these include but are not limited to
  - more frequent occurrence of extreme precipitation events, potentially leading to flooding and adverse effects on system function, and in some cases potentially resulting in geomorphic modification reflecting a new runoff regime
  - more frequent or prolonged occurrence of drought, potentially resulting in water supply at least intermittently inadequate to maintain streamflow and/or wetland conditions

  Altered quantity and timing of precipitation also have the potential to affect vegetation productivity and vegetative composition

Evaluation also considered the potential for changes in frequency and severity of wildfire and fire at the urban-wildland interface.

Climate Change Effects at Project Site & Jamison Ranch

Temperature Trends

As Figure A-12 shows, monthly mean temperatures at the project site and Jamison Ranch have historically been within a few degrees of each other on a month-by-month basis, and this general consistency projects into the future timeframes under all three SSP scenarios, with the project site consistently a few degrees warmer than the Property year-round. Not surprisingly, overall month by month temperature increases at both sites are least marked under the SSP245 scenario and greatest under the high-GHG SSP585 scenario, and divergence between the three scenarios increases over time. The current pattern of winter (December – January) minima and summer (July – August) maxima is projected to persist through the end of the century at both sites.

Precipitation Trends

The pattern of change in projected month-by-month precipitation is broadly similar (Figure A-13). Both sites show historic precipitation maxima in the cooler months—values rising through October, November, and December to a January – February peak, and trailling off through March and April. Historic winter peaks are several inches per month higher at the Property, but both sites historically show a near-zero minimum through the summer months (in this case, June – August).

At the project site, winter precipitation maxima increase by about 0.5 inch per month by mid-century, and almost 1 inch per month by the end of the century. Increases are most marked in January – February, almost nil through the summer months, and fairly negligible through the fall and early winter. Trends are similar at the Property, but the increases are slightly greater: almost 1 inch per month by mid-century and as much as slightly over an inch per month (interestingly, under the mid-range SSP370 scenario) by the end of the century. As at the project site, increases are greatest in January – February and minimal through the rest of the year. At both sites, this suggests a continued pattern of wet winter, drying spring, and long dry summer/fall, coupled with notably increased precipitation during a fairly short duration during the months that have historically been the wettest

Soil Moisture Trends

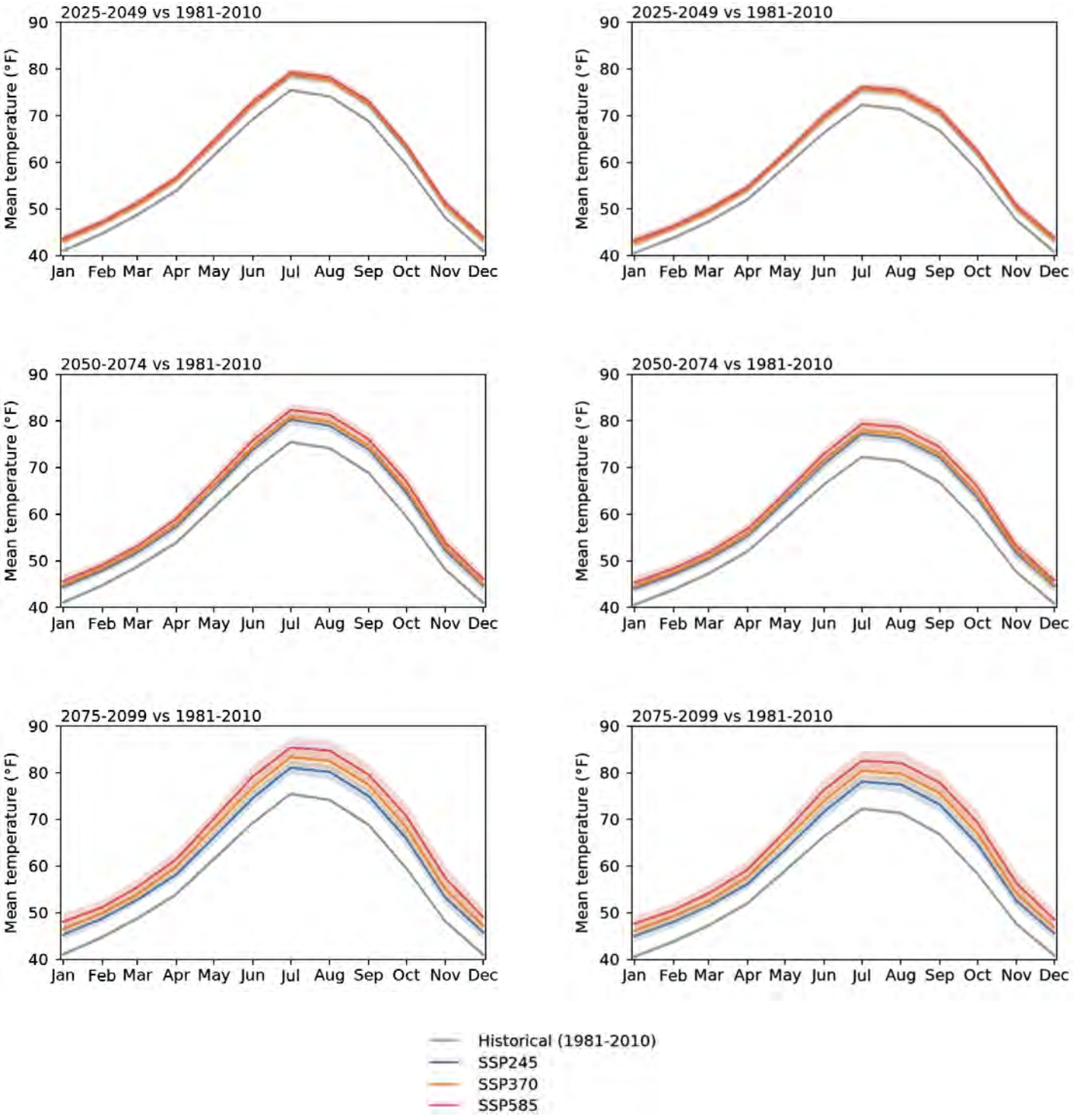
Despite the difference in incident precipitation, soil moisture storage patterns have historically been quite similar at the project site and the Property (Figure A-14): rising steeply from late fall through January to a February maximum, then decreasing through the spring and early summer to a near-zero minimum in August – September. At both sites, the general shape of the soil moisture storage curve is projected to remain roughly the same through the end of the century, and storage maxima remain close to their current values. However, as early as 2025 – 2049 the drop-off in soil moisture following the winter precipitation high is steeper (presumably reflecting increased ambient temperature). By mid-century—and even more so by the end of the century—the disparity in soil dry-out is more notable, and soils are markedly dryer through the spring and early summer months. Note, however, that potential long-term changes in soil moisture storage at both sites are expected to be similar.

The remaining question is whether the Jamison Ranch Property would offer long-term sustainable compensation for losses of covered species habitat. This is addressed in the next section.

Source: *modified from* Alder 2023b, 2023c

HUC 1803: Tulare – Buena Vista Lakes (Vista Ranch Project Site)

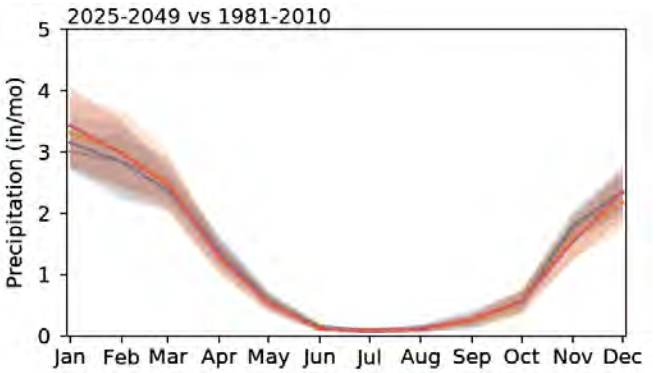
HUC 1804: San Joaquin (Jamison Ranch Property)

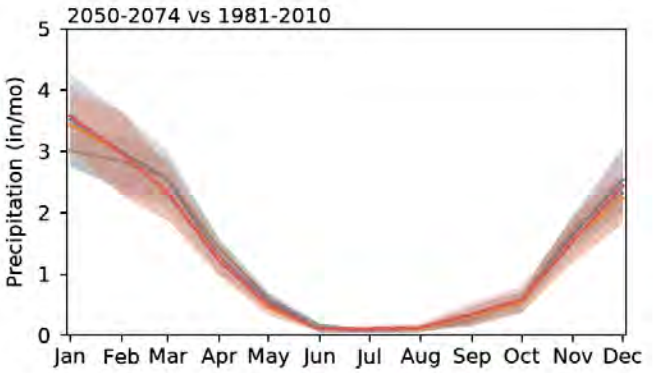


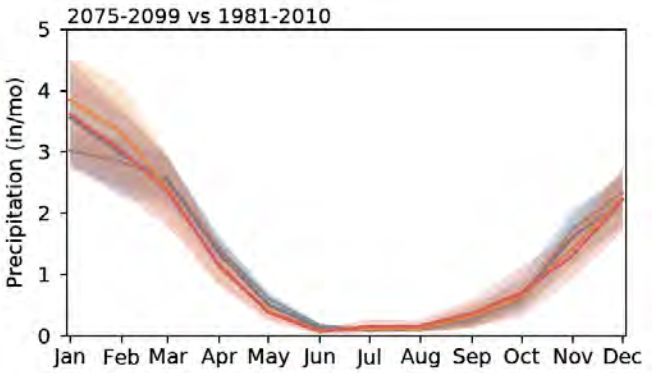
Note: Median of all CMIP6 models is indicated by solid lines; 10th – 90th percentile range of models is indicated by shaded envelopes.

Source: *modified from* Alder 2023b, 2023c

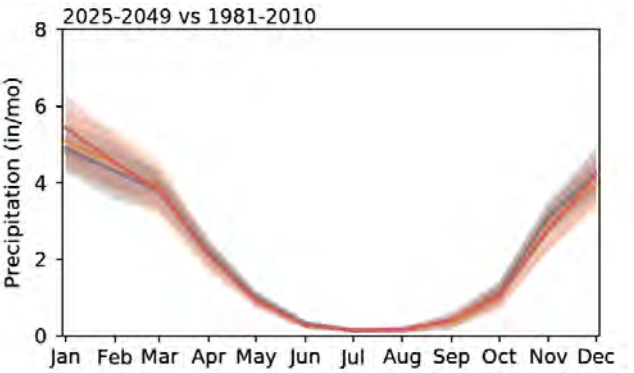
HUC 1803: Tulare – Buena Vista Lakes (Vista Ranch Project Site)

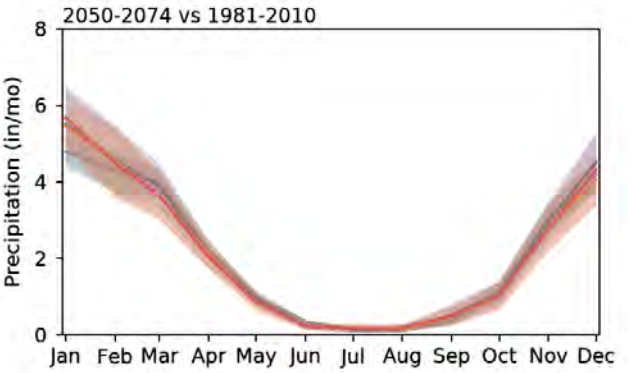


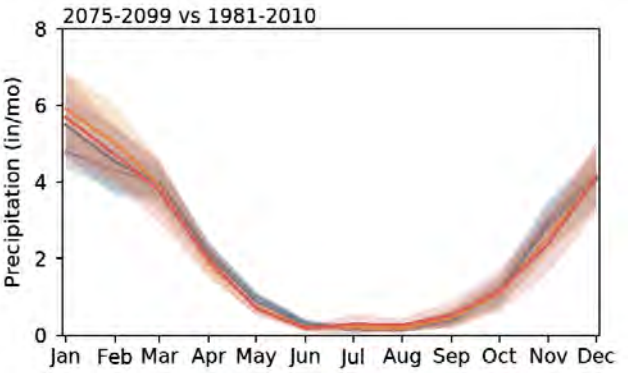


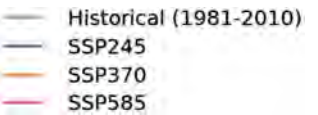


HUC 1804: San Joaquin (Jamison Ranch Property)





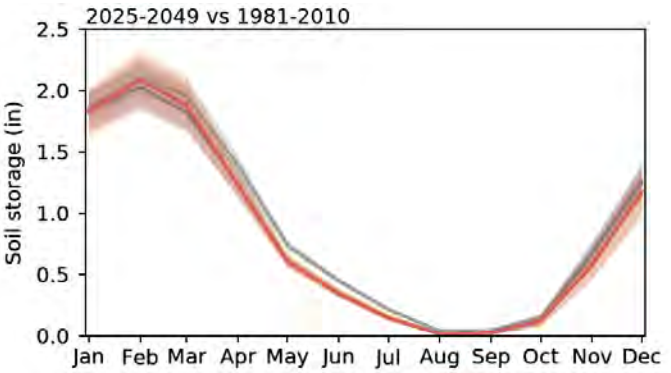


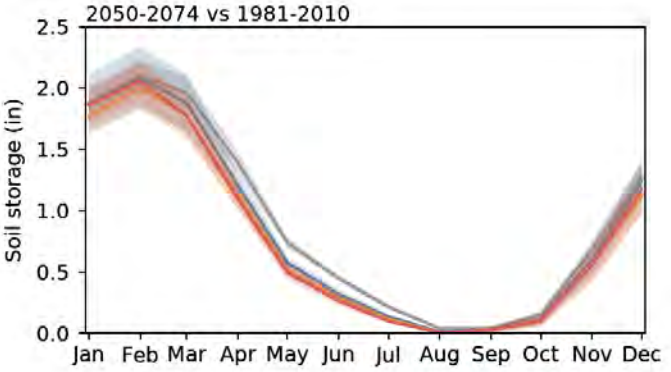


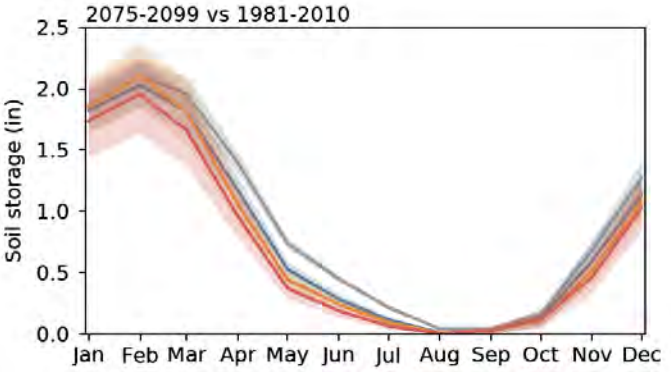
Note: Median of all CMIP6 models is indicated by solid lines; 10th – 90th percentile range of models is indicated by shaded envelopes.

Source: *modified from* Alder 2023b, 2023c

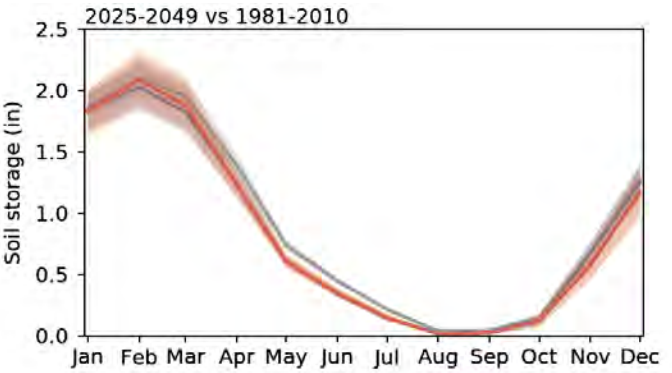
HUC 1803: Tulare – Buena Vista Lakes (Vista Ranch Project Site)

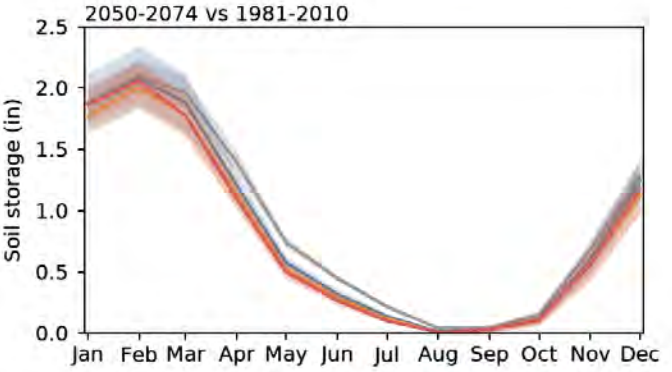


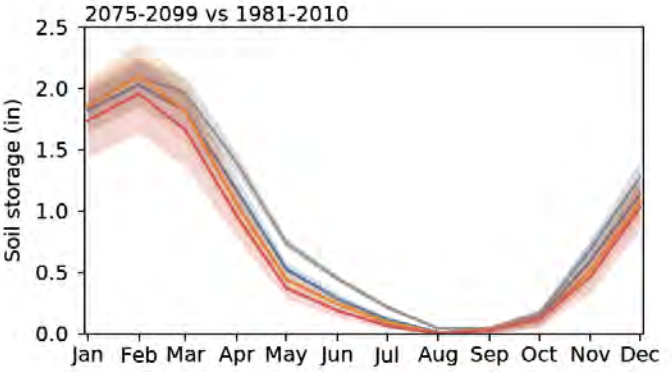


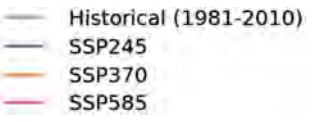


HUC 1804: San Joaquin (Jamison Ranch Property)









Note: Median of all CMIP6 models is indicated by solid lines; 10th – 90th percentile range of models is indicated by shaded envelopes.

Long-Term Resiliency & Sustainability

Potential Outcomes at Jamison Ranch Property

Assessment of resiliency to effects of climate change and the long-term sustainability of conserved habitats at the Jamison Ranch Property considered the key regional-scale "break the system" parameters called out above, as well as related trends at the HUC-4 watershed scale identified based on USGS modeling. Evaluation focused on

- wetland habitat critical for CTS breeding
- uplands used or potentially used by all three species
- the interconnected mosaic of wetlands and uplands presumed to represent a healthy site condition

Summarizing the trends apparent in watershed-scale modeling (Alder 2023a, 2023b; see above), over the remainder of the century, the Jamison Ranch Property is expected to experience increased ambient temperatures, with a continued pattern of December – January minima/July – August maxima and a winter wet season/summer dry season cycle.

Despite notably increased precipitation in January and February, soils would dry more rapidly in the spring as the century progresses, potentially shortening the growing window for cool-season native vegetation. This could reduce total primary productivity, and could also affect the occurrence and relative abundance of individual plant species, although shifts in the occurrence and relative abundance of individual plant species are very challenging to predict at a fine scale—species occurrence is subject to multivariate influences, including complex interactions between climatic variables as well as soil conditions and interactions with other species. Climate change may yield entirely novel combinations of environmental variables, making it nearly impossible to predict the results with precision. Rather than attempting to predict and control effects on every species at the outset, the preserve management documents take an adaptive management approach (see *Mitigation Preserve Monitoring* below), allowing future managers to use the best available science to adapt preserve management to changing conditions.

In this context, continued low- to moderate intensity grazing, managed adaptively over the long term, is expected to support native forbs by reducing thatch cover and helping to control invasive species. Residual dry matter (RDM) minima included as thresholds in the preserve management plan provide a tool to match grazing pressure to primary productivity. The preserve management plan will also include funding and requirements for weed management, which can be used to mitigate the effects of individual problematic plant species. Taken together, these offer tools to mitigate changes in both overall productivity and in species composition helping to counteract the vegetative effects of warmer temperatures and earlier soil drying, and contributing to long-term grassland health.

Effects on wetlands are similarly difficult to predict. Clearly, increased precipitation would result in increased direct supply that could presumably be captured and retained by the Property's well-developed hardpan; this could lead to increased wetland extent, as the Property preserves essentially unmodified gently rolling topography conducive to vernal pool/swale and seasonal wetland development. However, increased precipitation intensity and increased occurrence of extreme rain events could cause a higher percentage of incident rainfall to run off rather than being retained. Additionally, increased temperatures would increase evaporation, and potentially also plant productivity and evapotranspiration, which could shorten ponding times. To the extent this occurs, there would be potential to decrease wetland utility for CTS breeding. Bearing in mind that optimal breeding pools retain water at least through April, the key question is whether wetlands would

expand sufficiently to offset the effects of increased evaporation/evapotranspiration and retain water through the CTS breeding season.

At present, the breeding pools on the Property with the highest rates of successful CTS recruitment are enhanced ponds or "dirt tanks" created by the rancher to provide stock water. The water source for the dirt tanks is primarily from direct runoff, so they are well situated to capture brief, intense pulses of input yielded by high-intensity precipitation events. The dirt tanks are also much deeper and more turbid than natural vernal pools on the Property. Their depth and turbidity lead to very low vegetation cover. The same conditions are conducive to low water temperatures because of thermal buffering, and because of the turbid waters' high albedo. As a result, evapotranspiration rates in the dirt tanks are very low by comparison with natural vernal pools. The dirt tanks' increased ability to capture storm flow and lower temperatures and evapotranspiration rates are expected to protect their ability to support the CTS lifecycle in the face of climate change effects.

Increased precipitation would also increase supply to ephemeral drainages on the Property, and to the seasonal North Fork Little Dry Creek drainage. Ephemeral drainages would like remain fairly "flashy", but overall increases in discharge could increase the potential for pool retention in deeper reaches, particularly in North Fork Little Dry Creek but possibly also in ephemeral drainages. This would help to offset the potential for shorter overall wetland ponding times (particularly in unmodified pools) by increasing available ponded acreage, and could help to further safeguard CTS breeding opportunities—especially as CTS are known to breed in North Fork Little Dry Creek at present.

Coupled with more frequent occurrence of extreme storm events, overall increases in precipitation could also lead to geomorphic adjustment within the Property's drainage network. There is potential for increasing drainage integration, and, on a more localized scale, for increasing erosivity and incision over the long term. Attentive and adaptive management of grazing should help to control local effects by ensuring maintenance of healthy vegetative cover, and natural adjustment to unnatural increases in discharge should not be viewed as an inherently negative outcome, particularly as it may benefit covered species in at least some ways.

Superposed on the pattern of increased temperature, late-winter precipitation, and spring soil dry-down is the potential for increased drought occurrence. As a regional phenomenon, this is discussed comparatively in the section that follows, along with increased frequency and severity of wildfire.

Potential Outcomes at Project Site vs. Jamison Ranch Property

Since dedication of conservation lands at the Property is specifically proposed as compensation for loss of habitat at the project site, it is worth considering the long-term prognosis for habitat quality at the project site under changing climate conditions: if the Vista Ranch project were not to move forward, which site would offer better opportunities for the covered species over the long term?

As discussed above, the Property currently preserves an integrated, functional mosaic of uplands, wetlands, and stream drainages, all of which are in a largely natural condition with comparatively minor impacts due to historic and current low- to moderate-intensity grazing use. The Property is also surrounded by largely undeveloped lands and fairly sparse rural/semi-rural development, with no immediate plans for extensive development. The Property's natural topography is intact, North Fork Little Dry Creek and the smaller drainages that cross the Property remain connected to their headwaters, and soils on the Property retain an effective hardpan layer. This offers the advantage of a functional system with the capability to adjust dynamically to applied stressors.

By contrast, topography and soils at the project site have been significantly modified by leveling and cultivation, and the Property itself is bounded by developed lands and lands likely subject to development in coming decades. Drainage at the site has also been beheaded by establishment of the Big Dry Creek Dam and Reservoir—while portions of the project site retain natural floodplain topography and the Big Dry Creek channel remains a conspicuous feature, natural drainage to and through the site is interrupted. The site's capacity for dynamic geomorphic adjustment to changes in precipitation is thus significantly altered. Additionally, as noted elsewhere, the project site appears to lack a well-developed hardpan. These factors are expected to affect the site's response to changing precipitation and soil moisture regimes in several ways.

First, although increased winter precipitation has the potential to increase wetland extent during and immediately following the wet season (similar to the Property), the lack of hardpan at the project site facilitates infiltration, and the expanded wetlands are not expected to persist as successfully as at the Property. The project site also lacks both a functional ephemeral drainage network and a through-going seasonal drainage, and thus, unlike the Property, would not offer opportunities for increased pooling of discharge delivered from upstream, a deficit compounded by the lack of hardpan.

As are result, the accelerated spring decrease in soil moisture storage forecast for both HUC 1803 (Tulare – Buena Vista Lakes) and HUC 1804 (San Joaquin) (Alder 2023a, 2023b) is expected to be felt more acutely at the project site than at the Property. Effects on wetlands and the corollary detriment to CTS breeding opportunities are thus expected to be more marked at the project site than at the Property. Additionally, if it were to remain undeveloped, the project site would not be subject to long-term monitoring and adaptive management—unlike the Property, where managed grazing and weed control appear to offer options to buffer the effects of changing climate parameters. This would be particularly marked in upland areas, where non-native herbaceous species, already abundant, would likely be favored by overall increased temperatures and accelerated loss of soil moisture during the cooler spring months.

Additionally, to the extent that climate change pressures tend to suppress native cool-season vegetation and by extension favor exotic species, the project site is expected to be more vulnerable, since its proximity to development would likely increase the potential for introduction and spread of non-native species—a trend expected to intensify in the future as planned development proceeds around the site. By contrast, assuming the area around the Property remains primarily rural and semirural, introduction of non-native species is expected to be less intensive, while surrounding open lands would offer opportunities for recolonization by native species in the event of localized stochastic extirpations.

Both the project site and the Property are projected to experience increased occurrence and persistence of drought in coming decades (e.g., California Landscape Conservation and Adaptation Partnership 2018, Fernandez-Bou et al. 2021). Both sites are expected to suffer adverse effects as a result, with reduced wetland quality, and—at the Property—reduced pooling and pool retention in drainages by comparison with future-normal water years. This would have corollary adverse effects on CTS breeding opportunities, and would also reduce the quality of uplands, where it could be particularly detrimental to the availability of forage plants for Crotch's bumble bee. However, the same factors that are expected to support wetland persistence and increased pooling and pool retention on the Property are expected to provide improved buffering for drought effects at the Property by comparison with an undeveloped project site, which lacks both intact hardpan and throughgoing drainages receiving input from areas upstream to the east.

The only area where the project site may have a slight advantage over the Property over the long term is in terms of resistance to increased frequency and severity of wildfire. Both the project site and the Property are currently within Local Responsibility Areas (LRAs) (California Board of Forestry and Fire Protection 2024),

where the responsibility for preventing and suppressing wildland fires rests primarily with the local jurisdiction—at the Property, with Madera County, and at the project site, with Fresno County, with the potential to transition to the City of Clovis in the future. Proximity to urban/suburban development may translate to shorter response times and better wildfire outcomes at the project site; as planned development proceeds in the vicinity, this is expected to become increasingly the case in the foreseeable future.

In view of these considerations, while the Property will almost certainly evolve in response to temperature and precipitation effects of climate change, it is anticipated that the Property will be less adversely affected over the long term than the project site. Conservation at the Property, while subject to undoubted risks related to climate change, nonetheless appears to offer better potential for long-term benefit to the covered species than an undeveloped project site.

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