Delineation of Potentially Jurisdictional Wetlands and Waters

for

5145 Calf Canyon Highway

Cannabis Cultivation Land Use Permit
Case No. DRC2018-00234
APNs 070-174-012 and -022
San Luis Obispo County

Prepared for

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July 2021

1203.04

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LIST OF ACRONYMS AND ABBREVIATIONS

CDFW	California Department of Fish and Wildlife
CWA	Clean Water Act
EPA	Environmental Protection Agency
FEMA-FIRM	Federal Emergency Management Agency Flood Insurance Rate Map
GPS	Global Positioning System
HUC	Hydrologic Unit Code
NRCS	Natural Resource Conservation Service
NTCHS	National Technical Committee for Hydric Soils
OHWM	Ordinary High Water Mark
RWQCB	Regional Water Quality Control Board
SSURGO	Soil Survey Geographic Database
SWRCB	State Water Resources Control Board
TOB	Top of Bank
TNW	Traditional Navigable Water
USACE	U.S. Army Corps of Engineers
USDA	U.S. Department of Agriculture
USFWS	U.S. Fish and Wildlife Service

1 INTRODUCTION

1.1 Purpose

This report provides a delineation of potentially jurisdictional wetland and non-wetland waters according to federal and state standards on the Bigfoot, LLC Cannabis Cultivation project site (Study Area), located south of Calf Canyon Highway (Hwy 58) in the County of San Luis Obispo, California. Potentially jurisdictional wetlands and waters are described according to the Clean Water Act (CWA) Section 404, the Porter-Cologne Water Quality Act (State Water Code), and Fish and Game Code Section 1600. This document presents a comprehensive inventory and mapping effort of wetland and non-wetland aquatic resources within the Study Area and provides information for owners, the United States Army Corps of Engineers (USACE), Regional Water Quality Control Board (RWQCB), California Department of Fish and Wildlife (CDFW), and the Lead Agency in decisions regarding activities in the Study Area. Section 2.0 provides more detail on the regulatory framework and scope of this jurisdictional delineation. Table 1 lists the responsible parties. Wetland specialists Kristen Andersen and Jason Dart are the primary investigators.

TABLE 1. RESPONSIBLE PARTIES

Applicant	Applicant Representative	Biological Consultant
Bigfoot LLC c/o Eric Clark 1925 Sandown Place Cambria, CA 93428	**Kirk Consulting** c/o Ian McCarville 8830 Morro Road Atascadero, CA 93422 (805) 461-5765 Ian@kirk-consulting.net	**Althouse and Meade, Inc.** 1602 Spring Street Paso Robles, CA 93446 (805) 237-9626 Kristen Andersen kristena@alt-me.com Jason Dart Jason@alt-me.com

1.2 Study Area Location and Extent

The Study Area is a 14.4-acre site located immediately south Calf Canyon Highway (California State Route 58) and is situated approximately 5.5 miles southeast of the City of Atascadero and 5.7 miles northeast of the community of Santa Margarita. Approximate coordinates for the center of the Study Area are 35.43442° N, 120.51034° W (WGS84) in the Santa Margarita United States Geological Survey (USGS) 7.5-minute topographic quadrangle (Figure 1). The Study Area consists of [portions of] Assessor Parcel Numbers (APN) 070-174-012 and 070-174-022, equivalent to 88.5 acres (Property). Onsite elevations range between approximately 1,550 and 1,650 feet.

1.3 Current Conditions

The Study Area is positioned within the hills of Calf Canyon where chamise chaparral is the dominant habitat type and seasonal streams transect portions of the Property in areas of low relief. The site is accessed by a relatively well-maintained dirt road with compacted soils, that winds over hills to the existing cultivation area at the southern end of the site. The shaded entrance road sweeps along an ephemeral stream with a semi-closed canopy of foothill pine (*Pinus sabiniana*) mixed with blue oak (*Quercus douglasii*) and coast live oak (*Q. agrifolia*), before it opens to a landscape of chamise (*Adenostoma fasciculatum*) and deerweed (*Acmispon glaber*) shrubs with other chaparral associates.

A small ephemeral drainage with wetland vegetation originates in the Study Area approximately 200 feet east of the existing entrance and flows eastbound, parallel to Calf Canyon Highway, to a culvert conveying storm flows to the north side of the highway. Blue oak woodland surrounds this northern drainage feature, with sparse to dense vegetation cover consisting of blue oak and coast live oak trees in the upper canopy and wetland vegetation along the channel bed and bank. A second drainage feature located in the eastern portion of the Study Area conveys storm water to the northeast where it is joined by two ephemeral reaches from the west. Drainages in the Study Area are ephemeral in nature with limited connectivity to downstream navigable waters and are dry most of the year. The eastern drainage is comprised of riparian woodland habitat with a semi-closed canopy of oaks and willows at the lower end that maintains relatively mesic conditions along the stream and supports riparian vegetation in the understory. The upper ephemeral reaches are composed of chaparral habitat.

Areas surrounding prior cultivation activities and the existing barn have been disturbed over time and very little shrub cover remains. This area consists of exposed sandy and granitic soils with non-native grasses and forbs, as well as native forbs typical of a chaparral habitat understory. Onsite water is sourced from four existing water tanks located on a hilltop just north of the Study Area center.

1.3.1 Hydrology

The USGS and United States Department of Agriculture (USDA)-Natural Resource Conservation Service (NRCS) developed nationally consistent watershed boundaries, as shown in Figure 3, Figure 4, and Figure 5. The Study Area is in the Middle Branch Huerhuero Creek subwatershed 12-digit hydrologic unit, Hydrologic Unit Code (HUC) 180600050302, with a total area of 16,990 acres. This subwatershed is located in the southern portion of the Huerhuero Creek parent watershed, which is bound by the La Panza Range within the Los Padres National Forest land imemediately to the south of the Property, with the Santa Lucia Range to the west, Coastal Range to the north, and Temblor Range to the southeast. Huerhuero Creek is an ephemeral underground stream wihcih flows directly to the Salinas River, with headwaters in the Coast Ranges, south of Creston reaching elevations of approximately 3,312 feet.

The Federal Emergency Management Agency (FEMA) Flood Insurance Rate Map (USGS 2021), illustrated on Figure 6 shows the Study Area located in Flood Zone X, or the 500-year floodplain.

1.3.2 Vegetation and Habitats

Three different habitat types occur within the Study Area: chamise chaparral, blue oak woodland, and disturbed (Photo 1). Two ephemeral drainages transect the Study Area conveying stormwater to the northeast toward Huerhuero Creek. Each drainage feature occurs predominantly within blue oak woodland habitat, with small upstream reaches extending into chamise chaparral. The northern drainage (Drainage A) runs parallel to Calf Canyon Highway and exits the Study Area through an existing culvert in the northeast corner of the Property. The eastern drainage (Drainage B) also flows in a northeasterly direction through dense blue oak woodland habitat and continues offsite. A 19-square foot wetland feature, or "bowl wetland," occurs near the existing entrance road, upstream from Drainage A (Photo 2). This small wetland feature is classified as freshwater emergent wetland habitat and is defined by erect, rooted, herbaceous hydrophytes present for most of the growing season in most years, and dominated by perennial plants, such as rushes (*Juncus* spp.). As determined by the presence of hydrophytic vegetation and seasonally ponded water, the bowl feature represents a low topographic area at the base of a hillslope potentially formed by slumped erosion and upstream lateral flow. The 2- to 4-foot-deep vertical banks of the bowl feature are predominantly covered with moss (*Bryophyta*), visible when the feature is dry (Photo 3).

Photo 1. Chamise chaparral habitat typical of the area and dominant habitat in the Study Area, view west. April 17, 2020.

Photo 2. Bowl wetland feature (located upstream from Drainage A) during dry season in below-average average rain year. July 1, 2021.

Photo 3. Vertical banks of bowl wetland with mosses. July 1, 2021.

1.3.3 Soils

Three soil map units are represented within the Study Area: Cieneba coarse sandy loam 30 to 75 percent slopes MLRA 15, Vista-Cieneba complex 15 to 30 percent slopes, and Cieneba-Andregg complex 30 to 75 percent slopes (USDA 2020a) (Figure 7).

Cieneba coarse sandy loam 30 to 75 percent slopes MLRA 15 is the dominant soil type represented in the Study Area (~55 percent). The typical soil profile is coarse sandy loam (0 to 10 inches) over bedrock (10 to 20 inches). This soil class is considered somewhat excessively drained with a very high runoff class. This soil class formed from mountain slopes derived from weathered granitic rock and is not classified as prime farmland (USDA 2020b).

Vista-Cieneba complex 15 to 30 percent slopes is represented in the Study Area (~35 percent). The typical soil profile is coarse sandy loam, 0 to 29 inches over weathered bedrock (29 to 33 inches). This complex is well drained with a high runoff class. This soil class formed from hills derived from weathered granitic rock and is not classified as prime farmland (USDA 2020b).

Cieneba-Andregg complex 30 to 75 percent slopes is in the north portion of the Study Area (~10 percent). The typical soil profile is coarse sandy loam (0 to 15 inches) over weathered bedrock (15 to 19 inches). This soil class is considered somewhat excessively drained and has a very high runoff class. This soil complex is made up of approximately 35 percent Cieneba, 25 percent Andregg, and the remaining 35 percent minor components. This soil class formed from mountains, derived from weathered granitic rock and is not classified as prime farmland (USDA 2020b).

1.3.4 Climate

Wetlands Climate Tables, or WETS data provides thresholds for rainfall expectations. Rainfall data was collected from the Salinas Dam Remote Automated Weather Station (RAWS) located approximately seven miles south of the Study Area (WRCC 2021). Chart 1 indicates that the average rainfall from 2000 through 2021 was 19.93 inches, with a maximum precipitation typically from December to March (Table 2, Chart 2). As shown, the last two rain years (2020 and 2021) were significantly below the average, particularly in February. Nearly all rainfall received in 2021 occurred in January, followed by the months of March and December (Chart 2).

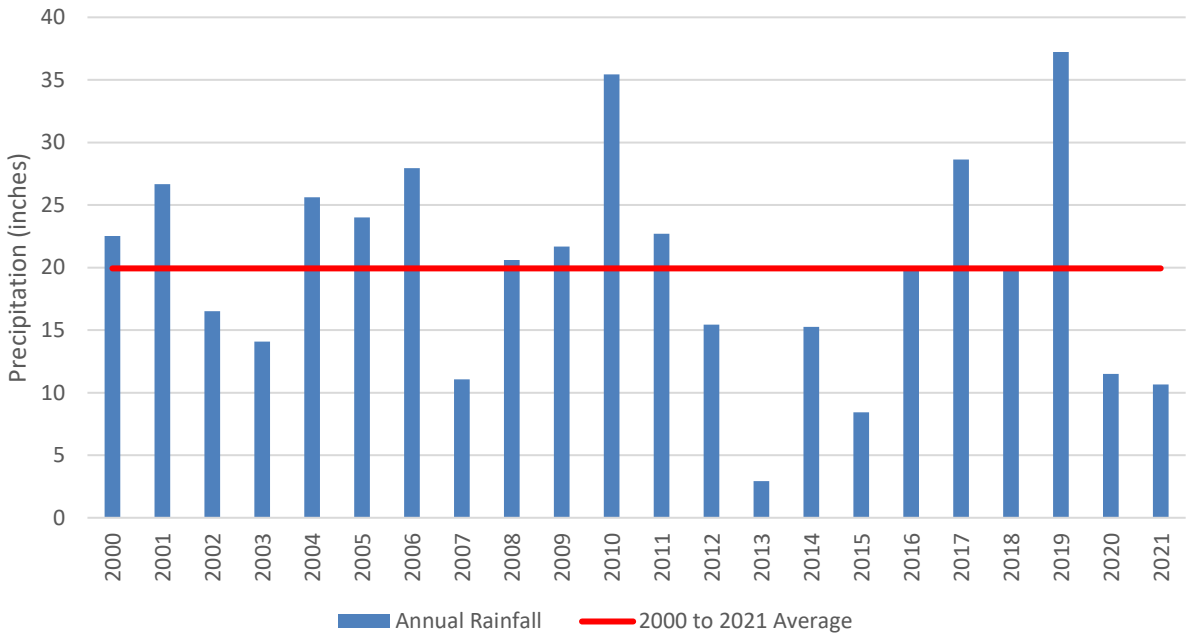


CHART 1. TOTAL ANNUAL PRECIPITATION BY YEAR (INCHES).

Total precipitation (inches) from 2001 to 2021 data compared to the average annual precipitation.

TABLE 2. PRECIPITATION BY MONTH

Precipitation data is provided by month for 2019-2021 as well as the last historical 20-year average.

Year	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun
2019-2020	0	0	0	0	1.85	4.88	0.69	0	5.57	2.88	0.22	0
2020-2021	0	0.15	0	0	0.8	1.19	8.37	0.1	2.19	0	0	0
2000-2021 (Average)	0.06	0.01	0.03	1.19	1.56	3.55	4.65	4.23	3.36	1.53	0	0.06

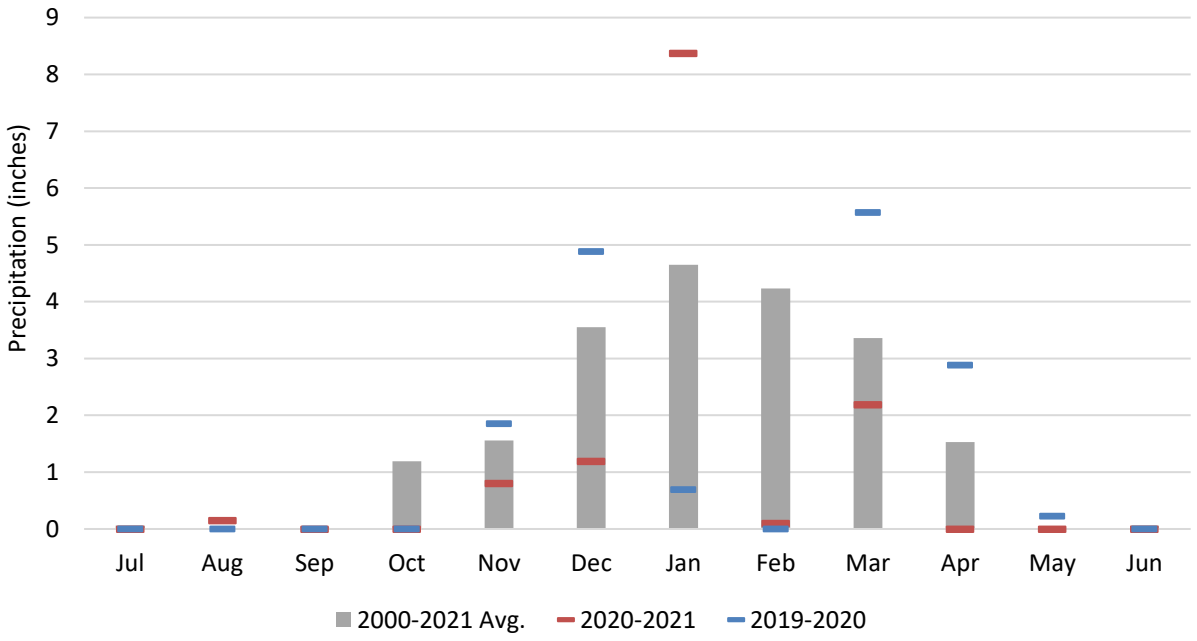


CHART 2. PRECIPITATION BY MONTH (INCHES)

Average precipitation (inches) by month between 2000 and 2021 compared with monthly precipitation in 2019-2020 and 2020-2021. Precipitation in January 2021 received 8.37 inches of rain compared to 0.69 inches in 2020 and the last 20 year average of 4.65 inches. Remaining winter and spring months in the 2021 rain year were below average.

2 REGULATORY FRAMEWORK

2.1 United States Army Corps of Engineers

Section 404 of the CWA authorizes the USACE to regulate activities that discharge dredged or fill material to wetlands and other waters of the United States. The term "waters of the United States" encompasses resources described by the Environmental Protection Agency (EPA) and the Corps regulations, 40 Code of Federal Regulations (CFR) § 230.3(s) and 33 CFR § 328.3(a). The geographic limits of relevant federal jurisdiction for non-tidal waters of the U.S. are defined at 33 CFR § 328.4(c).

The *Corps of Engineers Wetlands Delineation Manual* (hereafter "1987 Manual"; Environmental Laboratory 1987) defines wetlands (EPA regulations at 40 CFR § 230.3(t); USACE regulations at 33 CFR § 328.3(b)). Wetlands are considered "special aquatic sites" under the USACE definition. Special aquatic sites are afforded protection under the CWA (Sections 401 and 404). The 1987 Manual and various regional supplements describe the criteria that must be met to determine the presence of a wetland, the methods used to determine whether they are met, and the geographic extent of wetland areas identified in the field.

The USACE takes jurisdiction over wetlands that exhibit hydrology, hydric soil, and hydrophytic vegetation (three parameters) by the standard set forth in the Arid West Regional Supplement. These areas must also exhibit a significant nexus to a Traditionally Navigable Water (TNW). For non-wetland water features, USACE jurisdiction is limited to the Ordinary High Water Mark (OHWM) and a significant nexus to navigable waters through perennial or intermittent flow (see Navigable Waters Protection Rule below).

Navigable Waters Protection Rule (Final Rule). On April 21, 2020, the U.S. Environmental Protection Agency (EPA) and the U.S. Department of the Army Corps of Engineers (USACE) published the Navigable Waters Protection Rule in the *Federal Register* to finalize a revised definition of "waters of the United States" under the CWA (USACE 2020). The agencies have streamlined the definition so that it includes four simple categories of jurisdictional waters, provides clear exclusions for many water features, and defines terms in the regulatory text. The Navigable Waters Protection Rule regulates the nation's navigable waters and the core tributary systems that provide perennial or intermittent flow into them. Ephemeral streams do not qualify as core, connective tributary systems under the Final Rule, and therefore aquatic features connected only by ephemeral streams to navigable waters are no longer under Federal jurisdiction by default. Stream definitions are not based on quantitative measurements, such as volume, due to the nature of variance within stream systems each year and precipitation received. The following stream system definitions were agreed upon as part of the Final Rule to best define jurisdiction of "waters of the U.S.":

Ephemeral. The term *ephemeral* means surface water flowing or pooling only in direct response to precipitation (*e.g.,* rain or snow fall).

Intermittent. The term *intermittent* means surface water flowing continuously during certain times of the year and more than in direct response to precipitation (*e.g.,* seasonally when the groundwater table is elevated or when snowpack melts).

Perennial. The term *perennial* means surface water flowing continuously year-round.

Wetlands. The term *wetlands* means areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs, and similar areas.

2.2 Regional Water Quality Control Board

Section 401 of the Clean Water Act requires that any applicant for a Section 404 permit also obtain a Water Quality Certification from the State (401 Certification). The Water Code defines "waters of the State" broadly to include "any surface water or groundwater, including saline waters, [natural, and artificial wetlands] within the boundaries of the state." In April 2019, the State Water Resources Control Board (SWRCB) adopted procedures to define an area as a wetland if it meets three criteria: wetland hydrology, wetland soils, and (if vegetated) wetland plants. The definition also states: "An area is a wetland if: (1) the area has continuous or recurrent saturation of the upper substrate caused by groundwater, or shallow surface water, or both; (2) the duration of such saturation is sufficient to cause anaerobic conditions in the upper substrate; and (3) the area's vegetation is dominated by hydrophytes or the area lacks vegetation. The Procedures provide the same wetland delineation methods that are used by the Army Corps of Engineers."

"Waters of the State, by definition, includes more aquatic features than Waters of the U.S., which defines the jurisdiction of the federal government. Waters of the State are not so limited. In addition, the federal definition of a wetland requires a prevalence of wetland vegetation under normal circumstances. To account for wetlands in arid portions of the state, the Water Boards' definition differs from the federal definition in that an area may be a wetland even if it does not support vegetation. If vegetation is present, however, the Water Boards definition requires that the vegetation be wetland vegetation. The State Water Board's proposed definition clarifies that vegetated and unvegetated wetlands will be regulated in the same manner." The effective date for the approved Procedures is May 28, 2020.

The state will also take jurisdiction over a non-wetland water to the top of bank (TOB), and tidal waters to the higher high tide line (CWA section 404 jurisdiction). Regional Water Quality Control Boards (RWQCB) provide regulatory oversight of wetland protection and impact mitigation.

2.3 California Department of Fish and Wildlife

CDFW found the USFWS wetland definition and classification system based on the 1979 Cowardin definition to be the most biologically valid (Cowardin *et al.* 1979). CDFW will take jurisdiction over drainage or lake features with a bed and bank and will limit their jurisdiction to the top of bank and may include adjacent wetland or riparian areas on a case-by-case basis. In addition, the California Fish and Game Code (CFGC) specifies a myriad of statutes regarding fish and game as part of the 29 legal codes that form the general statutory law of California. The following codes are specifically relevant to the proposed Project:

Lake or Streambed Alteration Agreement. Section 1602 of the CFGC requires any person, state, or local governmental agency to provide advance written notification to CDFW prior to initiating any activity that would: 1) divert or obstruct the natural flow of, or substantially change or remove material from the bed, channel, or bank of any river, stream, or lake; or 2) result in the disposal or deposition of debris, waste, or other material into any river, stream, or lake. The state definition of

"lakes, rivers, and streams" includes all rivers or streams that flow at least periodically or permanently through a well-defined bed or channel with banks that support fish or other aquatic life, and watercourses with surface or subsurface flows that support or have supported riparian vegetation.

The California Department of Fish and Wildlife regulates activities that divert or obstruct the natural flow of, or substantially change or use any material from the bed, channel, or bank of any river, stream, or lake. CDFW has initiated a Cannabis Cultivation permitting program that requires all applicants obtaining an Annual License from the California Department of Food and Agriculture to have a Lake and Streambed Alteration Agreement or written verification that one is not needed. If all Project components are set outside the 1600 jurisdiction a Self-Certification can be submitted online. More information about the CDFW Cannabis Program and permitting can be found at https://www.wildlife.ca.gov/Conservation/Cannabis/Permitting.

3 DELINEATION METHODS

3.1 Overview of Sampling Methodology

Jurisdictional wetlands and other waters were identified using methods and guidelines described in the 1987 Manual, the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region (Version 2.0)* (hereafter "2008 Supplement"; USACE 2008b), and *A Field Guide to the Identification of the Ordinary High Water Mark (OHWM) in the Arid West Region of the Western United States* (USACE 2008a). Site visits were made in the November 2019 and January 2020. Table 3 summarizes dates of field work and personnel attending each site visit.

TABLE 3. FIELD WORK LOG

Wetland delineation and biological resource survey dates, actions taken, and field personnel are provided.

Survey Date	Activities	Personnel
June 17, 2019	Biological Survey Habitat Mapping	Jason Dart
June 18, 2019	Wildlife Survey Botanical Survey	Jason Dart Kristen Andersen
January 20, 2020	Culvert Crossing Assessment	Greg Salas
April 17, /2020	Botanical Survey	Kristen Andersen
April 22, 2020	Spadefoot toad survey Drainage Setback Demarcation Botanical Survey	Jason Dart Greg Salas
May 19, 2020	Botanical Survey	Kristen Andersen
October 15, 2020	Drainage Feature Measurements Wetland Assessment	Jason Dart Kristen Andersen
February 24, 2021	Drainage Feature Measurements Wetland Assessment	Jason Dart Kristen Andersen
July 1, 2021	Wetland Delineation	Kristen Andersen

3.1.1 Wetlands

Soil pits were dug by hand at four sample sites based on the presence of hydrophytic vegetation, wetland hydrology, or low relief indicating potential wetland. One adjacent upland pit was dug to compare upland soil and vegetation features to one confirmed three-parameter wetland. Locations of all five sampling sites were recorded on the Jurisdictional Delineation Map (Exhibit A) and USACE Arid West Region Wetland Determination Data Forms (Appendix A). Photos of each site are included in Section 4.0.

3.1.1.1 Wetland Hydrology

The presence or absence of wetland hydrology field indicators was assessed following methodology presented in the 1987 Manual and the 2008 Supplement. Wetland indicators included, but were not limited to, high water table, site topography, drift lines, drainage patterns, sediment deposits, inundation, observation of wet conditions during the growing season, and saturation of soils.

3.1.1.2 Wetland Soils

Soils were examined according to methodology presented in the 2008 Arid West Supplement and 1987 Manual. Hydric soil indicators were recognized by soil characteristics from the USDA-NRCS publication, *Field Indicators of Hydric Soils in the United States* (version 7.0; USDA-NRCS 2010) and the National Technical Committee for Hydric Soils (NTCHS) definition of hydric soils.

3.1.1.3 Wetland Vegetation

Vegetation in each stratum was identified to species and recorded. The indicator status of plants was confirmed by referring to the *National Wetland Plant List* (Lichvar *et al.* 2016) and the *Wetland Plants of Specialize Habitats in the Arid West* (Lichvar and Dixon 2007). Indicator status is defined in Table 4. Species dominance was noted for each stratum using the "50/20 Rule." Dominance test was calculated for all samples.

TABLE 4. WETLAND PLANT INDICATOR STATUS

Definitions of wetland plant indicator status, adopted from Lichvar and Dixon 2007.

Indicator Code	Category	Definition	% Occurring in Wetlands
OBL	Obligate Wetland	Occurs almost always in wetlands under natural conditions	>99%
FACW	Facultative Wetland	Usually occurs in wetlands, but often found in non-wetlands	67-99%
FAC	Facultative	Equally likely to occur in wetlands or non-wetlands	34-66%
FACU	Facultative Upland	Usually occurs in non-wetlands, but often found in wetlands	1-33%
UPL	Upland	Occurs almost always in non-wetlands under natural conditions	<1%
NA	No agreement	The regional panel was not able to reach a decision on this species	N/A
NI	No indicator	Insufficient information was available to determine an indicator status	N/A
NL	Not Listed	Species not included in the federal list of wetland indicator plants. Assumed upland for purposes of wetland analysis.	N/A

Indicator Code	Category	Definition	% Occurring in Wetlands
NO	No occurrence	The species does not occur in that region	N/A
(+) or (-)	Facultative	A positive (+) or negative (-) sign was used with Facultative indicator categories to more specifically define the regional frequency of occurrence in wetlands. The positive sign indicates a frequency toward the higher end of the category (more frequently found in wetlands). A negative sign indicates a frequency toward the lower end of the category (less frequently found in wetlands).	
An asterisk (*) following a regional indicator identifies uncertain designation based on limited information which to determine the indicator status.			

3.1.1.4 Wetland Connectivity/Adjacency

Connectivity to Traditional Navigable Waters and their tributaries is established via field work where accessible, as well through analysis of aerial photographs, USGS topographic map, USGS National Hydrography Dataset, and site-specific topographic survey.

3.1.2 Non-Wetland Waters

Drainages were identified onsite as features that display evidence of hydrology but do not contain vegetation suggestive of wetlands. Evidence of OHWM was used to determine extent of Corps jurisdiction over these non-wetland waters of the U.S. The OHWM Manual (USACE 2010) lists and describes indicators associated with areas that become flooded or ponded but are not dominated by wetland vegetation and the duration of flooding, ponding, and/or near-surface soil saturation (less than or equal to 12 inches) is not sufficient to cause hydric soils to form or wetland hydrology conditions to occur. Ordinary High Water Mark was identified and noted according to guidance provided in the OHWM Manual.

3.1.2.1 Cross Sections

Cross sections were completed along each jurisdictional drainage where there was a substantial change in either OHWM or TOB width using Light Detection and Ranging (LiDAR) data, in combination with field assessments for TOB. LiDAR data used for our mapping efforts was collected between January and April 2018 from the Salinas QL2 area of interest as part of the CA-AZ FEMA R9 Lidar 2017 D18 task order issued by the United States Geological Survey's National Geospatial Technical Operations Center (USGS-NGTOC). Specifically, we utilized the Digital Elevation Model (DEM) deliverable created from LiDAR point cloud data classified as bare earth. The DEM was clipped to the Study Area, used to generate 1-foot contours, as the source for cross section elevations and to create a slope raster feature in which breaklines were identified and used as the guide for TOB boundary delineation. The TOB was digitized by hand as polygon vector data and the resulting geometry was calculated by drainage in both acres and square feet.

3.1.2.2 Waters Connectivity/Adjacency

Connectivity to Traditional Navigable Waters and their tributaries is established via field work where accessible, as well through analysis of aerial photographs, United States Geographic Service (USGS) topographic map, USGS National Hydrography Dataset, and site-specific topographic survey. This connectivity determines whether the feature has "significant nexus" (i.e. it significantly affects the chemical, biological, or physical integrity of a Traditional Navigable Water) and by what means (i.e., perennial or intermittent connectivity).

3.2 Mapping Methodology

Mapping efforts utilized Samsung Galaxy Tab 4 tablets equipped with Garmin GLO GPS Receivers. Delineation boundaries were drawn using aerial photography and field notes. Existing datasets such as the National Hydrography Dataset and the USGS topographic maps were considered during mapping. LiDAR data (as described in Section 3.1.2.1 above) was also used to provide more accurate elevational contours and cross sections, particularly where field assessments were not feasible due to steep erosional features and highly dense shrub vegetation. GPS data, digitized notes, and photos were imported into Esri ArcGIS, a Geographic Information Systems software suite, and interpreted into maps. Maps were produced at a minimum scale of 1 map inch to 400 feet on the ground using field data.

4 TECHNICAL FINDINGS

Wetland habitat in the Study Area meets State of California definitions. Our 2021 field work resulted in the delineation of 19 square feet (<0.001 acre) of jurisdictional wetland habitat within the Study Area. State Jurisdictional Waters were also identified within the Study Area. Table 5 summarizes wetland characteristics within the Study Area (Section 4.1 below). State non-wetland waters are discussed in Section 4.2.

4.1 State Wetlands

One jurisdictional wetland was mapped within the Study Area (Exhibit A). This bowl wetland feature supports hydrophytic vegetation and maintains ponded water at a maximum depth of four feet during the wet season. Cieneba complex soils underlie the wetland with coarse sandy loam over weathered bedrock. This wetland is a seasonally flooded palustrine wetland with persistent emergent vegetation (Cowardin *et al.* 1979, Federal Geographic Data Committee 2013). Vegetation is dominated by mariposa rush (*Juncus dubius*), with associate species seep monkey flower (*Erythranthe guttata*), common toadrush (*Juncus bufonius* var *bufonius*), and common verbena (*Verbena lasiostachys*). Investigative soil pits are described below.

4.1.1 Wetland Pit 1

Wetland Pit 1 (WP1) was excavated at the northern end of the Study Area, upstream from Drainage A (Exhibit A). WP1 is a small, slumped feature with an area of approximately 19 square feet and a 4-foot depth. This bowl wetland has ponded water during the wet season (Photo 4) but was dry during the early July 2021 investigation (Photo 5). Soils are sandy in the 0–4-inch horizon, with sandy clay loam texture increasing with depth from 4 to14 inches. A reduced matrix was observed throughout sampled soil peds, with redox features at 15 percent within the top 10 inches and increasing to 30 percent in the 10- to 14-inch depth horizon (Photo 6 and Photo 7).

Vegetation passed the dominance test with 67 percent cover by wetland species. In addition to the Dominance Test, the Prevalence Index was calculated to be 2.08. Mariposa rush, a wetland facultative species, was dominant at approximately 25 percent cover. Facultative species common verbena was dominant at 15 percent cover, while obligate species seep monkey flower and wetland facultative species common toadrush were present at lower densities. Due to temporal inundation of the feature, percent bare ground was high in the herb stratum at approximately 50 percent. Moss was noted growing in high density on the steep banks of the feature, indicative of wetland function.

Photo 4. Wetland bowl feature with wetland facultative species, mariposa rush, and ponded water. June 17, 2019.

Photo 5. Wetland bowl feature during dry season in below-average average rain year. July 1, 2021.

Photo 6. Excavation of Wetland Pit 1, during dry season. July 1, 2021.

Photo 7. Soil ped with a reduced matrix taken from 10–14 inch depth at Wetland Pit 1. July 1, 2021.

4.1.2 Wetland Pit 2

Wetland Pit 2 (WP2) was excavated adjacent to WP1 to determine the extent of the bowl wetland feature (Photo 8) (Exhibit A). Hydric soils were described as having 10 percent sandy redox with sandy clay loam texture (Photo 9). This portion of the Study Area has been defined by greener vegetation compared with surrounding upland habitat, suggesting potential wetland habitat (Photo X). Beardless wildrye (*Elymus triticoides*) is not listed in the National Wetland Plant List (USACE 2018) but occurs in wetlands and non-wetlands, therefore suggesting potential wetland habitat extending upstream from Drainage A. Wetland hydrology was not present; however, the absence of hydrologic factors could be a result of climatic conditions (refer to Section 1.3.4). This portion of the Study Area may have diminishing wetland habitat no longer defined by all three determining factors. Because this area has hydric soils and presence of potential hydrophytic vegetation, we can assume a minimum 2-parameter wetland extends west from Drainage A (Photo 10).

Photo 8. Excavation of Wetland Pit 2, upland from bowl wetland feature with dominant species beardless wild rye (*Elymus triticoides*). July 1, 2021.

Photo 9. Soil ped with redoximorphic features from Wetland Pit 2, sample taken from 10-inch depth. July 1, 2021.

Photo 10. Two-parameter wetland habitat at WP2 extending west of WP1 and Drainage A. Feature is defined by green facultative vegetation, beardless wild rye, and hydric soils, view southwest. June 17, 2019.

4.1.3 Wetland Pit 3

Wetland Pit 3 (WP3) was excavated east of WP1 within the thalweg of ephemeral Drainage A (Photo 11) (Exhibit A). WP3 consisted of sandy loam soils with a reduced matrix over four inches depth. Trace redox features were observed throughout, varying in percent concentrations within the matrix (Photo 12). Soils were dry with high infiltrative sand content in the upper horizon. Vegetation did not pass the dominance test, with only 17 percent facultative dominant species of common verbena. Drainage patterns of small, incisional rills were noted secondary hydrologic indicators. This portion of Drainage A is representative of the ephemeral channel and does not support wetland habitat.

Photo 11. Wetland Pit 3 excavated in Drainage A with no hydrophytic vegetation. July 1, 2021.

Photo 12. A subtly reduced matrix in soil ped from Wetland Pit 3, sample taken at 4-8 inches depth within Drainage A. July 1, 2021.

4.1.4 Wetland Pit 4

Wetland Pit 4 (WP4) was excavated from the thalweg of Drainage B (Photo 13) (Exhibit A). Dry sandy loam soil at WP4 has a naturally high chroma with depleted matrix in the top 12 inches of the soil profile (Photo 14). Drainage patterns were noted as secondary hydrologic indicators. Chamise (*Adenostoma fasciculatum*), poison oak (*Toxicodendron diversilobum*) and deerweed (*Acmispon glaber*) were dominant vegetation in the shrub and herbaceous strata, totaling 40 percent cover by upland species. Hydrophytic vegetation was not present at WP4.

Photo 13. Wetland Pit 4 in Drainage B with dry soils and sandy substrate of 50 percent bare ground. July 1, 2021.

Photo 14. Depleted matrix in Wetland Pit 4, sample taken at 6-12 inches depth from Drainage B. July 1, 2021.

4.1.5 Upland Pit 5

Upland Pit 5 (UP5) was sampled adjacent to WP2, just north of the 2-parameter wetland boundary (Photo 15) (Exhibit A). UP5 is a dry, sandy loam and decomposed granitic soil to 10 inches depth with no hydric soil indicators. Abundant fine roots are present in the top three inches. Upland plant species red brome (*Bromus rubens*) and clustered tarweed (*Deinandra fasciculata*) dominated the vegetation canopy at 40 percent cover. Hydrophytic vegetation was not present at UP5, and no wetland hydrology was observed.

Photo 15. Upland Pit 5 with no signs of hydric soils, wetland hydrology, or hydrophytic vegetation. July 1, 2021.

TABLE 5. FEDERAL JURISDICTIONAL WETLAND CHARACTERISTICS.

Results of Wetland Determination Forms for each soil pit and associated upland pits.

Pit No.	Sample Site	Dominant Species	Wetland Vegetation?	Soil Indicator	Wetland Soil?	Hydrology Indicator	Wetland Hydrology?	Wetland Criteria Met?	Wetland Type
WP1	Wetland	OBL, FACW, FAC, NL	✓	S5, F8	✓	B1, B12	✓	Yes	Palustrine
WP2	No Wetland	FAC, UPL, NL	✓	S5	✓	None		No	N/A (2-parameter)
WP3	No Wetland	FAC, FACU, NL		S5	✓	B10		No	N/A
WP4	No Wetland	FACU, NL		F3	✓	B10		No	N/A
UP5	Upland	FACU, NL		None		None		No	N/A

NL:	Not Listed	F2:	Loamy Gleyed Matrix	A3:	Saturation
UPL:	1% occurrence in wetlands	F3:	Depleted Matrix	B1:	Water Marks (**Nonriverine**)
FACU:	1-33% in wetlands	F8:	Redox Depressions	B3:	Drift Deposits (**Riverine**) (Secondary Indicator)
FAC:	34-66% in wetlands	S5:	Sandy Redox	B9:	Water-stained leaves
FACW:	67-99% in wetlands	POND:	Standing water present	B10:	Drainage Patterns (Secondary Indicator)
OBL:	99% in wetlands			B12:	Biotic Crust

4.2 State Non-Wetland Waters

The Study Area encompasses 1,999 linear feet (0.94 acre to TOB) of unnamed ephemeral tributaries to Huerhuero Creek, referenced as Drainages A and B, and includes associated reaches. Onsite drainages were notably dry and inaccessible in areas of dense chaparral and oak woodland habitat. Open areas of the sandy channel show drainage patterns with some incision in the center of the thalweg, though surface water has not been observed during surveys conducted in both the wet and dry seasons between 2019 and 2021. Two reaches convey stormwater to Drainage B and are subtle features defined by surface relief in the low-flow channel. A third small reach occurs upstream to the west and south of Drainage A, directing water north through a culvert underneath the existing access road (Exhibit A).

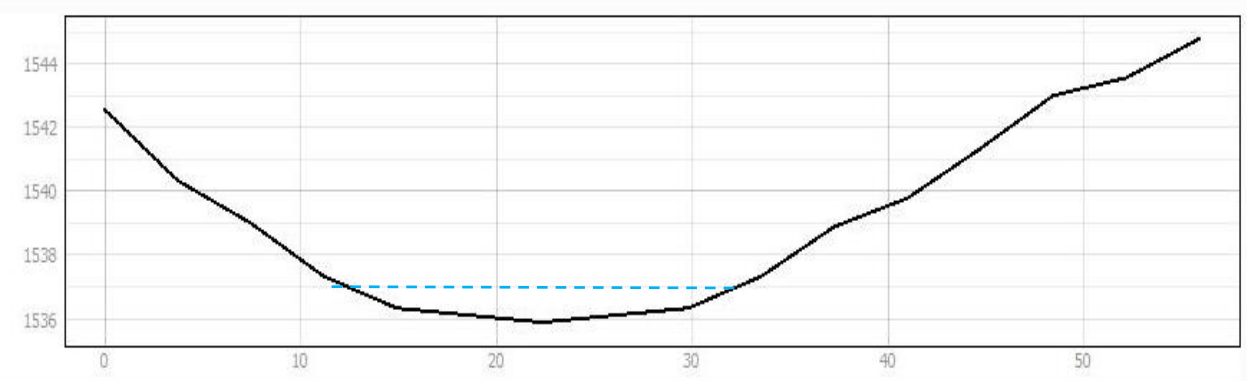
Ordinary High Water Mark remains relatively consistent throughout the Study Area and between Drainages A and B, with an average depth of 0.8 feet and an average width of 17.3 feet. Channel cross sections were taken at seven locations within the Study Area (Graph 1 through Graph 7; Exhibit A). The channel thalweg is partially vegetated with non-native annual grasses (*Avena* spp. and *Bromus* spp.) and occasional shrubs, such as poison oak and chamise. Leaf litter is abundant under denser oak tree canopies and exposed sandy wash areas occur intermittently throughout both drainages. Channel banks are dominated by coast live oak and blue oak trees, poison oak, and chaparral shrubs. Steeper portions of the south bank in Drainage A are stabilized with large boulders in areas where the oak canopy is semi-open. Erosional features were observed along the banks of Drainage A where vegetation is less abundant and finer soils have eroded.

TABLE 6. CHANNEL CROSS SECTION SUMMARY

Cross section measurements are taken from TOB for depth (feet) and width (feet). Substrate and vegetation composition are also provided.

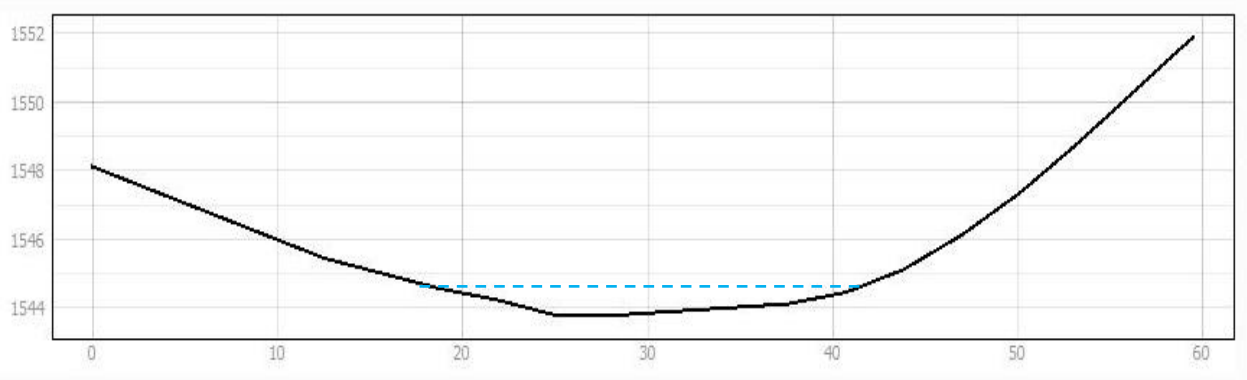
Drainage Feature	Cross Section	Depth (ft)	Width (ft)	Substrate	Vegetation
Drainage A	1	9	55	Medium-coarse sand, sandy loam	Annual grasses in thalweg; dense poison oak and coast live oak trees on banks.
	2	8	60	Medium-coarse sand, sandy loam	Dense poison oak and chamise shrubs on banks with coast live oak trees; annual grasses in thalweg; large woody debris.
	3	5	60	Medium-coarse sand, sandy loam, gravel, boulders	Annual grasses and thistles in thalweg with exposed sandy soils; coast live oak in tree stratum.
Drainage B	4	10	70	Medium-coarse sand, sandy loam, gravel	Dense oak leaf litter with sandy bare patches in thalweg; poison oak, oak trees, and chaparral shrubs on banks.

Drainage Feature	Cross Section	Depth (ft)	Width (ft)	Substrate	Vegetation
	5	2	38	Medium-coarse sand, sandy loam	Dry, chaparral shrubs on banks; annual grasses and bare ground in thalweg.
	6	3	30	Medium-coarse sand, sandy loam, gravel	Chamise, poison oak, and buckbrush (*Ceanothus cuneatus* var. *cuneatus*) shrubs surround the exposed, non-vegetated sandy thalweg.
	7	4	40	Medium-coarse sand, sandy loam	Dense oak leaf litter with sandy bare patches in thalweg; poison oak, oak trees, and chaparral shrubs on banks



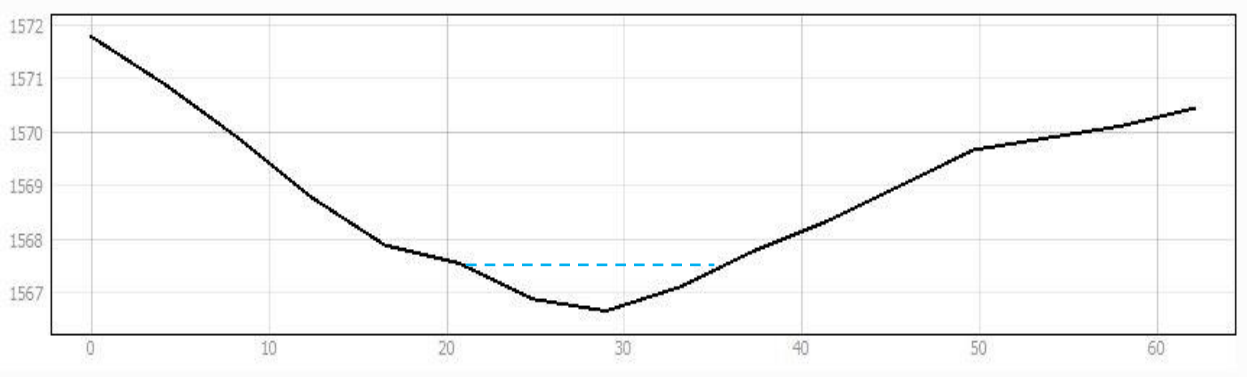
GRAPH 1. CROSS SECTION 1 – DRAINAGE A

Cross section taken at downstream end of Drainage A, view upstream toward culvert at Calf Canyon Highway. Blue dashed line portrays the location of the OHWM from approximately 1536' to 1537' elevation feet (or 1-foot depth), and approximately 20 feet wide.



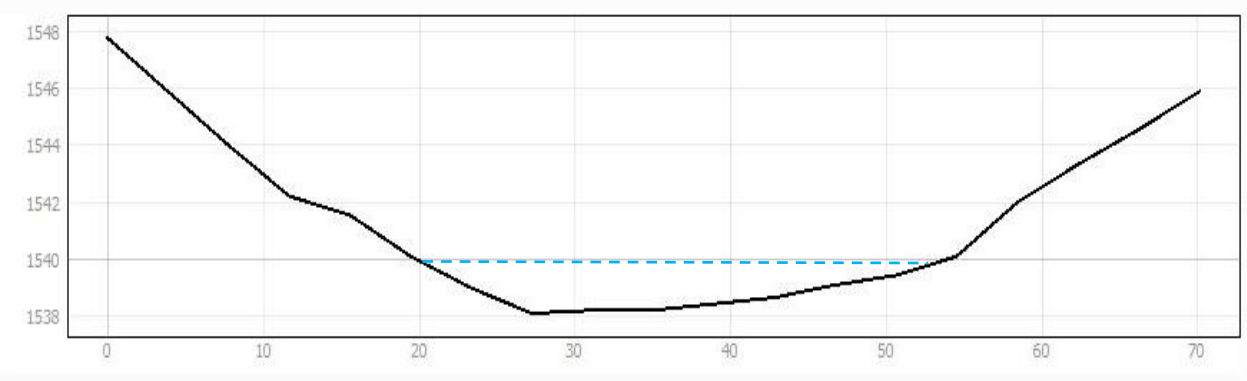
GRAPH 2. CROSS SECTION 2 – DRAINAGE A

Cross section taken midway within ephemeral Drainage A, view upstream. Blue dashed line portrays the location of the OHWM from approximately 1544' to 1545' elevation feet (or 1-foot depth), and approximately 20 feet wide.



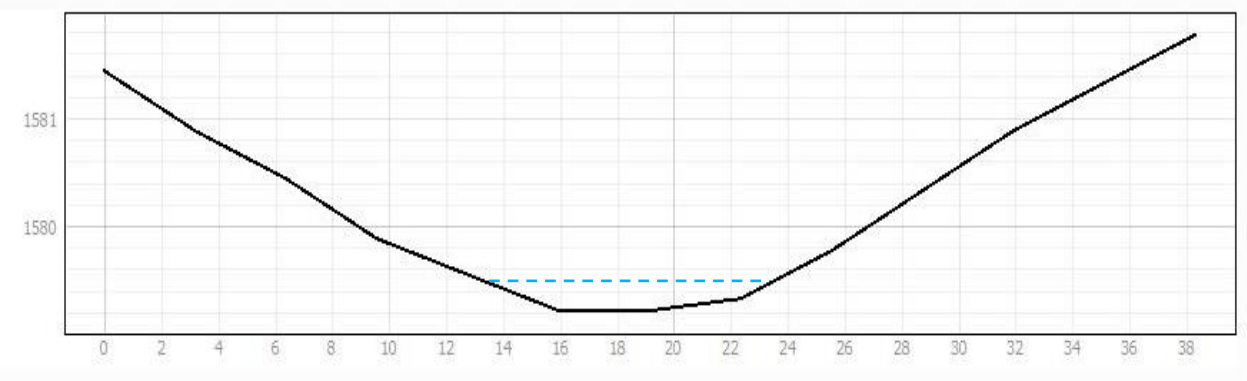
GRAPH 3. CROSS SECTION 3 – DRAINAGE A

Cross section taken from west end (downstream) of Drainage A, view upstream. Blue dashed line portrays the location of the OHWM between 1567' and 1568' elevation feet (or 0.5-foot depth), and approximately 10 feet wide.



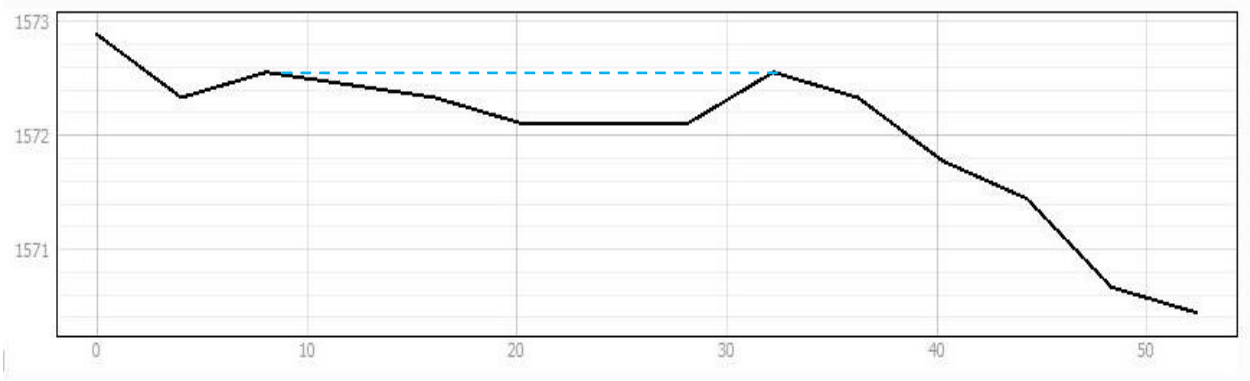
GRAPH 4. CROSS SECTION 4 – DRAINAGE B

Cross section taken at downstream end of Drainage B, view upstream. Blue dashed line portrays the location of the OHWM from approximately 1538' to 1540' elevation feet (or 2-foot depth), and approximately 30 feet wide.



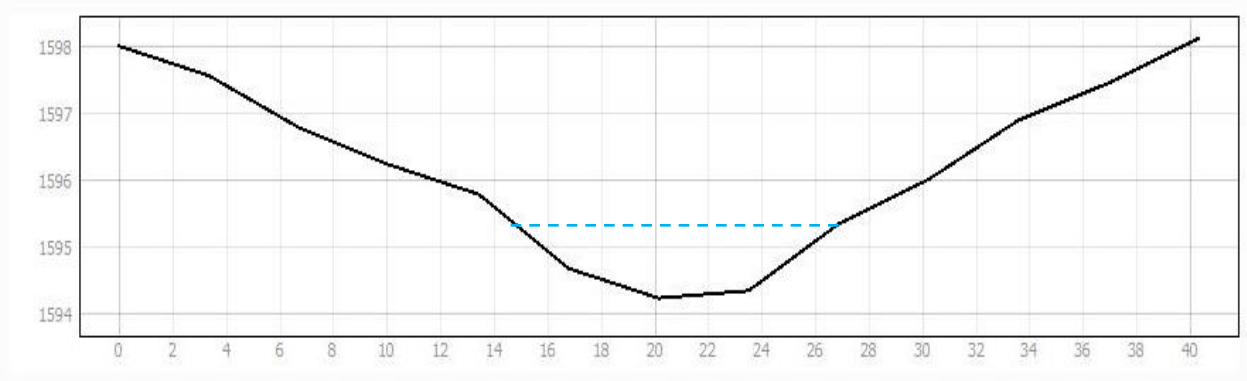
GRAPH 5. CROSS SECTION 5 – DRAINAGE B

Cross section taken upstream within northern reach connecting to Drainage B, view upstream. Blue dashed line portrays the location of the OHWM between 1579' and 1580' elevation feet (or 0.5-foot depth), and approximately 10 feet wide.



GRAPH 6. CROSS SECTION 6 – DRAINAGE B

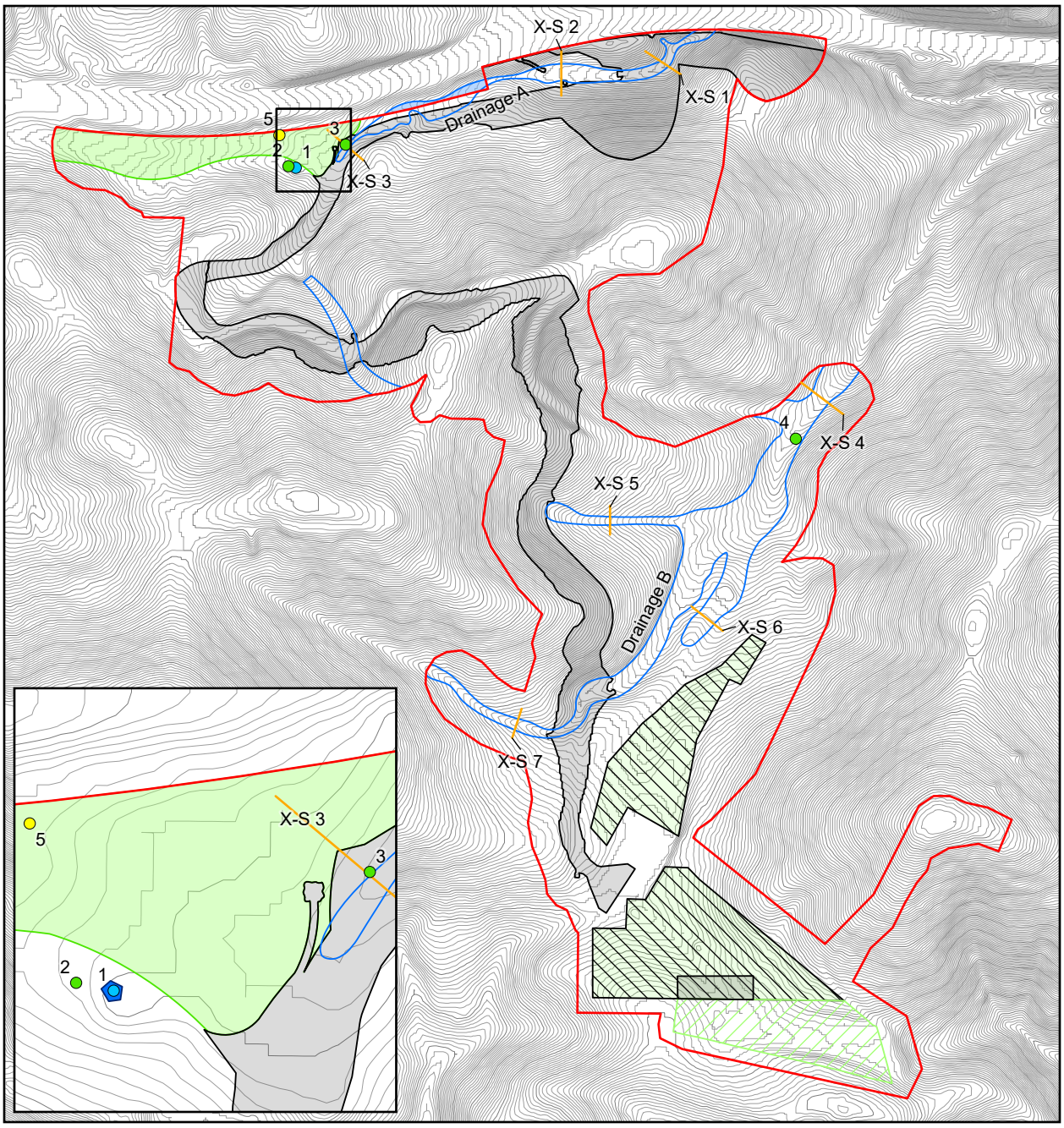
Cross section taken midway within ephemeral Drainage B, view upstream. Blue dashed line portrays the location of the OHWM between 1572' and 1573' elevation feet (or 0.5-foot depth), and approximately 20 feet wide.



GRAPH 7. CROSS SECTION 7 – DRAINAGE B

Cross section taken at the southwest reach of Drainage B, view upstream. Blue dashed line portrays the location of the OHWM from approximately 1594' to 1595' elevation feet (or 1-foot depth), and approximately 11 feet wide.

Exhibit A. Wetland Delineation



Legend

- Study Area (14.4 acres)
- Top of Bank
- Restoration Area (0.40 ac)
- Proposed Impacts (2.5 acres)
- Proposed Cultivation Area (1.3 acres)
- Existing Cultivation Area (0.4 acre; to be removed)
- Wetland
- Cross Section
- Non-wetland Pit
- Upland Pit
- Wetland Pit (3-parameter)

N

0 100 200 300 Feet

5145 Calf Canyon
Map Center: 120.51286°W 35.43441°N
Santa Margarita, San Luis Obispo County

Contour Interval: 1-foot

ALTHOUSE AND MEADE, INC.
BIOLOGICAL AND ENVIRONMENTAL SERVICES

Map Updated:
July 21, 2021 11:37 AM by SAF

5 JURISDICTIONAL DELINEATION

5.1 Federal and State Jurisdictional Areas

The Study Area contains 19 square feet (<0.001 acre) of habitat that meets the definition of wetland by the State Water Quality Control Board. Wetland habitat occurs as an upstream inclusion, within ephemeral Drainage A, and does not fall under Federal jurisdiction based on the Final Rule which asserts that "aquatic features connected only by ephemeral streams to navigable waters are no longer under Federal jurisdiction by default" (refer to Section 2.1). Jurisdictional area calculations are based on the mapped location of wetlands as described in Section 3.0 for the jurisdictional delineation. Wetland jurisdictional area calculations are included in Table 7.

Directly west of, and adjacent to, the bowl wetland is a depressional feature that may have once supported wetland habitat but no longer functions as a 3-parameter wetland. Hydric soils and non-listed facultative vegetation (beardless wild rye) suggest a 2-parameter wetland is present and that the absence of hydrologic indicators may be correlated with climatic drought conditions over the past decade. Two-parameter wetlands are no longer considered jurisdictional by the State and are not included in our calculations for wetland habitat.

The subject reaches, Drainages A and B, are ephemeral streams that are dry most of the year, demonstrating surface flow only in direct response to precipitation. Wetland habitat has formed upstream of Drainage A where a small bowl feature supports longer periods of inundation during rain events and is connected to a 2-parameter wetland upslope to the west. Onsite drainage features transport stormwater from the southwest to the northeast corner of the Study Area, where both drainages eventually outlet to Huerhuero Creek beyond the property boundary to the northeast. Jurisdictional non-wetland water measurements are included in Table 8

TABLE 7. JURISDICTIONAL WETLAND MEASUREMENTS

Calculated state jurisdictional wetland areas are given for the Study Area.

Feature	Area (ac)	Area (sq ft)
Wetland	<0.001	19
Total State Wetlands	**<0.001**	**19**

TABLE 8. JURISDICTIONAL NON-WETLAND WATER MEASUREMENTS

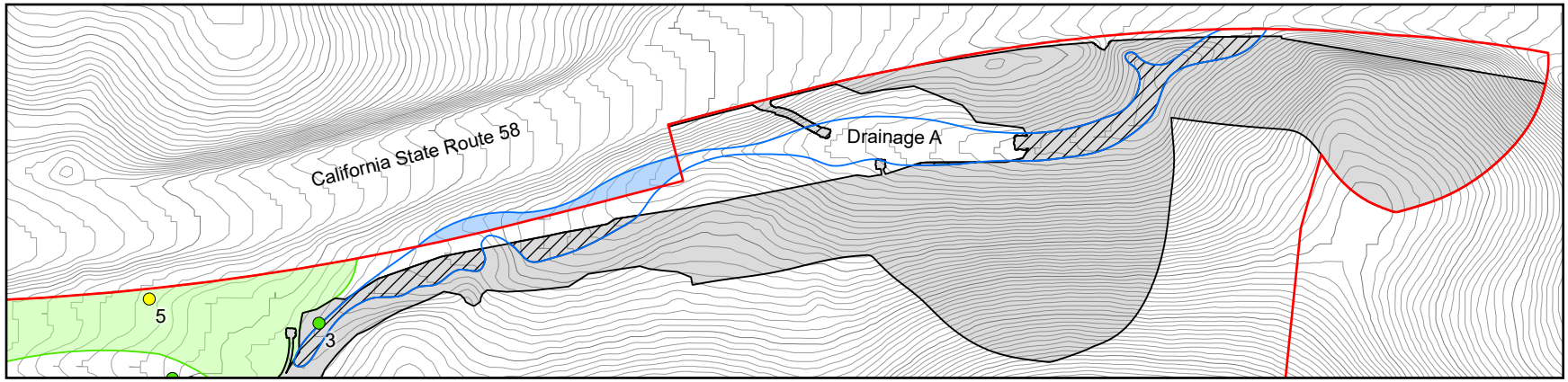
Feature	OHWM Width (ft)	OHWM Depth (ft)	Length (ft)	Area (ac)	Area (sq ft)
Drainage A	16.67	0.83	707	0.27	11,786
Drainage B	17.75	1.00	1,292	0.53	22,933
Total Non-Wetland Waters to OHWM			**1,999**	**0.80**	**34,719**
Drainage A			707	0.17	7,350
Drainage B			1,292	0.77	33,541
Total State Non-Wetland Waters to TOB			**1,999**	**0.94**	**40,891**

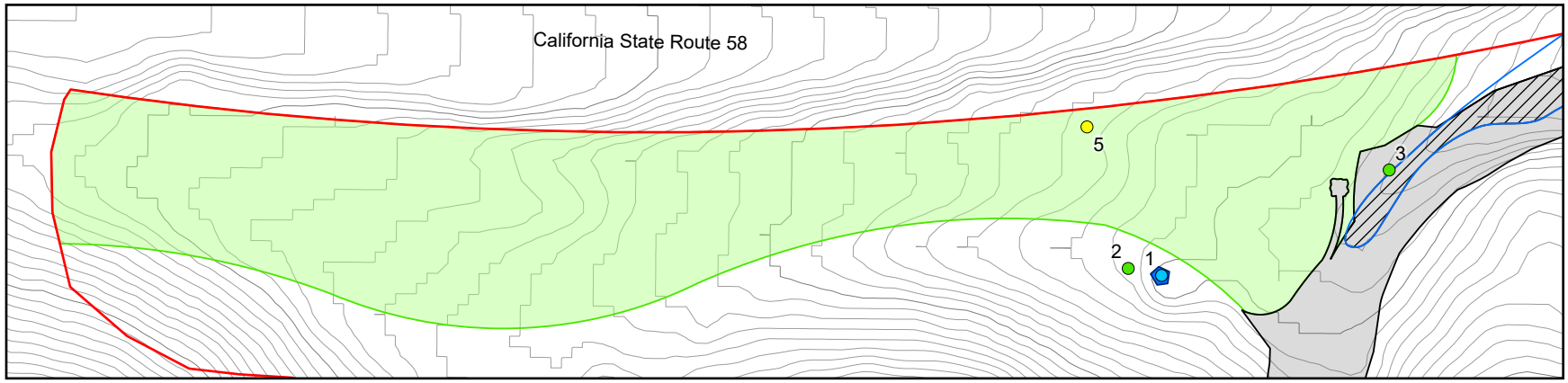
This report is subject to verification as a preliminary jurisdictional determination by the RWQCB.

6 IMPACTS AND MITIGATION

Approximately 0.08 acre (or 3,485 square feet) of non-wetland Waters of the State would be impacted by the proposed Project (Exhibit B). To compensate for impacts to jurisdictional waters, we recommend implementation of a 3:1 mitigation for associated impacts through restoration. The existing access road entrance in the northeast portion of the Study Area will be abandoned as a result of the new driveway approach. The applicant proposes restoration of this approximate 0.40-acre area (Restoration Area) to offset impacts to ephemeral Drainage A, which would exceed the proposed 3:1 mitigation requirement by 0.1 acre (Exhibit B). The Restoration Area, adjacent to Drainage A and the Bowl Wetland feature, can act as suitable mitigation by stabilizing upland habitat through revegetation of the old access road, thereby reducing sedimentation input and protecting water quality. Restoration will consist of decompacting the existing access road and revegetating the 0.40-acre area. Revegetation will include a combination of seeding (hand-broadcasted and/or drill-seeded, where feasible) and planting of native species suited to the surrounding habitats. A Disturbed Area Stabilization Plan (DASP) will be prepared which will include a timeline for restoration, methods for implementation, an approved seed mix for revegetation, reporting requirements, and best management practices (BMPs) required to promote erosion control and bank stability. The DASP shall be submitted and approved by the Water Board prior to implementation.

Exhibit B. Restoration Area and Impacts





Legend

- Study Area (14.4 acres)
- Proposed Impacts (2.5 acres)
- Restoration Area (0.40 acres)
- Drainage A (Outside the Study Area)
- Drainage A (Within the Study Area)
- Drainage A - Proposed Impacts Intersection (0.08 acres)
- Non-wetland Pit
- Upland Pit
- Wetland Pit (3-parameter)

N

0 50 100 Feet

5145 Calf Canyon
Map Center: 120.51293°W 35.43611°N
Santa Margarita, San Luis Obispo County

Contour Interval: 1-foot

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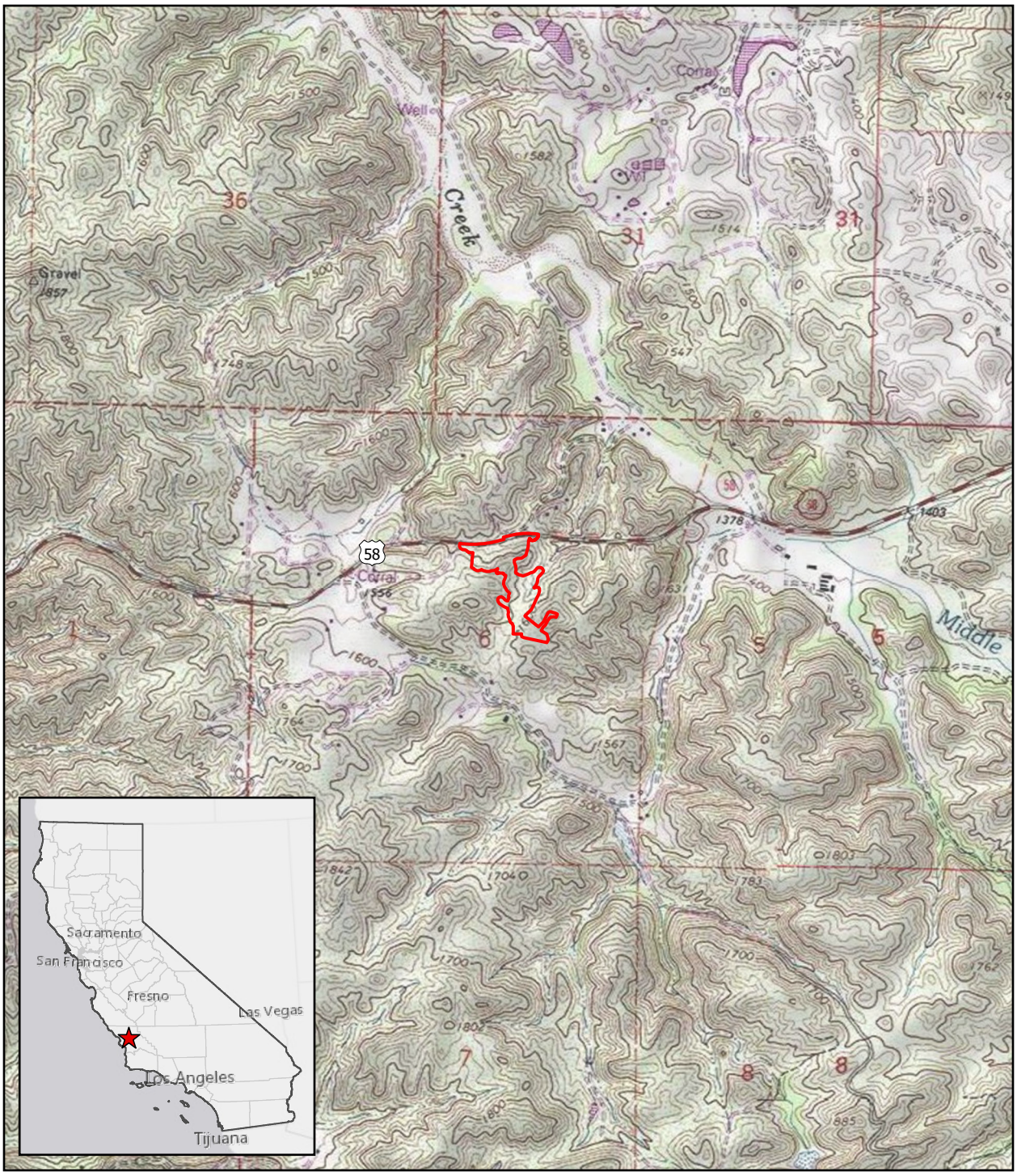
Map Updated:
July 29, 2021 04:39 PM by MCM

7 FIGURES

- **Figure 1. United States Geological Survey Topographic Map**
- **Figure 2. Aerial Imagery History**
- **Figure 3. National Hydrography Dataset**
- **Figure 4. National Wetlands Inventory**
- **Figure 5. Hydrologic Unit Codes**
- **Figure 6. Federal Emergency Management Agency Flood Insurance Rate Map**
- **Figure 7. USDA Soils Map**

Figure 1. United States Geological Survey Topographic Map



Legend

Study Area (14.4 acres)

N

0 1,000 2,000 Feet

5145 Calf Canyon
120.51286°W 35.43441°N
Santa Margarita, San Luis Obispo County

USGS Quadrangle: Santa Margarita

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Map Updated:
July 01, 2021 03:14 PM by SAF

Figure 2. Aerial Photograph

Legend

Study Area (14.4 acres)

N

0 200 400 Feet

5145 Calf Canyon
Map Center: 120.51286°W 35.43441°N
Santa Margarita, San Luis Obispo County

Imagery Source: USDA NAIP, 05/21/2020

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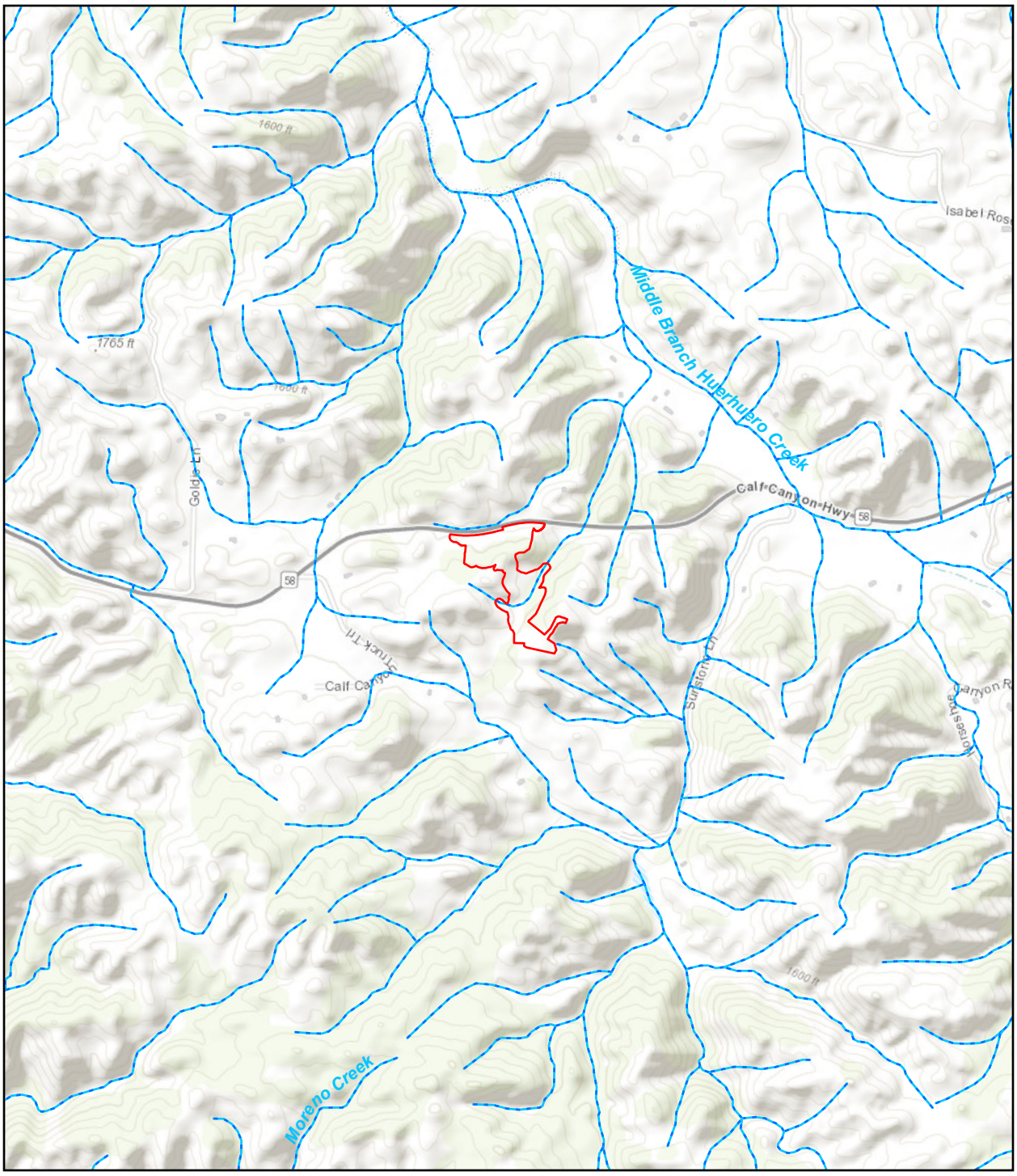
Map Updated:
July 01, 2021 03:14 PM by SAF

Figure 3. National Hydrography Dataset



Legend

Study Area (14.4 acres) Drainages

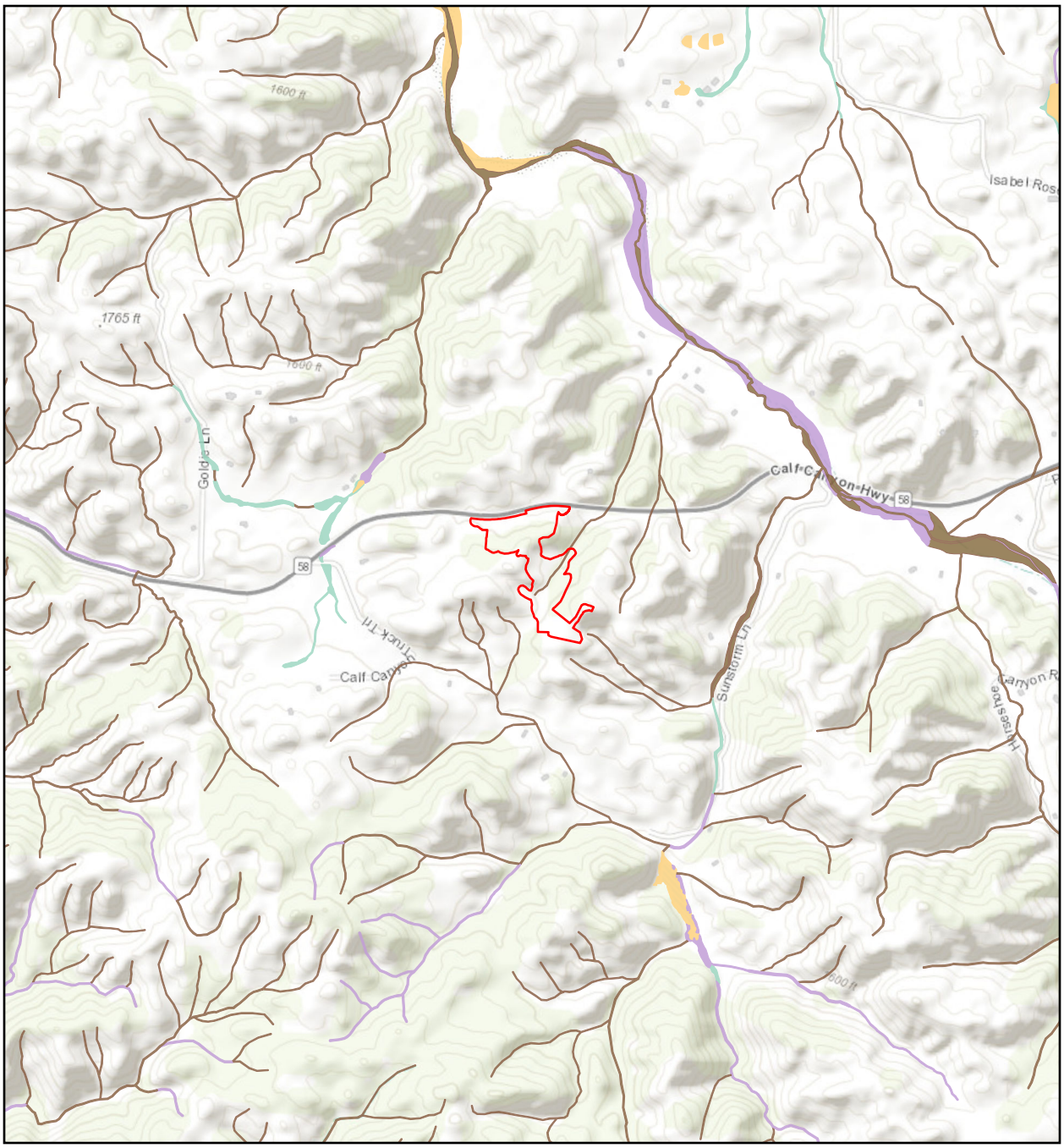
N

0 1,000 2,000 Feet

5145 Calf Canyon
Map Center: 120.51286°W 35.43441°N
Santa Margarita, San Luis Obispo County

Data Source: United States Geological Survey

Figure 4. National Wetland Inventory



Legend

- Study Area (14.4 acres)
- Freshwater Emergent Wetland
- Freshwater Forested/ Shrub Wetland
- Freshwater Pond
- Riverine

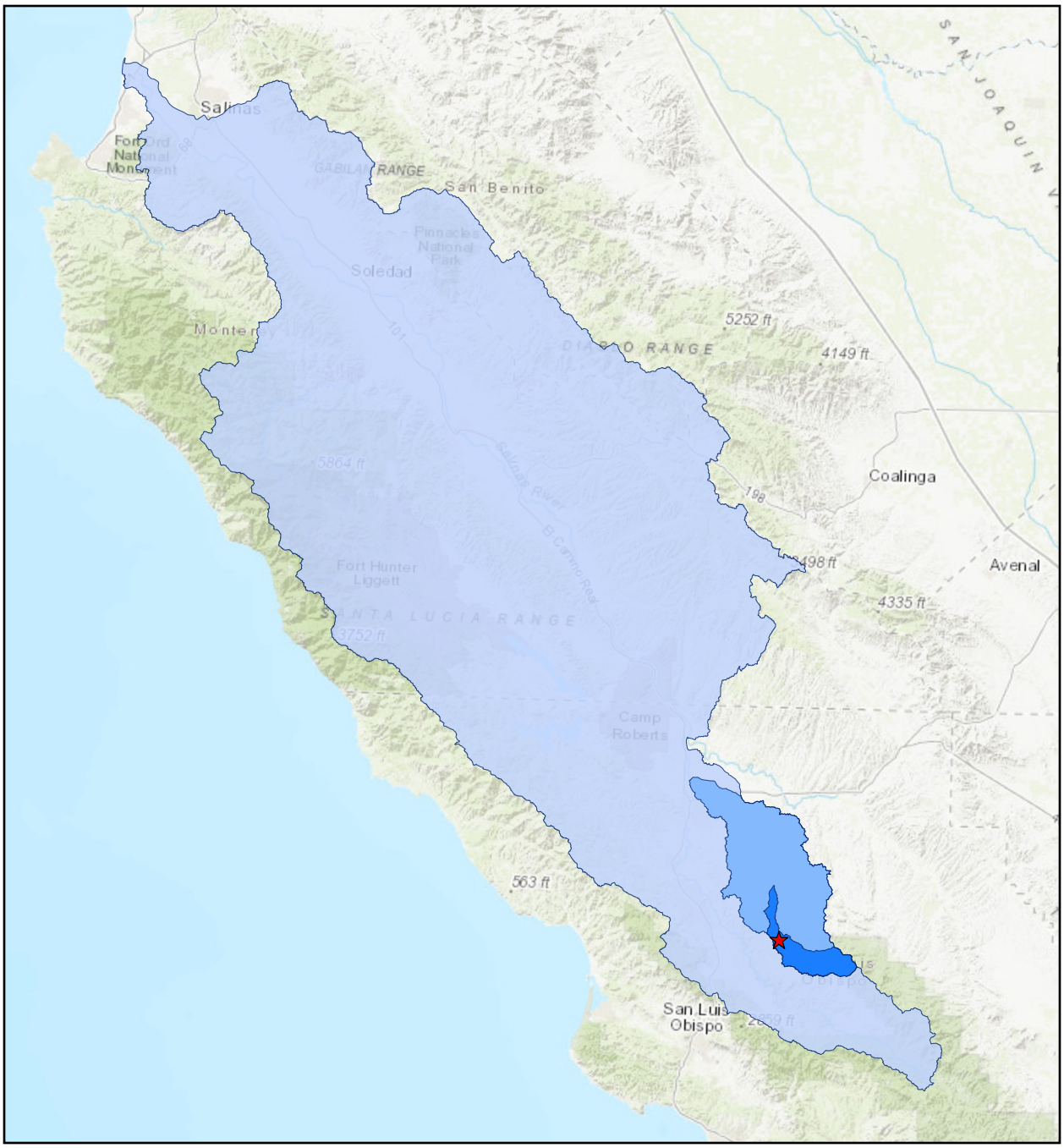
N

0 1,000 2,000 Feet

5145 Calf Canyon
Map Center: 120.51286°W 35.43441°N
Santa Margarita, San Luis Obispo County

Data Source: United States Fish and Wildlife Service

Figure 5. Hydrologic Unit Codes



Legend

- Project Location
- 180600050302 (Middle Branch Huerhuero Creek)
- 1806000503 (Huerhuero Creek)
- 18060005 (Salinas)

N

0 10 20 Miles

5145 Calf Canyon
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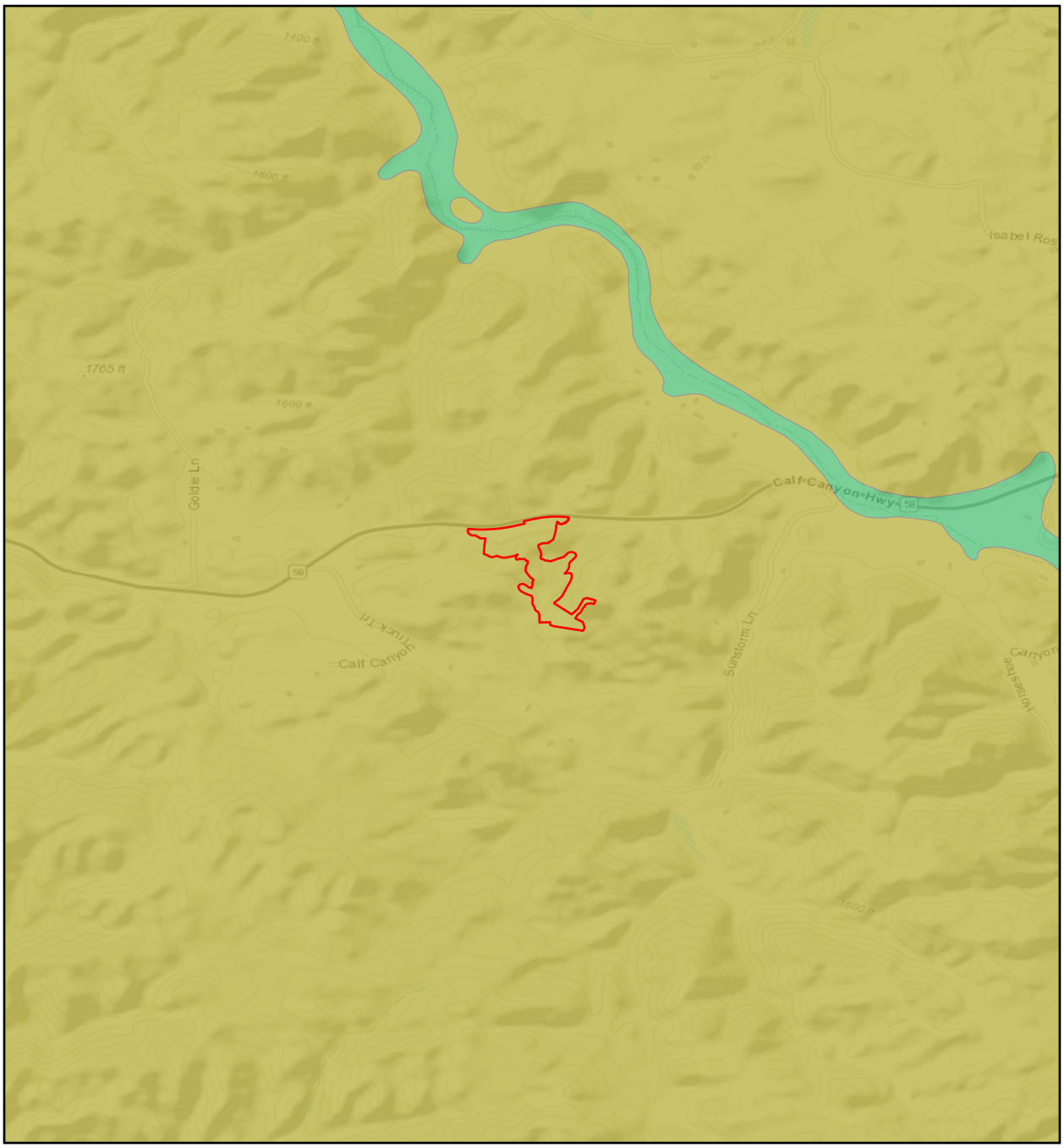
Santa Margarita, San Luis Obispo County

Data Source: United States Geological Survey

Figure 6. Federal Emergency Management Agency Flood Insurance Rate Map



Legend

Study Area (14.4 acres)

Flood Zone*

A

X

N

0 1,000 2,000 Feet

*Flood Zone Definitions on Reverse Side

5145 Calf Canyon
Map Center: 120.51286°W 35.43441°N
Santa Margarita, San Luis Obispo County

Data Source: United States Geological Survey

Figure 7. USDA Soil Survey

Soil Type	Study Area
126 - Cieneba coarse sandy loam, 30 to 75 percent slopes	49%
127 - Cieneba-Andregg complex, 30 to 75 percent slopes	11%
211 - Vista-Cieneba complex, 15 to 30 percent slopes	40%

N

0 200 400 Feet

5145 Calf Canyon
Map Center: 120.51285°W 35.43435°N
Santa Margarita, San Luis Obispo County

Legend

Study Area (14.4 acres)

USDA NRCS Soils

Data Srouce: USDA NRCS Soil Survey
Imagery Source: USDA NAIP, 05/21/2020

USDA NRCS Soils

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July 01, 2021 03:15 PM by SAF

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9 APPENDICES

- **Appendix A. Wetland Determination Data Forms**
- **Appendix B. FEMA/FIRM Zone Classification**
- **Appendix C. Vascular Plant List**

APPENDIX A. WETLAND DETERMINATION DATA FORMS

A United States Army Corps of Engineers, Wetland Determination Data Form (2008 Arid West Supplement Version 2.0) was completed in the field for four wetland sampling sites and one upland sampling site. The forms included here are copies of forms written in the field. The original forms are on file in our office.

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: BIGFOOT, LLC City/County: San Luis Obispo Sampling Date: 7/1/21

Applicant/Owner Eric Clark State: CA Sampling Point: 1

Investigator(s): K. Andersen Section, Township, Range: T29SR14E

Landform (hillslope, terrace, etc.): terrace Local relief (concave, convex, none): concave Slope (%): 5

Subregion (LRR): LRRC Lat: 35.435896 71 Long: -120.515061 Datum: WGS 84

Soil Map Unit Name: Cieneba-Andregg complex, 30 to 75 % slopes NWI classification: Ø

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ____ No X (If no, explain in Remarks.)

Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes X 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 X No ____	**Is the Sampled Area within a Wetland?** Yes X No ____
Hydric Soil Present?	Yes X No ____	
Wetland Hydrology Present?	Yes X No ____	

Remarks:
Drought year. Pond area near upstream Drainage A.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: Ø)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	= Total Cover		
Sapling/Shrub Stratum (Plot size: Ø)			
1.			
2.			
3.			
4.			
5.			
	= Total Cover		
Herb Stratum (Plot size: 3x3m)			
1. Juncus dubius	25	Y	FACW
2. Verbena lasiostachys	15	Y	FAC
3. Epilobium guttata	10	Y	OBL
4. Juncus bufonius	10	Y	FACW
5. Carduus pycnocephalus	10	Y	NL
6. Hirschfeldia incana	10	Y	NL
7.			
8.			
	80 = Total Cover		
Woody Vine Stratum (Plot size: Ø)			
1.			
2.			
	= Total Cover		

% Bare Ground in Herb Stratum 50 % Cover of Biotic Crust 10

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 4 (A)

Total Number of Dominant Species Across All Strata: 6 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 67 % (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	10	x 1 =	10
FACW species	35	x 2 =	70
FAC species	15	x 3 =	45
FACU species	Ø	x 4 =	Ø
UPL species	Ø	x 5 =	Ø
Column Totals:	60 (A)		125 (B)

Prevalence Index = B/A = 2.08

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, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes X No ____

Remarks:
Moss covering steep pond banks (90% cover). Percent Veg. is >50% based on strata within herb stratum.

SOIL

Sampling Point: 1

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	Remarks
0-10	10YR 2/2	85	10YR 3/6	15	C	M	sandy clay loam	
10-14	10YR 2/2	70	7.5YR 4/6	30	C	M	sandy clay loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

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)
- X 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)
- X Redox Depressions (F8)
- ___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR C**)
- ___ 2 cm Muck (A10) (**LRR B**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: —

Depth (inches): ___

Hydric Soil Present? Yes X No ___

Remarks:
Redox features increase with depth. Feature was dry, but typically has water. Sandy soils were loose on top. (Footer of feature). Wetland feature is a small pond w/ about 4-foot depth POND = or standing water observed during other times of the year.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- X 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)
- X 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 X Depth (inches): ___

Water Table Present? Yes ___ No X Depth (inches): ___

Saturation Present? (includes capillary fringe) Yes ___ No X Depth (inches): ___

Wetland Hydrology Present? Yes X No ___

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:
Water present in rainy season. Feature was dry during investigation moisture observed in 10-14" soil pods.

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: BIGFOOT, LLC City/County: San Luis Obispo Sampling Date: 7/1/21
Applicant/Owner: Eric Clark State: CA Sampling Point: 2
Investigator(s): K. Andersen Section, Township, Range: T29S R14E
Landform (hillslope, terrace, etc.): terrace Local relief (concave, convex, none): concave Slope (%): 1-2
Subregion (LRR): LRRC Lat: 35.4358303 Long: -120.5139878 Datum: WGS84
Soil Map Unit Name: Cieneba-Andregg complex, 30 to 75% slopes NWI classification: ∅
Are climatic / hydrologic conditions on the site typical for this time of year? Yes ____ No X (If no, explain in Remarks.)
Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes X 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 X	No ____	**Is the Sampled Area within a Wetland?** Yes ____ No X
Hydric Soil Present?	Yes X	No ____	
Wetland Hydrology Present?	Yes ____	No X	

Remarks: Drought years' one-parameter (soils) wetland. Does not qualify.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 3x3m)	Absolute % Cover	Dominant Species?	Indicator Status
1. Pinus sabiniana	30	N	NL
2.			
3.			
4.			
	30 = Total Cover		
Sapling/Shrub Stratum (Plot size: ∅)			
1.			
2.			
3.			
4.			
5.			
	____ = Total Cover		
Herb Stratum (Plot size: 3x3m)			
1. Elymus triticoides	30	Y	NL
2. Carduus pycnocephalus	20	Y	NL
3. Bromus rubens	15	N	UPL
4. Bromus diandrus	5	N	NL
5.			
6.			
7.			
8.			
	70 = Total Cover		
Woody Vine Stratum (Plot size: ∅)			
1.			
2.			
	____ = Total Cover		

% Bare Ground in Herb Stratum 0 % Cover of Biotic Crust 0

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% (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species ____	x 1 = ____
FACW species ____	x 2 = ____
FAC species ____	x 3 = ____
FACU species ____	x 4 = ____
UPL species ____	x 5 = ____
Column Totals: ____ (A)	____ (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, unless disturbed or problematic.

Hydrophytic Vegetation Present? * Yes X No ____

Remarks: Non-listed veg. ELYTRI is not listed (NL) but is known to occur in wetlands and non-wetlands equally. Opinion is that hydrophytic veg. is present *

SOIL

Sampling Point: 2

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	Remarks
0-12	10YR 2/2	90	10YR5/8	10	C	M	Sandy clay loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

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)
- X 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[3]:

- ___ 1 cm Muck (A9) (**LRR C**)
- ___ 2 cm Muck (A10) (**LRR B**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: —

Depth (inches): ___

Hydric Soil Present? Yes X No ___

Remarks:

Redox features observed throughout Matrix. Pit was originally chosen as upland pit, but has hydric soils. New site was selected for upland pit. Pit2 within concave form upstream from ~~Drainage~~ A.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ 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 X Depth (inches): ___

Water Table Present? Yes ___ No X Depth (inches): ___

Saturation Present? (includes capillary fringe) Yes ___ No X Depth (inches): ___

Wetland Hydrology Present? Yes ___ No X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Water not observed during rainy season surveys

Remarks:

no hydrology

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: BIGFOOT, LLC City/County: San Luis Obispo Sampling Date: 7/1/21

Applicant/Owner: Eric Clark State: CA Sampling Point: 3

Investigator(s): K. Andersen Section, Township, Range: T29SR14E

Landform (hillslope, terrace, etc.): Drainage Local relief (concave, convex, none): concave Slope (%): 5

Subregion (LRR): LRLC Lat: 35.43590469 Long: -120.51373447 Datum: WGS84

Soil Map Unit Name: Cieneba coarse sandy loam, 30 to 75% NWI classification: Ø

Are climatic / hydrologic conditions on the site typical for this time of year? Yes _____ No X (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes X 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 X	**Is the Sampled Area within a Wetland?** Yes _____ No X
Hydric Soil Present?	Yes X No _____	
Wetland Hydrology Present?	Yes _____ No X	

Remarks: Drought year. Ephemeral drainage w/ trace hydric soil indicators.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 3x3m)	Absolute % Cover	Dominant Species?	Indicator Status
1. Quercus agrifolia	10	Y	NL
2.			
3.			
4.			
	= Total Cover		
Sapling/Shrub Stratum (Plot size: Ø)			
1.			
2.			
3.			
4.			
5.			
	= Total Cover		
Herb Stratum (Plot size: _____)			
1. Bromus hordeaceus	50	Y	FACU
2. Avena fatua	5	N	NL
3. Carduus pycnocephalus	5	N	NL
4. Bromus rubens	5	N	NL
5. Verbena lasiostachys	5	N	FAC
6.			
7.			
8.			
	70 = Total Cover		
Woody Vine Stratum (Plot size: _____)			
1.			
2.			
	= Total Cover		

% Bare Ground in Herb Stratum 30 % Cover of Biotic Crust Ø

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 6 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 17% (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species _____	x 1 = _____
FACW species _____	x 2 = _____
FAC species _____	x 3 = _____
FACU species _____	x 4 = _____
UPL species _____	x 5 = _____
Column Totals: _____ (A)	_____ (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, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes _____ No X

Remarks: Dry, ephemeral drainage. No wetland veg observed

SOIL

Sampling Point: 3

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	Remarks
0-12	10YR4/4	99	10YR4/6	<1	C	M	sandy loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

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)
- X 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[3]:

- ___ 1 cm Muck (A9) (**LRR C**)
- ___ 2 cm Muck (A10) (**LRR B**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes X No ___

Remarks:
Trace hydric features. Sandy top soil in thalweg.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ 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**)
- X 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 X Depth (inches): _____

Water Table Present? Yes ___ No X Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes ___ No X Depth (inches): _____

Wetland Hydrology Present? Yes ___ No X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:
water never observed over years of surveying (both wet & dry seasons)

Remarks:
Small 2-3 ft. OHWM, upstream drainage A. Low-flow incisions

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: BIGFOOT, LLC City/County: San Luis Obispo Sampling Date: 7/1/21

Applicant/Owner: Eric Clark State: CA Sampling Point: 4

Investigator(s): K. Andersen Section, Township, Range: T29SR14E

Landform (hillslope, terrace, etc.): hillslope/drainage Local relief (concave, convex, none): concave Slope (%): 5

Subregion (LRR): LRRC Lat: 35.43490846 Long: -120.51176629 Datum: WGS 84

Soil Map Unit Name: Vista-Cieneba complex, 15 to 30% slopes NWI classification: R4SBJ

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ____ No X (If no, explain in Remarks.)

Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes X 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 X	**Is the Sampled Area within a Wetland?** Yes ____ No X
Hydric Soil Present?	Yes X No ____	
Wetland Hydrology Present?	Yes ____ No X	

Remarks:
Drought year. Dry channel east of study area.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 3x3m)	Absolute % Cover	Dominant Species?	Indicator Status
1. Quercus agrifolia	5	N	NL
2.			
3.			
4.			
	5	= Total Cover	

Sapling/Shrub Stratum (Plot size: 3x3m)			
1. Ceanothus cuneatus	5	N	NL
2. Adenostoma fasciculatum	15	Y	NL
3. Toxicodendron diversilobum	10	Y	FACU
4.			
5.			
	30	= Total Cover	

Herb Stratum (Plot size: 3x3m)			
1. Avena sativa	10	Y	NL
2.			
3.			
4.			
5.			
6.			
7.			
8.			
	10	= Total Cover	

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: ∅ (A)

Total Number of Dominant Species Across All Strata: ____ (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: ____ (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:	
OBL species	x 1 =	
FACW species	x 2 =	
FAC species	x 3 =	
FACU species	x 4 =	
UPL species	x 5 =	
Column Totals:	(A)	(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, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ____ No X

Remarks:
High litter on ground (Quercus agrifolia leaves; 30% cover)

SOIL

Sampling Point: 4

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	Remarks
0-12	10YR 3/2	80	10YR 6/2	20	D	M	sandy loam	dry

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

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)
- X Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR C**)
- ___ 2 cm Muck (A10) (**LRR B**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes X No ____

Remarks:

Dry sandy loam in drainage thalweg; soil depletions observed in 6-12 inches.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ 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**)
- X 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 X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

water not observed during past years of surveys (wet + dry seasons)

Remarks:

Dry sandy channel (Drainage B).

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: BIGFOOT, LLC City/County: San Luis Obispo Sampling Date: 7/1/21
Applicant/Owner: Eric Clark State: CA Sampling Point: 5
Investigator(s): K. Andersen Section, Township, Range: T29S R14E
Landform (hillslope, terrace, etc.): terrace Local relief (concave, convex, none): none Slope (%): 0
Subregion (LRR): LRR C Lat: 35.43594183 Long: -120.51403316 Datum: WGS84
Soil Map Unit Name: Cieneba coarse sandy loam, 30 to 75% NWI classification: ø
Are climatic / hydrologic conditions on the site typical for this time of year? Yes _____ No X (If no, explain in Remarks.)
Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes X 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 X	**Is the Sampled Area within a Wetland?** Yes _____ No X
Hydric Soil Present?	Yes _____ No X	
Wetland Hydrology Present?	Yes _____ No X	

Remarks:
Drought year. Upland pit (upland from PITS 1 & 2)

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: ø)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	_____ = Total Cover		
Sapling/Shrub Stratum (Plot size: ø)			
1.			
2.			
3.			
4.			
5.			
	_____ = Total Cover		
Herb Stratum (Plot size: 3x3m)			
1. Bromus rubens	20	Y	NL
2. Pentandra fasciculata	20	Y	FACU
3. Avena fatua	5	N	NL
4. Bromus diandrus	10	N	NL
5. Hirschfeldia incana	10	N	NL
6.			
7.			
8.			
	65 = Total Cover		
Woody Vine Stratum (Plot size: ø)			
1.			
2.			
	_____ = Total Cover		

% Bare Ground in Herb Stratum 35 % Cover of Biotic Crust ø

Dominance Test worksheet:
Number of Dominant Species That Are OBL, FACW, or FAC: ø (A)
Total Number of Dominant Species Across All Strata: _____ (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: _____ (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species _____	x 1 = _____
FACW species _____	x 2 = _____
FAC species _____	x 3 = _____
FACU species _____	x 4 = _____
UPL species _____	x 5 = _____
Column Totals: _____ (A)	_____ (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, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes _____ No X

Remarks:
Dry, upland vegetation. Upland pit

SOIL

Sampling Point: 5

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 %	Redox Features Type[1]	Redox Features Loc[2]	Texture	Remarks
0-10	10YR 4/2	100	-	-	-	-	Sandy loam	dry

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

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[3]:

- ___ 1 cm Muck (A9) (**LRR C**)
- ___ 2 cm Muck (A10) (**LRR B**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes _____ No X

Remarks:

Dry, upland pit. ∅ hydric soil indicators.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ 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 X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

none

APPENDIX B. FEMA/FIRM ZONE CLASSIFICATION

Moderate to Low Risk Areas

Zone	Description
B and X (shaded)	Area of moderate flood hazard, usually the area between the limits of the 100- year and 500-year floods. B Zones are also used to designate base floodplains of lesser hazards, such as areas protected by levees from 100-year flood, or shallow flooding areas with average depths of less than one foot or drainage areas less than 1 square mile.
C and X (unshaded)	Area of minimal flood hazard, usually depicted on FIRMs as above the 500-year flood level. Zone C may have ponding and local drainage problems that don't warrant a detailed study or designation as base floodplain. Zone X is the area determined to be outside the 500-year flood and protected by levee from 100- year flood.

High Risk Areas

Zone	Description
A	Areas with a 1% annual chance of flooding and a 26% chance of flooding over the life of a 30-year mortgage. Because detailed analyses are not performed for such areas; no depths or base flood elevations are shown within these zones.
AE	The base floodplain where base flood elevations are provided. AE Zones are now used on new format FIRMs instead of A1-A30 Zones.
A1-A30	These are known as numbered A Zones (e.g., A7 or A14). This is the base floodplain where the FIRM shows a BFE (old format).
AH	Areas with a 1% annual chance of shallow flooding, usually in the form of a pond, with an average depth ranging from 1 to 3 feet. These areas have a 26% chance of flooding over the life of a 30-year mortgage. Base flood elevations derived from detailed analyses are shown at selected intervals within these zones.
AO	River or stream flood hazard areas, and areas with a 1% or greater chance of shallow flooding each year, usually in the form of sheet flow, with an average depth ranging from 1 to 3 feet. These areas have a 26% chance of flooding over the life of a 30-year mortgage. Average flood depths derived from detailed analyses are shown within these zones.
AR	Areas with a temporarily increased flood risk due to the building or restoration of a flood control system (such as a levee or a dam). Mandatory flood insurance purchase requirements will apply, but rates will not exceed the rates for unnumbered A zones if the structure is built or restored in compliance with Zone AR floodplain management regulations.
A99	Areas with a 1% annual chance of flooding that will be protected by a Federal flood control system where construction has reached specified legal requirements. No depths or base flood elevations are shown within these zones.
V	Coastal areas with a 1% or greater chance of flooding and an additional hazard associated with storm waves. These areas have a 26% chance of flooding over the life of a 30-year mortgage. No base flood elevations are shown within these zones.
VE, V1-30	Coastal areas with a 1% or greater chance of flooding and an additional hazard associated with storm waves. These areas have a 26% chance of flooding over the life of a 30-year mortgage. Base flood elevations derived from detailed analyses are shown at selected intervals within these zones.

APPENDIX C. VASCULAR PLANT LIST

Common Name	Scientific Name	Special Status	Origin
Fern - 1 Species			
Gold back fern	*Pentagramma triangularis* subsp. *triangularis*	None	Native
Trees - 4 Species			
Gray pine	*Pinus sabiniana*	None	Native
Coast live oak	*Quercus agrifolia*	None	Native
Scrub oak	*Quercus berberidifolia*	None	Native
Blue oak	*Quercus douglasii*	None	Native
Shrubs - 16 Species			
Chamise	*Adenostoma fasciculatum*	None	Native
Coyote brush	*Baccharis pilularis*	None	Native
Buckbrush	*Ceanothus cuneatus* var. *cuneatus*	None	Native
California rush-rose	*Crocanthemum scoparium*	None	Native
Bush poppy	*Dendromecon rigida*	None	Native
California buckwheat	*Eriogonum fasciculatum*	None	Native
Saw-toothed goldenbush	*Hazardia squarrosa*	None	Native
California broomsage	*Lepidospartum squamatum*	None	Native
Jones' bush-mallow	*Malacothamnus jonesii*	**CRPR 4.3**	Native
Holly leaf cherry	*Prunus ilicifolia* subsp. *ilicifolia*	None	Native
Skunk bush	*Rhus aromatica*	None	Native
Chaparral currant	*Ribes malvaceum*	None	Native
Black sage	*Salvia mellifera*	None	Native
Blue elderberry	*Sambucus nigra* subsp. *caerulea*	None	Native
Bush groundsel	*Senecio flaccidus* var. *douglasii*	None	Native
Western poison oak	*Toxicodendron diversilobum*	None	Native
Forbs - 96 Species			
Yarrow	*Achillea millefolium*	None	Native
Spanish lotus	*Acmispon americanus* var. *americanus*	None	Native

Common Name	Scientific Name	Special Status	Origin
Short podded lotus	*Acmispon brachycarpus*	None	Native
Deerweed	*Acmispon glaber*	None	Native
Sacapellote	*Acourtia microcephala*	None	Native
Mountain dandelion	*Agoseris heterophylla*	None	Native
Tumbleweed	*Amaranthus albus*	None	Introduced
Common fiddleneck	*Amsinckia intermedia*	None	Native
Sticky snapdragon	*Antirrhinum multiflorum*	None	Native
California mugwort	*Artemisia douglasiana*	None	Native
Tarragon	*Artemisia dracunculus*	None	Native
Kotolo	*Asclepias eriocarpa*	None	Native
Narrow-leaf milkweed	*Asclepias fascicularis*	None	Native
Common goldenstar	*Bloomeria crocea*	None	Native
Hairy sun cup	*Camissoniopsis hirtella*	None	Native
Jurupa hills sun cup	*Camissoniopsis ignota*	None	Native
Spencer primrose	*Camissoniopsis micrantha*	None	Native
Hardham's evening primrose	*Camissoniopsis hardhamiae*	**CRPR 1B.2**	Native
Italian thistle	*Carduus pycnocephalus* subsp. *pycnocephalus*	None	Introduced
Purple owl's clover	*Castilleja exserta* subsp. *exserta*	None	Native
Tocalote	*Centaurea melitensis*	None	Introduced
Yellow star-thistle	*Centaurea solstitialis*	None	Introduced
Sticky mouse-ear chickweed	*Cerastium glomeratum*	None	Introduced
Lamb's quarters	*Chenopodium album*	None	Introduced
Common soaproot	*Chlorogalum pomeridianum* var. *pomeridianum*	None	Native
Skeleton weed	*Chondrilla juncea*	None	Introduced
Turkish rugging	*Chorizanthe staticoides*	None	Native
Venus thistle	*Cirsium occidentale* var. *venustum*	None	Native
Waltham creek clarkia	*Clarkia modesta*	None	Native
Four-spot	*Clarkia purpurea* subsp. *quadrivulnera*	None	Native
Red spotted clarkia	*Clarkia speciosa*	None	Native

Common Name	Scientific Name	Special Status	Origin
Woodland clarkia	*Clarkia unguiculata*	None	Native
Miner's lettuce	*Claytonia perfoliata*	None	Native
Sand pygmy weed	*Crassula connata*	None	Native
Turkey mullein	*Croton setigerus*	None	Native
Common cryptanth	*Cryptantha intermedia*	None	Native
Tejon cryptantha	*Cryptantha microstachys*	None	Native
Clustered tarweed	*Deinandra fasciculata*	None	Native
Salinas river tarweed	*Deinandra pentactis*	None	Native
Parry's larkspur	*Delphinium parryi* subsp. *parryi.*	None	Native
Whispering bells	*Emmenanthe penduliflora* var. *penduliflora*	None	Native
Leafy fleabane	*Erigeron foliosus*	None	Native
Slender buckwheat	*Eriogonum gracile*	None	Native
Redstem filaree	*Erodium cicutarium*	None	Introduced
Seep monkey flower	*Erythranthe guttata*	None	Native
California poppy	*Eschscholzia californica*	None	Native
Wall bedstraw	*Galium parisiense*	None	Introduced
Lowland cudweed	*Gnaphalium palustre*	None	Native
Herniaria	*Herniaria hirsuta*	None	Introduced
Few flowered evax	*Hesperevax sparsiflora*	None	Native
Chaparral yucca	*Hesperoyucca whipplei*	None	Native
Telegraph weed	*Heterotheca grandiflora*	None	Native
Smooth cat's-ear	*Hypochaeris glabra*	None	Introduced
Common toadrush	*Juncus bufonius* var. *bufonius*	None	Native
Mariposa rush	*Juncus dubius*	None	Native
Prickly lettuce	*Lactuca serriola*	None	Introduced
Whiskerbrush	*Leptosiphon ciliatus*	None	Native
Narrowflower flaxflower	*Leptosiphon liniflorus*	None	Native
Variable linanthus	*Leptosiphon parviflorus*	None	Native
Sticky lessingia	*Lessingia glandulifera* var. *glandulifera*	None	Native
Miniature lupine	*Lupinus bicolor*	None	Native
Scarlet pimpernel	*Lysimachia arvensis*	None	Introduced

Common Name	Scientific Name	Special Status	Origin
Gumweed	*Madia gracilis*	None	Native
California man-root	*Marah fabacea*	None	Native
Pineapple weed	*Matricaria discoidea*	None	Introduced
Pineapple weed	*Matricaria discoidea*	None	Introduced
California burclover	*Medicago polymorpha*	None	Introduced
Sourclover	*Melilotus indicus*	None	Introduced
Greene's saxifrage	*Micranthes californica*	None	Native
Holly leaf navarretia	*Navarretia atractyloides*	None	Native
California peony	*Paeonia californica*	None	Native
Warrior's plume	*Pedicularis densiflora*	None	Native
Cream cups	*Platystemon californicus*	None	Native
Padre's shooting star	*Primula clevelandii*	None	Native
Cudweed	*Pseudognaphalium beneolens*	None	Native
Ladies' tobacco	*Pseudognaphalium californicum*	None	Native
Slender woolly-marbles	*Psilocarphus tenellus*	None	Native
Fairy mist	*Pterostegia drymarioides*	None	Native
Curly dock	*Rumex crispus*	None	Introduced
Chia	*Salvia columbariae*	None	Native
Pacific sanicle	*Sanicula crassicaulis*	None	Native
Douglas' threadleaf ragwort	*Senecio flaccidus* var. *douglasii*	None	Native
Oriental hedge mustard	*Sisymbrium orientale*	None	Introduced
Nightshade	*Solanum xanti*	None	Native
Prickly sow thistle	*Sonchus asper* subsp. *asper*	None	Introduced
Common sow thistle	*Sonchus oleraceus*	None	Introduced
Red sand-spurrey	*Spergularia rubra*	None	Introduced
Everlasting neststraw	*Stylocline gnaphaloides*	None	Native
Narrow leaved lacepod	*Thysanocarpus laciniatus*	None	Native
Wild parsley	*Torilis nodosa*	None	Introduced
Fremont's death camas	*Toxicoscordion fremontii*	None	Native
Vinegar weed	*Trichostema lanceolatum*	None	Native
Pin point clover	*Trifolium gracilentum*	None	Native

Common Name	Scientific Name	Special Status	Origin
Small-head clover	*Trifolium microcephalum*	None	Native
Silver puffs	*Uropappus lindleyi*	None	Native
Dwarf nettle	*Urtica urens*	None	Introduced
Western vervain	*Verbena lasiostachys*	None	Native
Graminoids - 15 Species			
Slender wild oat	*Avena barbata*	None	Introduced
Wild oat	*Avena fatua*	None	Introduced
Ripgut grass	*Bromus diandrus*	None	Introduced
Soft chess	*Bromus hordeaceus*	None	Introduced
Red brome	*Bromus madritensis* subsp. *rubens*	None	Introduced
Blue wildrye	*Elymus glaucus* subsp. *glaucus*	None	Native
Beardless wild rye	*Elymus triticoides*	None	Native
Rattail sixweeks grass	*Festuca myuros*	None	Introduced
Rye grass	*Festuca perennis*	None	Introduced
Nit grass	*Gastridium phleoides*	None	Introduced
Barley	*Hordeum vulgare*	None	Introduced
California melic	*Melica californica*	None	Native
Hood canary grass	*Phalaris paradoxa*	None	Introduced
Annual beard grass	*Polypogon monspeliensis*	None	Introduced
Mediterranean grass	*Schismus barbatus*	None	Introduced