CARNEGIE STATE VEHICULAR RECREATION AREA EXPANSION AREA

Alameda County, California

DELINEATION OF STATE AND FEDERAL JURISDICTIONAL WATERS

Prepared For:

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CARNEGIE STATE VEHICULAR RECREATION AREA EXPANSION AREA

ALAMEDA, CALIFORNIA

Delineation of State and Federal Jurisdictional Waters

The undersigned certify that this report is a complete and accurate account of the findings and conclusions of a jurisdictional "waters of the U.S." (including wetlands) and "waters of the State" determination for the above-referenced project.

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Abstract

Introduction: At the request of the California Department of Parks and Recreation, Off Highway Motor Vehicle Recreation Division (OHMVRD), Michael Baker International (Michael Baker) has prepared this Delineation of Jurisdictional Waters (delineation) for the Carnegie State Vehicular Recreation Area (SVRA) Expansion Area, located in Alameda County, California.

Methods: The field work for this delineation was conducted on November 6-10 and November 13-14, 2017. This delineation documents the regulatory authority of the U.S. Army Corps of Engineers Sacramento District and San Francisco District (Corps), Central Valley and San Francisco Bay Regional Water Quality Control Boards (Regional Board), and California Department of Fish and Wildlife Bay Delta Region (CDFW) pursuant to the Federal Clean Water Act (CWA), California Porter-Cologne Water Quality Control Act, and California Fish and Game Code[1].

Results: State and federal jurisdictional waters were identified within the project site. Approximately 23.71-acres of Corps non-wetland and 0.56-acres wetland waters of the U.S., and 46.50-acres of CDFW streambed and associated vegetation are located within the project site. Table A-1 identifies each regulatory agency's jurisdiction within the project site.

Table A-1. Jurisdictional Summary

Jurisdictional Feature	Corps		Regional Board		CDFW	
	Acres	Linear Feet	Acres	Linear Feet	Acres	Linear Feet
Drainage 1-Corral Hollow Creek	8.24	15,677	8.24	15,677	15.23	15,677
Drainage 2	0.06	1,278	0.06	1,278	0.27	1,278
Drainage 3	0.20	2,223	0.20	2,223	0.20	2,223
Drainage 4	0.11	2,476	0.11	2,476	0.48	2,476
Drainage 5	0.22	2,345	0.22	2,345	1.45	2,345
Drainage 6	0.09	1,777	0.09	1,777	0.69	1,777
Drainage 7-Mitchell Ravine	7.52	6,176	7.52	6,176	8.16	6,176
Drainage 8	0.01	434	0.01	434	0.03	434
Drainage 9	0.03	695	0.03	695	0.03	695
Drainage 10	0.04	834	0.04	834	0.04	834
Drainage 11	0.01	282	0.01	282	0.02	282
Drainage 12	0.01	375	0.01	375	0.01	375

[1] The project area was surveyed pursuant to the Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region, Version 2.0 (Corps 2008); the Practices for Documenting Jurisdiction under Section 404 of the CWA Regional Guidance Letter (Corps 2007); and Minimum Standards for Acceptance of Preliminary Wetland Delineations (Corps 2016).

Jurisdictional Feature	Corps		Regional Board		CDFW	
	Acres	Linear Feet	Acres	Linear Feet	Acres	Linear Feet
Drainage 13	0.01	579	0.01	579	0.01	579
Drainage 14	0.03	421	0.03	421	0.06	421
Drainage 15	0.01	202	0.01	202	0.01	202
Drainage 16	0.96	10,096	0.96	10,096	3.50	10,096
Drainage 17	0.02	712	0.02	712	0.19	712
Drainage 18	0.01	465	0.01	465	0.20	465
Drainage 19	0.01	1,018	0.01	1,018	0.10	1,018
Drainage 20	0.01	315	0.01	315	0.01	315
Drainage 21-Arroyo Seco	0.80	5,838	0.80	5,838	2.95	5,838
Drainage 22	0.01	549	0.01	549	0.01	549
Drainage 23	0.18	1,649	0.18	1,649	0.84	1,649
Drainage 24	0.09	1,267	0.09	1,267	0.29	1,267
Drainage 25	0.03	762	0.03	762	0.11	762
Drainage 26	0.03	1,258	0.03	1,258	0.25	1,258
Drainage 27	0.07	1,599	0.07	1,599	0.15	1,599
Drainage 28	0.13	4,254	0.13	4,254	0.39	4,254
Drainage 29	0.01	582	0.01	582	0.01	582
Drainage 30	0.07	1,731	0.07	1,731	0.17	1,731
Drainage 31	0.01	157	0.01	157	0.01	157
Drainage 32	0.02	783	0.02	783	0.02	783
Drainage 33	0.03	1,649	0.03	1,649	0.32	1,649
Drainage 34	0.04	2,120	0.04	2,120	0.75	2,120
Drainage 35	0.38	7,200	0.38	7,200	1.13	7,200
Drainage 36	0.04	1,738	0.04	1,738	0.13	1,738
Drainage 37	0.39	4,294	0.39	4,294	1.12	4,294
Drainage 38	0.01	361	0.01	361	0.11	361
Drainage 39	0.39	1,259	0.39	1,259	0.80	1,259
Drainage 40	0.09	565	0.09	565	0.62	565
Drainage 41	0.02	3,723	0.02	3,723	0.29	3,723
Drainage 42	0.16	2,781	0.16	2,781	0.35	2,781
Drainage 43	0.23	3,539	0.23	3,539	0.69	3,539
Drainage 44	0.05	1,090	0.05	1,090	0.20	1,090
Drainage 45	0.03	635	0.03	635	0.10	635
Drainage 46	0.02	301	0.02	301	0.08	301
Drainage 47	0.13	2,138	0.13	2,138	0.35	2,138
Drainage 48	0.01	290	0.01	290	0.04	290
Drainage 49	0.07	1,421	0.07	1,421	0.12	1,421
Drainage 50	0.01	389	0.01	389	0.14	389
Drainage 51	0.01	518	0.01	518	0.10	518
Drainage 52	0.04	842	0.04	842	0.10	842

Jurisdictional Feature	Corps		Regional Board		CDFW	
	Acres	Linear Feet	Acres	Linear Feet	Acres	Linear Feet
Refrigerator Pond	0.26	-	0.26	-	0.26	-
Small Pond	0.08	-	0.08	-	0.08	-
Large Pond	0.32	-	0.32	-	0.32	-
Hidden Pond	0.34	-	0.34	-	0.34	-
Sector Pond	0.16	-	0.16	-	0.16	-
Lone Oak Pond	0.06	-	0.06	-	0.06	-
Lucky Find Pond	0.06	-	0.06	-	0.06	-
Skull Pond	0.25	-	0.25	-	0.25	-
Tesla Pond	0.05	-	0.05	-	0.05	-
Sediment Basin	0.32	-	0.32	-	0.32	-
Pond 1	0.02	-	0.02	-	0.02	-
Pond 2	0.10	-	0.10	-	0.10	-
Pond 3	0.37	-	0.37	-	0.37	-
Pond 4	0.10	-	0.10	-	0.10	-
Pond 5	0.02	-	0.02	-	0.02	-
Wetland 1	0.15	-	0.15	-	0.15	-
Wetland 2	0.24	-	0.24	-	0.24	-
Wetland 3	0.05	-	0.05	-	0.05	-
Wetland 4	0.12	-	0.12	-	0.12	-
Total	**24.27**	**105,662**	**24.27**	**105,662**	**46.50**	**105,662**

Conclusion: The following regulatory approvals shall be obtained prior to commencement of construction activities within the identified jurisdictional areas: Corps CWA Section 404 Permit; Regional Board CWA Section 401 Water Quality Certification; and CDFW Section 1602 Streambed Alteration Agreement[2]. This report presents Michael Baker's best effort at determining the jurisdictional boundaries using the most up-to-date regulations, written policy, and guidance from the regulatory agencies; however, as with any jurisdictional delineation, only the regulatory agencies can make a final determination of jurisdiction. Refer to Sections 1 through 7 for a complete discussion.

[2] The CDFW can issue other approvals in-lieu of a formal Agreement such as an Operation-by-Law letter or Letter of Non-Substantial Impact. A formal notification must first be submitted to the CDFW prior to approval.

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LIST OF ACRONYMS

CDFW	California Department of Fish and Wildlife
CEQA	California Environmental Quality Act
CWA	Clean Water Act
EPA	Environmental Protection Agency
GPS	Ground Positioning System
MSL	Mean Sea Level
NWP	Nationwide Permit
OHWM	Ordinary High Water Mark
RPW	Relatively Permanent Water
SAA	Streambed Alteration Agreement
SWANCC	Solid Waste Agency of Northern Cook County
TNW	Traditionally Navigable Water
USDA	United States Department of Agriculture
USFWS	United States Fish and Wildlife Service
USGS	United States Geological Survey
WoUS	Waters of the United States

Section 1 Introduction

This Delineation of Jurisdictional Waters has been prepared for the California Department of Parks and Recreation, Off-Highway Motor Vehicle Recreation Division (OHMVRD), in order to delineate the U.S. Army Corps of Engineers Sacramento and San Francisco Districts' (Corps), Central Valley and San Francisco Bay Regional Water Quality Control Boards' (Regional Board), and California Department of Fish and Wildlife Bay Delta Region's (CDFW) jurisdictional authority located within Carnegie State Vehicular Recreation Area (SVRA) Expansion Area. The field work for this delineation was conducted on November 6-10 and November 13-14, 2017.

The Carnegie SVRA Expansion Area is generally located south and west of Interstate 580 in an unincorporated area of Alameda County, California (refer to Figure 1, *Regional Vicinity*). More specifically the project site is located to the east of the City of Livermore, south and north of Corral Hollow Road (Tesla Road). The Carnegie SVRA Expansion Area is located within Sections 25, 26, 27, 35, 36, Township 3 south, Range 3 east; and Section 1, Township 4 south, Range 3 east, in the USGS *Midway, Cedar Mountain,* and *Altamont, California* Quadrangles (refer Figure 2, *Site Vicinity*).

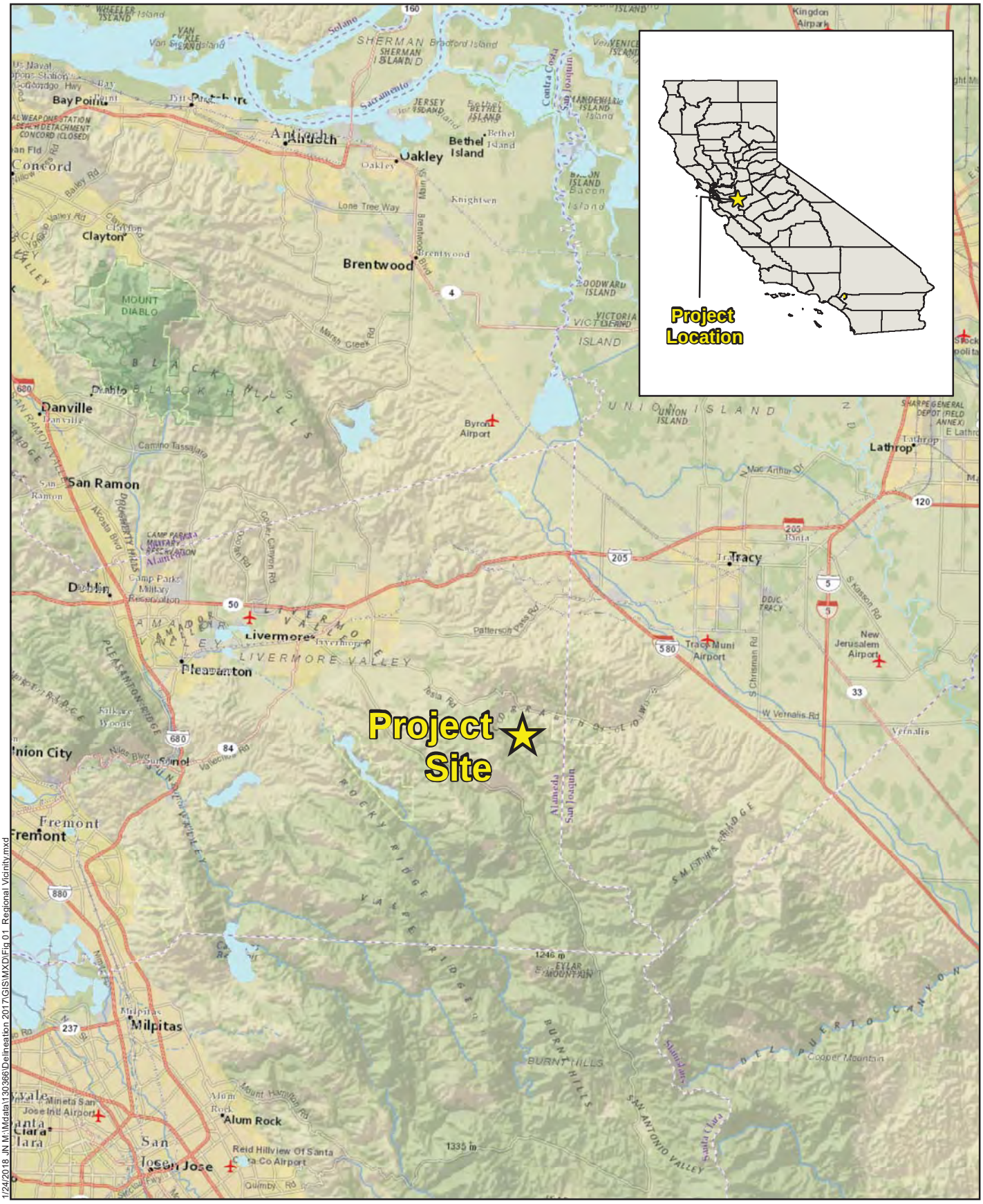
This delineation has been designed to document the authority of the regulatory agencies, explain the methodology undertaken by Michael Baker International (Michael Baker), to document jurisdictional authority, and to support the findings made by Michael Baker within the boundaries of the project site. This report presents our best effort at determining the jurisdictional boundaries using the most up-to-date regulations, written policy, and guidance from the regulatory agencies; however, only the regulatory agencies can make a final determination of jurisdictional boundaries.

1.1 PROJECT SITE BACKGROUND

Corral Hollow Creek, fifty-one tributaries, and fifteen sediment retention basins and ponds are part of the Carnegie SVRA Expansion Area. The survey area for this delineation is approximately 3,449 acres (refer to Figure 3, *Project Site*). In the past, the area was used as the Carnegie Brick and Pottery Company starting in 1902, and then later supported a large cattle grazing operation. Off-road riding in the area started in the early 1940s. In addition, exploration of coal at the Tesla Coal Mine site began in 1855 and from 1896 to 1905, the Tesla Mine was the largest coal producing mine in California. As a result of the mining exhibitions the nearby town of Tesla was established. In the early 1900s, the Tesla mining operation was forced to close due to many disasters. Substantial portions of the Expansion Area have been relatively unused in the past, and are only visited by present day park staff. As off-road recreation gained popularity, Carnegie was purchased by the state in 1979 to create the present-day Carnegie SVRA.

1.2 PROJECT DESCRIPTION

This delineation covers the entire Carnegie SVRA Expansion Area and will be used for site planning associated with future operations, maintenance and/or stand-alone projects.



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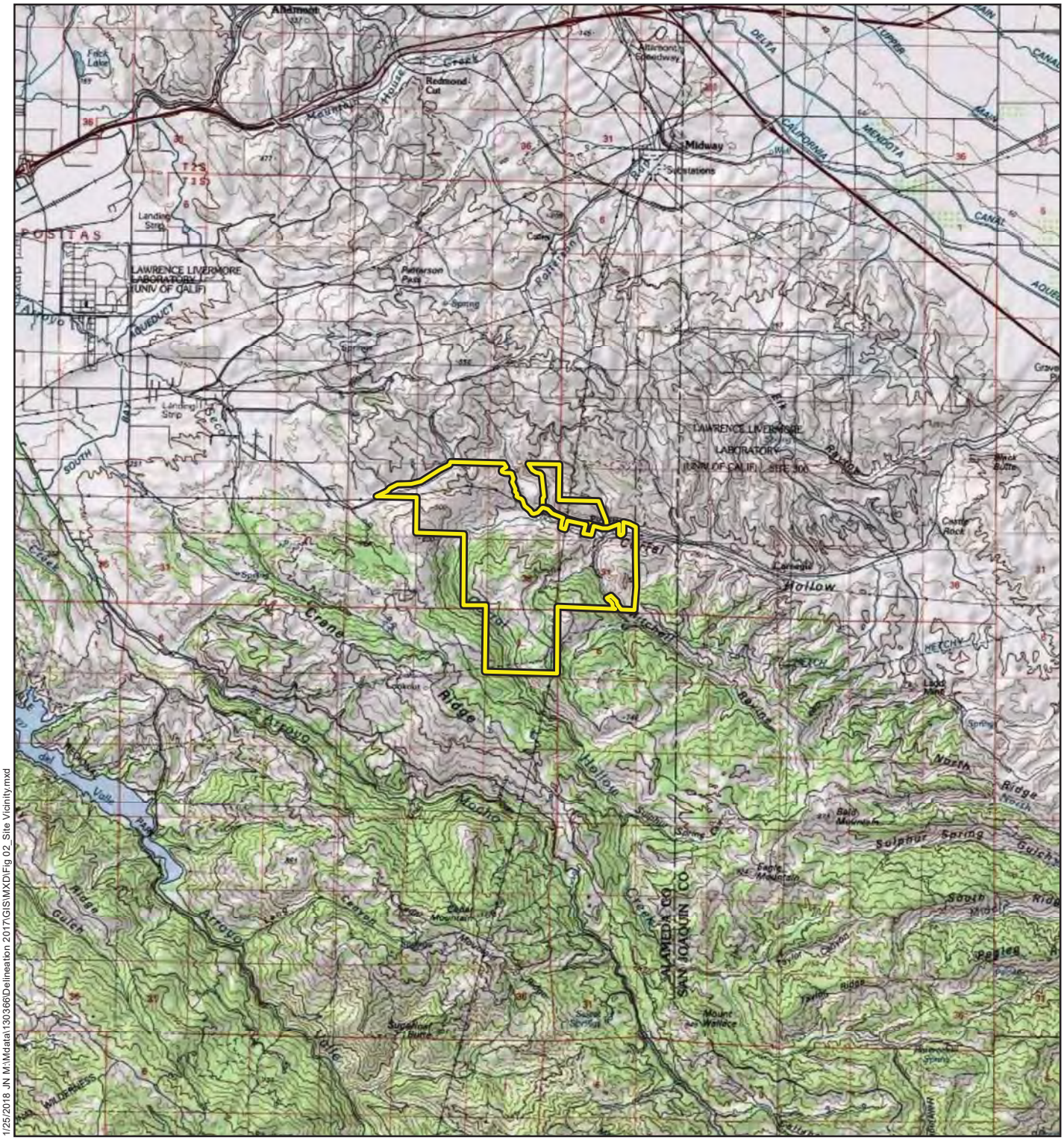
0 5 Miles

CARNEGIE SVRA EXPANSION AREA
DELINEATION OF STATE AND FEDERAL JURISDICTIONAL WATERS

Regional Vicinity

Figure 1



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Legend

Site Boundary

USGS 7.5-Minute topographic quadrangle maps:
Midway (1980), Cedar Mountain (1994), and Altamont (1981), California

Source: ArcGIS Online

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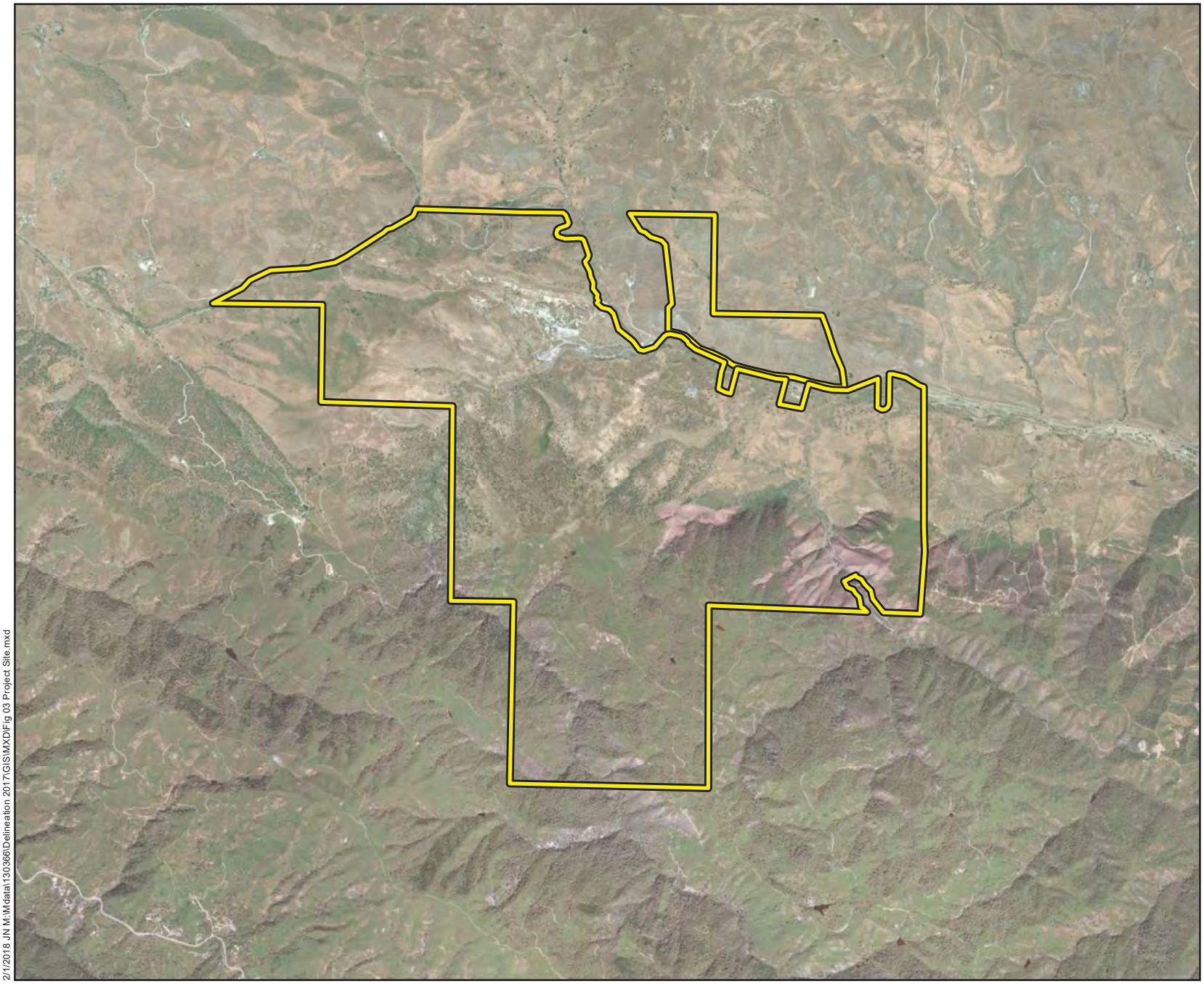
0 2 Miles

CARNEGIE SVRA EXPANSION AREA
DELINEATION OF STATE AND FEDERAL JURISDICTIONAL WATERS

Site Vicinity

Figure 2



Legend

Site Boundary

January 29, 2018

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Miles

Source: ArcGIS Online

2/1/2018 JN M:\M:data\130366\Delineation 2017\GIS\MXD\Fig 03 Project Site.mxd

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CARNEGIE SVRA EXPANSION AREA
DELINEATION OF STATE AND FEDERAL JURISDICTIONAL WATERS

Project Site

Figure 3

Section 2 Summary of Regulations

There are three key agencies that regulate activities within inland streams, wetlands, and riparian areas in California. The Corps Regulatory Division regulates activities pursuant to Section 404 of the Federal Clean Water Act (CWA), Section 10 of the Rivers and Harbors Act, and Section 103 of the Marine Protection, Research and Sanctuaries Act. Of the State agencies, the CDFW regulates activities under the Fish and Game Code Section 1600-1616, and the Regional Board regulates activities pursuant to Section 401 of the CWA and the California Porter-Cologne Water Quality Control Act.

2.1 U.S. ARMY CORPS OF ENGINEERS

Since 1972, the Corps and U.S. Environmental Protection Agency (EPA) have jointly regulated the filling of "waters of the U.S." (WoUS), including wetlands, pursuant to Section 404 of the CWA. The Corps has regulatory authority over the discharge of dredged or fill material into the WoUS under Section 404 of the CWA. The Corps and EPA define "fill material" to include any "material placed in waters of the United States where the material has the effect of: (i) replacing any portion of a water of the United States with dry land; or (ii) changing the bottom elevation of any portion of the waters of the United States." Examples include, but are not limited to, sand, rock, clay, construction debris, wood chips, and "materials used to create any structure or infrastructure in the waters of the United States."

The term WoUS is defined under CWA regulations 33 CFR §328.3(a). Wetlands, a subset of jurisdictional waters, are jointly defined by the Corps and EPA under CWA regulations 33 CFR §328.3(b).

2.2 REGIONAL WATER QUALITY CONTROL BOARD

Applicants for a federal license or permit for activities which may discharge to WoUS must seek Water Quality Certification from the state or Indian tribe with jurisdiction.[3] Such Certification is based on a finding that the discharge will meet water quality standards and other applicable requirements. In California, there are nine Regional Boards that issue or deny Certification for discharges within their geographical jurisdiction. Water Quality Certification must be based on a finding that the proposed discharge will comply with water quality standards, which are defined as numeric and narrative objectives in each Regional Board's Basin Plan. Where applicable, the State Water Resources Control Board has this responsibility for projects affecting waters within multiple Regional Boards. The Regional Board's jurisdiction extends to all waters of the State and to all WoUS, including wetlands.

[3] Title 33, United States Code, Section 1341; Clean Water Act Section.

Additionally, the California Porter-Cologne Water Quality Control Act gives the State very broad authority to regulate waters of the State, which are defined as any surface water or groundwater, including saline waters. The Porter-Cologne Act has become an important tool post *Solid Waste Agency of Northern Cook County v. United States Corps of Engineers*[4] (SWANCC) and *Rapanos v. United States*[5] (Rapanos) court cases regulatory environment, with respect to the state's authority over isolated and insignificant waters. Generally, any person proposing to discharge waste into a water body that could affect its water quality must file a Report of Waste Discharge in the event that there is no Section 404/401 nexus. Although "waste" is partially defined as any waste substance associated with human habitation, the Regional Board also interprets this to include fill discharged into water bodies.

2.3 CALIFORNIA DEPARTMENT OF FISH AND WILDLIFE

California Fish and Game Code Sections 1600-1616 establishes a fee-based process to ensure that projects conducted in and around lakes, rivers, or streams do not adversely impact fish and wildlife resources, or, when adverse impacts cannot be avoided, ensures that adequate mitigation and/or compensation is provided.

Fish and Game Code Section 1602 requires any person, state, or local governmental agency or public utility to notify the CDFW before beginning any activity that will do one or more of the following:

(1) substantially obstruct or divert the natural flow of a river, stream, or lake;

(2) substantially change or use any material from the bed, channel, or bank of a river, stream, or lake; or

(3) deposit or dispose of debris, waste, or other material containing crumbled, flaked, or ground pavement where it can pass into a river, stream, or lake.

Fish and Game Code Section 1602 applies to all perennial, intermittent, and ephemeral rivers, streams, and lakes in the state.

4 Solid Waste Agency of Northern Cook County v. U.S. Army Corps of Engineers, 531 U.S. 159 (2001)
5 Rapanos v. United States, 547 U.S. 715 (2006)

Section 3 Methods

The analysis presented in this document is supported by field surveys and verification of current conditions conducted on November 6-10 and November 13-14, 2017. While in the field, jurisdictional areas were recorded onto a base map at a scale of 1" = 300' using the topographic contours and visible landmarks as guidelines. GIS data was collected through the use of the ArcGIS Collector App for Apple iPads utilizing the "iSX Blue II" external GPS unit to achieve sub meter accuracy. The data collected in the field was stored and accessed from ESRI's ArcGIS Online cloud environment. The jurisdictional map was prepared in ESRI's ArcGIS for Desktop Version 10.3.1.

3.1 WATERS OF THE U.S.

In the absence of adjacent wetlands, the limits of the Corps' jurisdiction in non-tidal waters extend to the OHWM, which is defined in CWA regulations 33 CFR §328.3(e). Indicators of an OHWM are defined in *A Field Guide to the Identification of the Ordinary High Water Mark (OHWM) in the Arid West Region of the Western United States* (Corps 2008). An OHWM can be determined by, but not limited to, the observation of benches, break in bank slope, particle size distribution, sediment deposits, drift, litter, and/or change in plant community. The Regional Board shares the Corps' jurisdictional methodology, unless State Waters are present.

3.2 WATERS OF THE STATE

The Regional Board's jurisdiction is mapped similarly to the Corps, by defining an OHWM and utilizing the three-parameter approach for wetlands (described in Section 3.3).

The CDFW's jurisdiction applies to all perennial, intermittent, and ephemeral rivers, streams, and lakes in the state. The CDFW's regulatory authority extends to include riparian habitat (including wetlands) supported by a river, stream, or lake regardless of the presence or absence of hydric soils and saturated soil conditions. Generally, the CDFW jurisdiction is mapped to the top of bank of the stream or to the outer drip line of the adjacent riparian vegetation, whichever is greater. In areas comprised of a large braided streambed, the active floodplain is mapped as CDFW jurisdiction.

3.3 WETLANDS

For this project location, Corps jurisdictional wetlands are delineated using the methods outlined in the 1987 *Corps of Engineers Wetland Delineation Manual* and the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region, Version 2.0* (Corps, 2008). This document is one of a series of Regional Supplements to the 1987 Corps Wetland Delineation Manual (Corps Manual). According to the Corps

Manual, identification of wetlands is based on a three-parameter approach involving indicators of hydrophytic vegetation, hydric soil, and wetland hydrology. In order to be considered a wetland, an area must exhibit at least minimal characteristics within these three parameters. The Regional Supplement presents wetland indicators, delineation guidance, and other information that is specific to the Arid West Region. In the field, vegetation, soils, and evidence of hydrology have been examined using the appropriate methodology and documented on Corps' wetland data sheets, when applicable. It should be noted that both the Regional Board and the CDFW jurisdictional wetlands encompass those of the Corps.

Section 4 Project Setting

Review of relevant literature and materials often aids in preliminarily identifying areas that may fall under an agency's jurisdiction. A summary of Michael Baker's literature review is provided below (refer to Section 8.0 for a complete list of references used during the course of this delineation).

4.1 WATERSHED REVIEW

Most of the project site is located within the Corral Hollow watershed, within the San Joaquin Delta Watershed (Hydrologic Unit Code 18040003), while an area in the northwestern portion of the project site is located within the Alameda Creek watershed, within the San Francisco Bay Delta Watershed (Hydrological Unit Code 18050004).

The San Francisco Bay Delta Watershed is approximately 75,000 square miles and includes the largest estuary on the west coasts of both North and South America, and contains the only inland delta in the world. The watershed expands approximately 500 miles from the Cascade Range in the north to the Tehachapi Mountains in the south, and is bordered by the Sierra Mountain Range to the east and the Coast Range to the west.

The watershed provides the primary source of drinking water for approximately 25 million Californians, irrigation for 7000 square miles of agriculture, and includes economic resources such as water supply infrastructure, ports, deepwater shipping channels, major highway and railroad corridors, and energy lines.

The San Joaquin River Watershed is approximately 15,880 square miles and is located in between the Sacramento River Watershed to the north and Tulare Basin Watershed to the south. The San Joaquin River watershed is bordered on the east by the Sierra Nevada Mountains and on the west by the Coast Range mountains.

The San Joaquin River is the second longest river in California. It begins in the high Sierra Nevada Mountains and flows approximately 100 miles to the west then turns north flowing for 260 miles where it joins the Sacramento River. Tributary rivers that flow into the San Joaquin River include (from south to north) the Fresno, Chowchilla, Merced, Tuolumne, Stanislaus, Calaveras, Mokelumne, and Cosumnes Rivers.

Water flows in the San Joaquin River have been substantially modified by dams and diversions that remove 95% of the water from the river at Friant Dam. These diversions cause the San Joaquin River to be dry for more than sixty miles of its course. Some stretches of the San Joaquin receive minimal amounts of agricultural and urban runoff. The Delta Mendota Canal was constructed to replenish water in the San Joaquin River by

transporting Sacramento River water to Mendota Pool where it is directed to the San Joaquin River channel and agricultural users.

The land area in the San Joaquin River Watershed is diverse ranging from snow covered peaks to sub-sea level agricultural areas. There are large areas of forest that cover mountain slopes, more than 3,000 square miles of agriculture in the valley, and a human population of two million people living in the major urban centers of Stockton and Fresno, small towns, and rural communities.

4.2 LOCAL CLIMATE

The Carnegie SVRA Expansion Area is located in the eastern foothills (also known as the Altamont Hills) of the California Coast Range, which separates the Livermore Valley to the west from the San Joaquin Valley to the east. The region is within the Mediterranean subtropical climate zone. The climate is generally characterized as mild-to-hot dry summers and mild, wet winters. The dry summer weather results from a semi-permanent subtropical high-pressure system that forces eastward-moving storms well north of California and blocks them from entering the San Joaquin Valley. However, northward surges of tropical moisture occasionally cause summer showers and thunderstorms.

Table 1. Climate Summary[6]

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual
Average Max. Temperature (F)	54.1	61.0	66.7	73.1	80.7	88.0	93.6	92.1	87.9	78.5	64.9	54.7	**74.6**
Average Min. Temperature (F)	36.7	40.0	42.6	45.5	50.4	55.2	57.1	55.7	53.9	48.7	42.1	36.6	**47.0**
Average Total Precipitation (in.)	1.90	1.72	1.37	0.84	0.45	0.09	0.03	0.09	0.22	0.52	1.10	1.55	**9.86**

4.3 USGS TOPOGRAPHIC QUADRANGLE

The USGS 7.5 Minute Series Topographic Quadrangle maps show geological formations and their characteristics, describing the physical setting of an area through contour lines and major surface features including lakes, rivers, streams, buildings, landmarks, and other factors that may fall under an agency's jurisdiction. Additionally, the maps depict topography through color and contour lines, which are helpful in determining elevations and latitude and longitude within a project site.

[6] Western Regional Climate Center, Tracy Carbona, CA (048999), Period of Record: 3/1/1906 to 05/31/2016

Carnegie SVRA Expansion Area is located within Sections 25, 26, 27, 35, 36, Township 3 south, Range 3 east; and Section 1, Township 4 south, Range 3 east, in the USGS *Midway Cedar Mountain,* and *Altamont, California* Quadrangles. On-site topography ranges from approximately 730 to 2,100 feet above mean seal level (msl). According to the topographic map, the majority of the project site and surrounding areas consist of undeveloped land. Eight blue line streams are located throughout the project site, including Corral Hollow Creek and seven unnamed tributaries.

4.4 AERIAL PHOTOGRAPH

Michael Baker reviewed current aerial photographs dated March 11, 2017 from Google Earth Imaging for the project site. Aerial photographs can be useful during the delineation process, as the photographs often indicate drainages and vegetation (i.e. riparian vegetation) present within the boundaries of the project site (if any).

According to the aerial photograph, the survey area consists of undeveloped land not current used for any recreational or non-recreational purposes. The survey area consists of a portion of Corral Hollow Creek, fifty-one tributaries, fifteen existing basins/ponds, and improved and unimproved access/maintenance roads in association with the non-recreational uses of the area. Within the boundaries of the Carnegie SVRA Expansion Area, Corral Hollow Creek and the fifty-one tributaries appear to be sparsely vegetated with trees, shrubs, and grassland. The fifteen existing ponds/basins consist of an unvegetated basin invert primarily surrounded by grasses and shrubs. Surrounding areas are primarily undeveloped consisting of open grassland, chaparral, and oak woodland. Multiple unimproved trails are visible in the surrounding areas due to the recreational uses of the area.

4.5 SOIL SURVEY

Onsite and adjoining soils were researched prior to the field visits using the U.S. Department of Agriculture National Resources Conservation Service (refer to Appendix A, *Documentation*). Soil surveys furnish soil maps and interpretations originally needed in providing technical assistance to farmers and ranchers; in guiding other decisions about soil selection, use and management; and in planning, research and disseminating the results of the research. In addition, soil surveys are now heavily utilized in order to obtain soil information with respect to potential wetland environments and jurisdictional areas (i.e., soil characteristics, drainage, and color). The following soil series has been reported on site:

- **Altamont clay, moderately deep, 30 to 45 percent slopes, eroded (AmE2):** The Altamont series consists of deep, well-drained soils formed from weathered fine-grained sandstone and shale. These soils are found on gently sloping to very steep

uplands. The representative profile includes dark brown (10YR 3/3) when moist clay from 0 to 28 inches, dark yellowish brown (10YR 3/4) when moist clay from 28 to 50 inches, and olive brown (2.5 YR 4/4) when moist silty clay loam from 50 to 65 inches. Permeability is slow and the available water holding capacity is about 4.3 inches. Runoff is very high.

- **Altamont clay, moderately deep, 45 to 75 percent slopes, eroded (AmF2):** The Altamont series is described above.

- **Clear Lake clay, drained, 3 to 7 percent slopes, eroded (CdB):** The Clear Lake series consists of very deep, poorly drained soils formed in fine textured alluvium derived from sandstone and shale. These soils are found in basins and in swales of drainageways. The representative profile includes very dark gray (N 3/0) when moist clay from 0 to 45 inches, and light olive brown (2.5Y 5/4) when moist clay from 45 to 60 inches. Permeability is slow and the available water holding capacity is about 8.4 inches. Runoff is moderate.

- **Cotati fine sandy loam, eroded (CoC2):** The Cotati series consists of very deep, moderately well drained soils formed in material weathered from soft sedimentary rocks. These soils are found on terraces and have slopes of 2 to 30 percent. The representative profile includes dark grayish brown (10YR 4/2) when moist fine sandy loam from 0 to 19 inches, grayish brown (2.5Y 5/2) when moist sandy loam from 19 to 22 inches, light olive brown (2.5Y 5/4) when moist clay from 22 to 35 inches, pale olive (5Y 6/3) when moist clay from 35 to 48 inches, olive (5Y 5/3) clay from 48 to 55 inches, and olive gray (5Y 5/2) when moist clay from 55 to 68 inches. Permeability is slow and the available water holding capacity is about 3.5 inches. Runoff is moderate.

- **Diablo clay, 15 to 30 percent slopes, MLRA 15 (DbD):** The Diablo series consists of well drained soils formed in residuum weathered from shale, sandstone, and consolidated sediments with minor areas of tuffaceous material. These soils are found on complex undulating, rolling to steep uplands. The representative profile includes very dark gray (5Y 3/1) when moist silty clay from 0 to 15 inches, olive gray (5Y 4/2) when moist silty clay from 15 to 50 inches. Permeability is slow and the available water holding capacity is about 9 inches. Runoff is very high.

- **Diablo clay, 30 to 45 percent slopes, eroded (DbE2):** The Diablo series is described above.

- **Diablo clay, moderately deep, 45 to 60 percent slopes, eroded (DmF2):** The Diablo series is described above.

- **Gaviota rocky sandy loam, 40 to 75 percent slopes, eroded (GaF2):** The Gaviota series consists of very shallow or shallow, well drained soils formed in material weathered from hard sandstone or meta-sandstone. These soils are found on hills and mountains. The representative profile includes brown (7.5YR 4/4) when moist gravelly loam from 0 to 10 inches, and pale brown (10YR 6/3) hard meta-sandstone from 10 to 17 inches. Permeability is moderately rapid and the available water holding capacity is about 1.9 inches. Runoff is very high.

- **Linne clay loam, 30 to 45 percent slopes, eroded (LaE2):** The Linne series consists of moderately deep, well drained soils that formed in material weathered from soft shale and sandstone. These soils are found on mountainous uplands and foothills. The representative profile includes black (10YR 2/1) moist clay loam from 0 to 14 inches, very dark gray (10YR 3/1) moist clay loam from 14 to 29 inches, gray and light brownish gray (10YR 5/1 and 6/1) moist sandy clay loam from 29 to 32 inches, very pale brown and white (10YR 7/2 and 8/2) moist fine sandy loam from 32 to 36 inches, and light gray and pale yellow (2.5Y 7/2 and 8/4) moist mudstone from 36 to 51 inches. Permeability is moderately slow and the available water holding capacity is about 6.4 inches. Runoff is medium to very rapid.

- **Los Gatos-Los Osos complex, 30 to 45 percent slopes, eroded (LpE2):** The Los Gatos-Los Osos complex consists of both the Los Gatos and Los Osos series. The Los Gatos series consists of well-drained soils formed from material weathered from sandstone and shale. These soils are found on steep to very steep mountainous areas. The representative profile includes dark brown (7.5YR 3/3) moist light clay loam from 0 to 25 inches, reddish brown (5YR 4/5) moist gravelly clay loam from 25 to 36 inches, and very pale brown (10YR 7/4) sandstone from 36 to 46 inches. Permeability is moderate and the available water holding capacity is about 6.9 inches. Runoff is rapid to very rapid.

  The Los Osos series consists of moderately deep, well drained soils formed in material weathered from sandstone and shale. These soils are found on uplands and have slopes of 5 to 75 percent. The representative profile includes very dark grayish brown (10YR 3/2) moist loam from 0 to 14 inches, dark yellowish brown (10YR 4/4) moist clay from 14 to 32 inches, light olive brown (2.5Y 5/4) moist sandy loam from 32 to 39 inches, and brown (10YR 4/3) moist sandstone from 39 to 43 inches. Permeability is slow and the available water holding capacity is about 4.5 inches. Runoff is very high.

- **Los Gatos-Los Osos complex, 30 to 75 percent slopes, eroded (LpF2):** The Los Gatos and Los Osos series are described above.

- **Los Osos silty clay loam, 30 to 45 percent slopes, eroded (LtE2):** The Los Osos series is described above.

- **Los Osos silty clay loam, 45 to 75 percent slopes, eroded (LtF2):** The Los Osos series is described above.

- **Perkins loam, 3 to 30 percent slopes (PcD):** The Perkins series consists of very deep, well drained soils formed in alluvium derived from mixed rock sources. These soils are found on terraces and have slopes of 0 to 30 percent. The representative profile includes dark brown (7.5YR ¾) when moist loam and clay loam from 0 to 13 inches, dark reddish brown (5YR ¾) when moist clay loam from 13 to 23 inches, reddish brown (5YR 4/4) when moist loam from 23 to 47 inches, yellowish red (5YR 4/6) when moist loam and sandy loam from 47 to 66 inches, and dark reddish brown (5YR ¾) when moist gravely sandy loam from 66 to 72 inches. Permeability is moderately slow and the available water holding capacity is about 8.6 inches. Runoff is moderate.

- **Riverwash (Rh):** Riverwash consists of alluvium derived from sandstone and shale. It is unstabilized sandy, silty, clayey, or gravelly sediment that is flooded, washed, and reworked frequently by rivers.

- **Rock land (RoF):** Rock land consists of alluvium derived from sandstone and shale.

- **Vallecitos rocky loam, 30 to 45 percent slopes, eroded (VaE2):** The Vallecitos series consists of shallow, well-drained soils formed from metamorphic bedrock. These soils are found on hills with slopes ranging from 9 to 75 percent grade. The representative profile includes dark brown (10YR 3/3) when moist gravelly loam from 0 to 6 inches, dark reddish brown (5YR 3/3) when moist clay loam from 6 to 12 inches, and brown (10YR 4/3) when moist clay loam from 12 to 16 inches. Permeability is slow and the available water holding capacity is about 2.1 inches. Runoff is very high.

- **Vallecitos loam, 30 to 75 percent slopes, eroded (VaF2):** The Vallecitos series is described above.

4.6 HYDRIC SOILS LIST OF CALIFORNIA

Michael Baker reviewed the Soil Data Access (SDA) Hydric Soils List, provided by the NRCS, in an effort to verify whether or not on-site soils are considered to be hydric. It should be noted that lists of hydric soils along with soil survey maps are good off-site ancillary tools to assist in wetland determinations, but they are not a substitute for onsite investigations. According to the soils list, Riverwash is listed as hydric.

4.7 NATIONAL WETLANDS INVENTORY

Michael Baker reviewed the U.S. Fish and Wildlife Service's National Wetland Inventory (NWI) maps. Forty wetland features were noted within the project site: six are indicated as Freshwater Emergent Wetland, twelve are indicated as Riverine, six are indicated as Freshwater Forested/Shrub Wetland, and sixteen are indicated as Freshwater Ponds. These wetland features are categorized as: PEM1A (palustrine, emergent, persistent, temporary flooded), PEM1C (palustrine, emergent, persistent, seasonally flooded), PSSA (palustrine, scrub-shrub, temporary flooded), PFOA (palustrine, forested, temporarily flooded), PUBH (palustrine, unconsolidated bottom, permanently flooded), PUBHh (palustrine, unconsolidated bottom, permanently flooded, diked/impounded), PUBFh (palustrine, unconsolidated bottom, semi-permanently flooded, diked impounded), PUBHx (palustrine, unconsolidated bottom, permanently flooded, excavated), PUSCh (palustrine, unconsolidated shore, seasonally flooded, diked/impounded), R4SBA (riverine, intermittent, streambed, temporary flooded), R4SBC (riverine, intermittent, streambed, seasonally flooded), and R5UBF (riverine, unknown perennial, unconsolidated bottom, semi-permanently flooded). Refer to Appendix A for the NWI Maps.

4.8 FLOOD ZONE

Michael Baker searched the Federal Emergency Management Agency (FEMA) website for flood data for the project site. Based on the FEMA Flood Insurance Rate Map (FIRM), there is no flood data available for the Carnegie SVRA Expansion Area.

Section 5 Site Conditions

Michael Baker's Professional Wetland Scientist Lauren Mack, Regulatory Analyst Josephine Lim, and Biologist Stephen Anderson, visited the project site on November 6-10 and November 13-14, 2017 to verify existing conditions and document potential jurisdictional areas. Weather onsite during the fieldwork varied from clear skies and 70 °F, to 50°F with approximately 0.1 inch of rain. Precipitation did not impact the field work or methods. Access limitations onsite consisted of areas of dense poison oak, fenced restricted areas, and areas of sensitive amphibian species. Refer to Appendix B, *On-Site Photographs*, for representative photographs taken throughout the project site.

5.1 NON-WETLAND FEATURES

5.1.1 Corral Hollow Creek

Drainage 1, Corral Hollow Creek, is an intermittent drainage that flows seasonally, approximately five months a year. Corral Hollow Creek ultimately flows out of the project site and into the San Joaquin River, which then flows into the Sacrament-San Joaquin Delta. Corral Hollow Creek is sparsely vegetated and exhibits an earthen substrate consisting of sand, gravel, cobble, and boulders. During the field investigation, surface water was present in portions of the drainage via isolated pooling. Throughout Carnegie SVRA Expansion Area, Corral Hollow Creek conveys flows underneath multiple improved access roads and through multiple concrete and steel culverts. Evidence of an OHWM was observed via a clear natural scour line impressed on the bank, change in particle size distribution, change in vegetation type and cover, and the presence of drift. Corral Hollow Creek measures approximately 27,890 linear feet in length, and ranges from 11 to 50 feet in width for the Corps, and 11 to 75 feet in width for the CDFW.

Sparse vegetation was present along the banks and within the stream channel of Corral Hollow Creek. Native riparian vegetation associated with the creek consisted primarily of mulefat (*Baccharis salicifolia*; FAC) and Fremont cottonwood (*Populus fremontii*; UPL). Additional native vegetation present within Corral Hollow Creek during the site visit included California sagebrush (*Artemisia californica*; UPL), California juniper (*Juniperus californica*; UPL), purple owl's clover (*Castilleja exserta*; UPL), California sycamore (*Platanus racemosa*; FAC), California buckeye (*Aesculus californica*; UPL), gray pine (*Pinus sabiniana*; UPL), poison oak (*Toxicodendron diversilobum*; FACU), California fuchsia (*Epilobium canum*; UPL), toyon (*Heteromeles arbutifolia*; UPL), blue oak (*Quercus douglasii*; UPL), California bee plant (*Scrophularia californica*; FAC), coyote mint (*Monardella villosa*; UPL), vinegar weed (*Trichostema lanceolatum*; FACU), dove weed (*Croton setiger*; UPL), and common gumplant (*Grindelia camporum*; FACW). Non-native species included ripgut brome (*Bromus diandrus*; UPL), wild oat (*Avena fatua*; UPL), annual yellow sweetclover

(*Melilotus indicus*; FACU), black mustard (*Brassica nigra*; UPL), horehound (*Marrubium vulgare*; FACU), foxtail brome (*Bromus madritensis* ssp. *rubens*; UPL), tree tobacco (*Nicotiana glauca*; FAC), Russian thistle (*Salsola tragus*; FACU), rabbits foot grass (*Polypogon imberbis*; UPL), and Italian thistle (*Carduus pycnocephalus*; UPL). Three soil pits were dug within Corral Hollow Creek due to the presence of hydrophytic vegetation (refer to Section 5.2).

5.1.2 Pond 1

Pond 1 is tributary to Corral Hollow Creek via overflow. Open water and bare ground was present within the basin during the site visit. Open water is typically found within Pond 1 from the start of fall rains until mid to late summer.

Vegetation was present along the banks of the basin. Native vegetation present during the site visit included cattail (*Typha* spp.; OBL) and mulefat (FAC). Wetlands were determined to be present within Pond 1 (refer to Section 5.2).

5.1.3 Drainage 2

Drainage 2 is an unnamed ephemeral drainage feature which is completely contained within the Carnegie SVRA Expansion Area. Following significant storm events, surface water is conveyed into Drainage 2 from the surrounding landscape, and into Corral Hollow Creek. Drainage 2 is a direct tributary to Corral Hollow Creek. Drainage 2 exhibits an earthen streambed characterized by substrate consisting of gravel, and cobble. No surface water was observed within Drainage 2; however, evidence of a Corps OHWM was observed via the following; scour, drift/debris, sediment deposition, and changes in terrestrial vegetation. Drainage 2 measures approximately 1,444 linear feet in length, and 2 feet in width for the Corps and 2 feet in width for the CDFW.

The channel invert of Drainage 2 is primarily unvegetated. Native vegetation present along the banks during the site visit included blue oak (UPL), California sagebrush (UPL), California buckeye (UPL), California sycamore (FAC), California foothill pine (UPL), and poison oak (FACU). No dominant hydrophytic vegetation was observed within Drainage 2; therefore, soil samples were not warranted.

5.1.4 Refrigerator Pond

Refrigerator Pond is tributary to Corral Hollow Creek via overflow into Drainage 2. Open water and bare ground was present within the basin during the site visit. Open water is typically found within Refrigerator Pond from the start of fall rains until mid to late summer.

No vegetation was present along the banks of Refrigerator Pond. No dominant hydrophytic vegetation was observed within Refrigerator Pond; therefore, soil samples were not warranted.

5.1.5 Drainage 3

Drainage 3 is an unnamed ephemeral drainage feature which is partially contained within the Carnegie SVRA Expansion Area. Following significant storm events, surface water is conveyed into Drainage 3 from the surrounding landscape, and into Corral Hollow Creek. Drainage 3 is a direct tributary to Corral Hollow Creek. Drainage 3 exhibits an earthen streambed characterized by substrate consisting of gravel, and cobble. No surface water was observed within Drainage 3; however, evidence of a Corps OHWM was observed via the following; scour and changes in terrestrial vegetation. Drainage 3 measures approximately 2,095 linear feet in length, and 4 feet in width for the Corps and 4 feet in width for the CDFW.

The channel invert of Drainage 3 is primarily unvegetated. Native vegetation present along the banks during the site visit included blue oak (UPL), California sagebrush (UPL), California buckeye (UPL), toyon (UPL), poison oak (FACU), and California foothill pine (UPL). No dominant hydrophytic vegetation was observed within Drainage 3; therefore, soil samples were not warranted.

5.1.6 Drainage 4

Drainage 4 is a steep unnamed ephemeral drainage feature which is completely contained within the Carnegie SVRA Expansion Area. Following significant storm events, surface water is conveyed into Drainage 4 from the surrounding landscape, and into Corral Hollow Creek. Drainage 4 is a direct tributary to Corral Hollow Creek. Drainage 4 exhibits an earthen streambed characterized by substrate consisting of gravel, cobble, and boulders. No surface water was observed within Drainage 4; however, evidence of a Corps OHWM was observed via the following; scour and changes in terrestrial vegetation. Drainage 4 measures approximately 2,610 linear feet in length, and 2 feet in width for the Corps and 2 feet in width for the CDFW.

The channel invert of Drainage 4 is primarily unvegetated. Native vegetation present along the banks during the site visit included blue oak (UPL), California sagebrush (UPL), California buckeye (UPL), and poison oak (FACU). Non-native species included ripgut brome (UPL), Italian thistle (UPL), and wild oat (UPL). No dominant hydrophytic vegetation was observed within Drainage 4; therefore, soil samples were not warranted.

5.1.7 Drainage 5

Drainage 5 is an unnamed ephemeral drainage feature which is completely contained within the Carnegie SVRA Expansion Area. Following significant storm events, surface water is conveyed into Drainage 5 from the surrounding landscape, and into Corral Hollow Creek. Drainage 5 is a direct tributary to Corral Hollow Creek. Drainage 5 exhibits an earthen streambed characterized by substrate consisting of gravel and cobble. No surface water was observed within Drainage 5; however, evidence of a Corps OHWM was observed via the following; scour, drift/debris, sediment deposition, and changes in terrestrial vegetation. Drainage 5 measures approximately 2,416 linear feet in length, and 4 feet in width for the Corps and 4 feet in width for the CDFW.

The channel invert of Drainage 5 is primarily unvegetated. Native vegetation present along the banks during the site visit included blue oak (UPL), California sagebrush (UPL), California buckeye (UPL), toyon (UPL), dove weed (UPL), and stinging nettle (*Urtica dioica*; FAC). Non-native species included black mustard (UPL), Italian thistle (UPL), and ripgut brome (UPL). No dominant hydrophytic vegetation was observed within Drainage 5; therefore, soil samples were not warranted.

5.1.8 Drainage 6

Drainage 6 is an unnamed ephemeral drainage feature which is completely contained within the Carnegie SVRA Expansion Area. Following significant storm events, surface water is conveyed into Drainage 6 from the surrounding landscape, and into Drainage 5. Drainage 6 is a direct tributary to Drainage 5. Drainage 6 exhibits an earthen streambed characterized by substrate consisting of gravel, and cobble. No surface water was observed within Drainage 6; however, evidence of a Corps OHWM was observed via the following; scour and changes in terrestrial vegetation. Drainage 6 measures approximately 1,406 linear feet in length, and ranges from 2 to 4 feet in width for the Corps and 2 to 4 feet in width for the CDFW.

The channel invert of Drainage 6 is primarily unvegetated. Native vegetation present along the banks during the site visit included blue oak (UPL), California sagebrush (UPL), California juniper (UPL), California buckeye (UPL), and toyon (UPL). Non-native species included wild oat (UPL), Italian thistle (UPL), ripgut brome (UPL), and foxtail brome (UPL). No dominant hydrophytic vegetation was observed within Drainage 6; therefore, soil samples were not warranted.

5.1.9 Small Pond

Small Pond is tributary to Corral Hollow Creek via overflow into Drainage 5. Open water and bare ground was present within the basin during the site visit. Open water is typically found within Small Pond from the start of fall rains until mid to late summer.

No vegetation was present along the banks of Small Pond. No dominant hydrophytic vegetation was observed within Small Pond; therefore, soil samples were not warranted.

5.1.10 Large Pond

Large Pond is tributary to Corral Hollow Creek via overflow into Small Pond. Open water and bare ground was present within the basin during the site visit. Open water is typically found within Large Pond from the start of fall rains until mid to late summer.

No vegetation was present along the banks of Large Pond. No dominant hydrophytic vegetation was observed within Large Pond; therefore, soil samples were not warranted.

5.1.11 Drainage 7

Drainage 7, Mitchell Ravine, is an intermittent drainage feature which is completely contained within the Carnegie SVRA Expansion Area. Following significant storm events, surface water is conveyed into Drainage 7 from the surrounding landscape, and into Corral Hollow Creek. Drainage 7 is a direct tributary to Corral Hollow Creek. Drainage 7 exhibits an earthen streambed characterized by substrate consisting of sand, gravel, cobble, and boulders. No surface water was observed within Drainage 7; however, evidence of a Corps OHWM was observed via the following; scour, drift/debris, sediment deposition, and changes in terrestrial vegetation. Drainage 7 measures approximately 6,123 linear feet in length, and ranges from 10 to 120 feet in width for the Corps and 10 to 120 feet in width for the CDFW.

The channel invert of Drainage 7 is primarily unvegetated. Native vegetation present along the banks during the site visit included coyote brush (*Baccharis pilularis*; UPL), common gumplant (FACW), California fuchsia (UPL), black sage (*Salvia mellifera*; UPL), blue elderberry (*Sambucus nigra* ssp. *caerulea*; FACU), Fremont cottonwood (UPL), California buckwheat (*Eriogonum fasciculatum*; UPL), toyon (UPL), sticky monkey flower (*Mimulus aurantiacus* var. *aurantiacus*; UPL), California yerba santa (*Eriodictyon californica*; UPL), California foothill pine (UPL), California juniper (UPL), poison oak (FACU), California sycamore (FAC), Fremont's bush mallow (*Malacothamnus fremontii*; UPL), blue oak (UPL), California sagebrush (UPL), and dove weed (UPL). Non-native species included black mustard (UPL), tree tobacco (FAC), Italian thistle (UPL), and ripgut brome (UPL). One soil pit was dug within Drainage 7 due to the presence of hydrophytic vegetation (refer to Section 5.2).

5.1.12 Drainage 8

Drainage 8 is an unnamed ephemeral drainage feature which is completely contained within the Carnegie SVRA Expansion Area. Following significant storm events, surface water is conveyed into Drainage 8 from the surrounding landscape, and into Drainage 7. Drainage 8

is a direct tributary to Drainage 7. Drainage 8 exhibits an earthen streambed characterized by substrate consisting of sand, gravel, and cobble. No surface water was observed within Drainage 8; however, evidence of a Corps OHWM was observed via the following; scour and changes in terrestrial vegetation. Drainage 8 measures approximately 527 linear feet in length, and ranges from 1 to 2 feet in width for the Corps and 1 to 2 feet in width for the CDFW.

The channel invert of Drainage 8 is primarily unvegetated. Native vegetation present along the banks during the site visit included California buckeye (UPL), blue oak (UPL), coyote brush (UPL), toyon (UPL), Fremont's bush mallow (UPL), sticky monkey flower (UPL), and poison oak (FACU). Non-native species included short-podded mustard (*Hirschfeldia incana*; UPL), wild oat (UPL), and Italian thistle (UPL). No dominant hydrophytic vegetation was observed within Drainage 8; therefore, soil samples were not warranted.

5.1.13 Drainage 9

Drainage 9 is an unnamed ephemeral drainage feature which is completely contained within the Carnegie SVRA Expansion Area. Following significant storm events, surface water is conveyed into Drainage 9 from the surrounding landscape, and into Drainage 7. Drainage 9 is a direct tributary to Drainage 7. Drainage 9 exhibits an earthen streambed characterized by substrate consisting of sand, gravel, and cobble. No surface water was observed within Drainage 9; however, evidence of a Corps OHWM was observed via the following; scour, sediment deposition, and changes in terrestrial vegetation. Drainage 9 measures approximately 633 linear feet in length, and ranges from 1 to 3 feet in width for the Corps and 1 to 3 feet in width for the CDFW.

The channel invert of Drainage 9 is primarily unvegetated. Native vegetation present along the banks during the site visit included coyote brush (UPL), black sage (UPL), sticky monkey flower (UPL), poison oak (FACU), Fremont's bush mallow (*Malacothamnus fremontii*; UPL), and California sagebrush (UPL). Non-native species included, short-podded mustard (UPL), Italian thistle (UPL), and ripgut brome (UPL). No dominant hydrophytic vegetation was observed within Drainage 9; therefore, soil samples were not warranted.

5.1.14 Drainage 10

Drainage 10 is an unnamed ephemeral drainage feature which is completely contained within the Carnegie SVRA Expansion Area. Following significant storm events, surface water is conveyed into Drainage 10 from the surrounding landscape, and into Drainage 7. Drainage 10 is a direct tributary to Drainage 7. Drainage 10 exhibits an earthen streambed characterized by substrate consisting of sand, gravel, and cobble. No surface water was observed within Drainage 10; however, evidence of a Corps OHWM was observed via the following; scour, sediment deposition, and changes in terrestrial vegetation. Drainage 10

measures approximately 897 linear feet in length, and 2 feet in width for the Corps and 2 feet in width for the CDFW.

The channel invert of Drainage 10 is primarily unvegetated. Native vegetation present along the banks during the site visit included coyote brush (UPL), California buckeye (UPL), black sage (UPL), sticky monkey flower (UPL), poison oak (FACU), Fremont's bush mallow (UPL), blue oak (UPL), California sagebrush (UPL), and desert olive (*Forestiera pubescens*; UPL). Non-native species included Italian thistle (UPL). No dominant hydrophytic vegetation was observed within Drainage 10; therefore, soil samples were not warranted.

5.1.15 Drainage 11

Drainage 11 is an unnamed ephemeral drainage feature which is completely contained within the Carnegie SVRA Expansion Area. Following significant storm events, surface water is conveyed into Drainage 11 from the surrounding landscape, and into Drainage 7. Drainage 11 is a direct tributary to Drainage 7. Drainage 11 exhibits an earthen streambed characterized by substrate consisting of sand, gravel, and cobble. No surface water was observed within Drainage 11; however, evidence of a Corps OHWM was observed via the following; scour, sediment deposition, and changes in terrestrial vegetation. Drainage 11 measures approximately 558 linear feet in length, and 1 foot in width for the Corps and 1 foot in width for the CDFW.

The channel invert of Drainage 11 is primarily unvegetated. Native vegetation present along the banks during the site visit included black sage (UPL), sticky monkey flower (UPL), Fremont's bush mallow (UPL), California yerba santa (UPL), and California sagebrush (UPL). Non-native species included black mustard (UPL), Italian thistle (UPL), and milk thistle (*Silybum marianum*; UPL). No dominant hydrophytic vegetation was observed within Drainage 11; therefore, soil samples were not warranted.

5.1.16 Drainage 12

Drainage 12 is an unnamed ephemeral drainage feature which is completely contained within the Carnegie SVRA Expansion Area. Following significant storm events, surface water is conveyed into Drainage 12 from the surrounding landscape, and into Drainage 11. Drainage 12 is a direct tributary to Drainage 11. Drainage 12 exhibits an earthen streambed characterized by substrate consisting of sand, gravel, and cobble. No surface water was observed within Drainage 12; however, evidence of a Corps OHWM was observed via the following; scour, sediment deposition, and changes in terrestrial vegetation. Drainage 12 measures approximately 445 linear feet in length, and 1 foot in width for the Corps and 1 foot in width for the CDFW.

The channel invert of Drainage 12 is primarily unvegetated. Native vegetation present along the banks during the site visit included black sage (UPL), sticky monkey flower (UPL),

Fremont's bush mallow (UPL), California yerba santa (UPL), and California sagebrush (UPL). Non-native species included black mustard (UPL), Italian thistle (UPL), and milk thistle (UPL). No dominant hydrophytic vegetation was observed within Drainage 12; therefore, soil samples were not warranted.

5.1.17 Drainage 13

Drainage 13 is an unnamed ephemeral drainage feature which is completely contained within the Carnegie SVRA Expansion Area. Following significant storm events, surface water is conveyed into Drainage 13 from the surrounding landscape, and into Drainage 7. Drainage 13 is a direct tributary to Drainage 7. Drainage 13 exhibits an earthen streambed characterized by substrate consisting of sand, gravel, cobble, and boulders. No surface water was observed within Drainage 13; however, evidence of a Corps OHWM was observed via the following; scour and changes in terrestrial vegetation. Drainage 13 measures approximately 744 linear feet in length, and 1 feet in width for the Corps and 1 feet in width for the CDFW.

The channel invert of Drainage 13 is primarily vegetated. Native vegetation present along the banks during the site visit included blue oak (UPL), and California sagebrush (UPL). Non-native species included wild oat (UPL), foxtail brome (UPL), and ripgut brome (UPL). No dominant hydrophytic vegetation was observed within Drainage 13; therefore, soil samples were not warranted.

5.1.18 Drainage 14

Drainage 14 is an unnamed ephemeral drainage feature which is completely contained within the Carnegie SVRA Expansion Area. Following significant storm events, surface water is conveyed into Drainage 14 from the surrounding landscape, and into Drainage 7. Drainage 14 is a direct tributary to Drainage 7. Drainage 14 exhibits an earthen streambed characterized by substrate consisting of sand, gravel, cobble, and boulders. No surface water was observed within Drainage 14; however, evidence of a Corps OHWM was observed via the following; scour, sediment deposition, and changes in terrestrial vegetation. Drainage 14 measures approximately 444 linear feet in length, and ranges from 1 to 10 feet in width for the Corps and 1 to 10 feet in width for the CDFW.

The channel invert of Drainage 14 is primarily unvegetated. Native vegetation present along the banks during the site visit included California buckeye (UPL), California juniper (UPL), Fremont's bush mallow (UPL), blue oak (UPL). Non-native species included black mustard (UPL), wild oat (UPL), Italian thistle (UPL), and ripgut brome (UPL). No dominant hydrophytic vegetation was observed within Drainage 14; therefore, soil samples were not warranted.

5.1.19 Drainage 15

Drainage 15 is an unnamed ephemeral drainage feature which flows offsite. Following significant storm events, surface water is conveyed into Drainage 15 from the surrounding landscape, and offsite into Drainage 7. Drainage 15 is a direct tributary to Drainage 7. Drainage 15 exhibits an earthen streambed characterized by substrate consisting of sand, gravel, cobble, and boulders. No surface water was observed within Drainage 15; however, evidence of a Corps OHWM was observed via the following; scour, drift/debris, sediment deposition, and changes in terrestrial vegetation. Drainage 15 measures approximately 318 linear feet in length, and 1 feet in width for the Corps and 1 feet in width for the CDFW.

The channel invert of Drainage 15 is primarily unvegetated. Native vegetation present along the banks during the site visit included toyon (UPL), sticky monkey flower (UPL), California juniper (UPL), poison oak (FACU), Fremont's bush mallow (UPL), and California sagebrush (UPL). No dominant hydrophytic vegetation was observed within Drainage 15; therefore, soil samples were not warranted.

5.1.20 Drainage 16

Drainage 16 is an unnamed ephemeral drainage feature which is completely contained within the Carnegie SVRA Expansion Area. Following significant storm events, surface water is conveyed into Drainage 16 from the surrounding landscape, and into Drainage 7. Drainage 16 is a direct tributary to Drainage 7. Drainage 16 exhibits an earthen streambed characterized by substrate consisting of sand, gravel, cobble, and boulders. No surface water was observed within Drainage 16; however, evidence of a Corps OHWM was observed via the following; scour, drift/debris, sediment deposition, and changes in terrestrial vegetation. Drainage 16 measures approximately 8,344 linear feet in length, and ranges from 1 to 5 feet in width for the Corps and 1 to 20 feet in width for the CDFW.

The channel invert of Drainage 16 is primarily unvegetated. Native vegetation present along the banks during the site visit included desert olive (UPL), California wild rose (*Rosa californica*; FAC), California buckeye (UPL), coyote brush (UPL), arroyo willow (*Salix lasiolepis*; FACW), black sage (UPL), blue elderberry (FACU), Fremont cottonwood (UPL), toyon (UPL), sticky monkey flower (UPL), California yerba santa (UPL), California juniper (UPL), poison oak (FACU), blue oak (UPL), and California sagebrush (UPL). Non-native species included wild oat (UPL), foxtail brome (UPL), and ripgut brome (UPL). No dominant hydrophytic vegetation was observed within Drainage 16; therefore, soil samples were not warranted.

5.1.21 Hidden Pond

Hidden Pond is tributary to Corral Hollow Creek via overflow into Drainage 16. Open water and bare ground was present within the basin during the site visit. Open water is typically found within Hidden Pond from the start of fall rains until mid to late summer.

No vegetation was present along the banks of Hidden Pond. No dominant hydrophytic vegetation was observed within Hidden Pond; therefore, soil samples were not warranted.

5.1.22 Drainage 17

Drainage 17 is an unnamed ephemeral drainage feature which is completely contained within the Carnegie SVRA Expansion Area. Following significant storm events, surface water is conveyed into Drainage 17 from the surrounding landscape, and into Drainage 16. Drainage 17 is a direct tributary to Drainage 16. Drainage 17 exhibits an earthen streambed characterized by substrate consisting of sand, gravel, and cobble. No surface water was observed within Drainage 17; however, evidence of a Corps OHWM was observed via the following; scour and changes in terrestrial vegetation. Drainage 17 measures approximately 838 linear feet in length, and 1 foot in width for the Corps and 1 foot in width for the CDFW.

The channel invert of Drainage 17 is primarily unvegetated. Native vegetation present along the banks during the site visit included California juniper (UPL) and blue oak (UPL). Non-native species included black mustard (UPL), tree tobacco (FAC), Italian thistle (UPL), wild oat (UPL), foxtail brome (UPL), and ripgut brome (UPL). No dominant hydrophytic vegetation was observed within Drainage 17; therefore, soil samples were not warranted.

5.1.23 Drainage 18

Drainage 18 is an unnamed ephemeral drainage feature which is completely contained within the Carnegie SVRA Expansion Area. Following significant storm events, surface water is conveyed into Drainage 18 from the surrounding landscape, and into Drainage 16. Drainage 18 is a direct tributary to Drainage 16. Drainage 18 exhibits an earthen streambed characterized by substrate consisting of sand, gravel, and cobble. No surface water was observed within Drainage 18; however, evidence of a Corps OHWM was observed via the following; scour and changes in terrestrial vegetation. Drainage 18 measures approximately 520 linear feet in length, and 1 foot in width for the Corps and 1 foot in width for the CDFW.

The channel invert of Drainage 18 is primarily unvegetated. Native vegetation present along the banks during the site visit included blue oak (UPL). Non-native species included black mustard (UPL), tree tobacco (FAC), Italian thistle (UPL), wild oat (UPL), foxtail brome (UPL), and ripgut brome (UPL). No dominant hydrophytic vegetation was observed within Drainage 18; therefore, soil samples were not warranted.

5.1.24 Drainage 19

Drainage 19 is an unnamed ephemeral drainage feature which is completely contained within the Carnegie SVRA Expansion Area. Following significant storm events, surface water is conveyed into Drainage 19 from the surrounding landscape, and into Drainage 16. Drainage 19 is a direct tributary to Drainage 16. Drainage 19 exhibits an earthen streambed characterized by substrate consisting of sand, gravel, cobble, and boulders. No surface water was observed within Drainage 19; however, evidence of a Corps OHWM was observed via the following; scour, sediment deposition, and changes in terrestrial vegetation. Drainage 19 measures approximately 616 linear feet in length, and ranges from 1 to 2 feet in width for the Corps and 1 to 2 feet in width for the CDFW.

The channel invert of Drainage 19 is primarily unvegetated. Native vegetation present along the banks during the site visit included California buckeye (UPL), California juniper (UPL), poison oak (FACU), and blue oak (UPL). Non-native species included Italian thistle (UPL), wild oat (UPL), foxtail brome (UPL), and ripgut brome (UPL). No dominant hydrophytic vegetation was observed within Drainage 19; therefore, soil samples were not warranted.

5.1.25 Pond 2

Pond 2 is tributary to Drainage 19 via overflow. Open water and bare ground was present within the basin during the site visit. Open water is typically found within Pond 2 from the start of fall rains until mid to late summer.

No vegetation was present along the banks of Pond 2. No dominant hydrophytic vegetation was observed within Pond 2; therefore, soil samples were not warranted.

5.1.26 Drainage 20

Drainage 20 is an unnamed ephemeral drainage feature which is completely contained within the Carnegie SVRA Expansion Area. Following significant storm events, surface water is conveyed into Drainage 20 from the surrounding landscape, and into Drainage 16. Drainage 20 is a direct tributary to Drainage 16. Drainage 20 exhibits an earthen streambed characterized by substrate consisting of sand, gravel, cobble, and boulders. No surface water was observed within Drainage 20; however, evidence of a Corps OHWM was observed via the following; scour, sediment deposition, and changes in terrestrial vegetation. Drainage 20 measures approximately 400 linear feet in length, and 2 feet in width for the Corps and 2 feet in width for the CDFW.

The channel invert of Drainage 20 is primarily unvegetated. Native vegetation present along the banks during the site visit included blue oak (UPL) and California sagebrush (UPL). Non-native species included Italian thistle (UPL), wild oat (UPL), foxtail brome (UPL), and ripgut

brome (UPL). No dominant hydrophytic vegetation was observed within Drainage 20; therefore, soil samples were not warranted.

5.1.27 Drainage 21

Drainage 21, Arroyo Seco, is an ephemeral drainage feature which is partially contained within the Carnegie SVRA Expansion Area. Following significant storm events, surface water is conveyed into Drainage 21 from the surrounding landscape, downstream out of the park boundary into Alameda Creek, and eventually into the San Francisco Bay. Drainage 21 exhibits an earthen streambed characterized by substrate consisting of sand, gravel, and cobble. Some isolated pooling was observed within Drainage 21; evidence of a Corps OHWM was observed via the following; scour, drift/debris, sediment deposition, and changes in terrestrial vegetation. Drainage 21 measures approximately 5,197 linear feet in length, and ranges from 3 to 30 feet in width for the Corps and 5 to 30 feet in width for the CDFW.

The channel invert of Drainage 21 is primarily unvegetated. Native vegetation present along the banks during the site visit included valley oak (*Quercus lobata*; FACU), Fremont cottonwood (UPL), cocklebur (*Xanthium strumarium*; FAC), jimson weed (*Datura wrightii*; UPL), hollyleaf coffeeberry (*Rhamnus ilicifolia*; UPL), poison oak (FACU), blue oak (UPL), arroyo willow (FACW), salt grass (*Distichlis spicata*; FAC), red willow (*Salix laevigata*; FACW), and California sagebrush (UPL). Non-native species included black mustard (UPL), tree tobacco (FAC), Italian thistle (UPL), bristly ox-tongue (*Helminthotheca echioides*; FAC), tamarisk (*Tamarix ramosissima*; UPL), Russian thistle (FACU), yellow star thistle (*Centaurea solstitialis*; UPL), stinkwort (*Dittrichia graveolens*; UPL), foxtail brome (UPL), wild oat (UPL), and ripgut brome (UPL). One soil pit was dug within Drainage 21 due to the presence of hydrophytic vegetation (refer to Section 5.2).

5.1.28 Drainage 22

Drainage 22 is an unnamed ephemeral drainage feature which is completely contained within the Carnegie SVRA Expansion Area. Following significant storm events, surface water is conveyed into Drainage 22 from the surrounding landscape, and into Drainage 21. Drainage 22 is a direct tributary to Drainage 21. Drainage 22 exhibits an earthen streambed characterized by substrate consisting of sand and gravel. No surface water was observed within Drainage 22; however, evidence of a Corps OHWM was observed via the following; scour and changes in terrestrial vegetation. Drainage 22 measures approximately 526 linear feet in length, and 1 feet in width for the Corps and 1 feet in width for the CDFW.

The channel invert of Drainage 22 is primarily unvegetated. Native vegetation present along the banks during the site visit included poison oak (FACU). Non-native species included

Italian thistle (UPL), foxtail brome (UPL) and ripgut brome (UPL). No dominant hydrophytic vegetation was observed within Drainage 22; therefore, soil samples were not warranted.

5.1.29 Drainage 23

Drainage 23 is an unnamed ephemeral drainage feature which is completely contained within the Carnegie SVRA Expansion Area. Following significant storm events, surface water is conveyed into Drainage 23 from the surrounding landscape, and into Drainage 21. Drainage 23 is a direct tributary to Drainage 21. Drainage 23 exhibits an earthen streambed characterized by substrate consisting of sand and gravel. No surface water was observed within Drainage 23; however, evidence of a Corps OHWM was observed via the following; scour and changes in terrestrial vegetation. Drainage 23 measures approximately 1,792 linear feet in length, and ranges from 2 to 10 feet in width for the Corps and 4 to 10 feet in width for the CDFW.

The channel invert of Drainage 23 is primarily unvegetated. Native vegetation present along the banks during the site visit included blue oak (UPL). Non-native species included tree tobacco (FAC), Italian thistle (UPL), wild oat (UPL), foxtail brome (UPL), and ripgut brome (UPL). No dominant hydrophytic vegetation was observed within Drainage 23; therefore, soil samples were not warranted.

5.1.30 Drainage 24

Drainage 24 is an unnamed ephemeral drainage feature which is completely contained within the Carnegie SVRA Expansion Area. Following significant storm events, surface water is conveyed into Drainage 24 from the surrounding landscape, and into Drainage 21. Drainage 24 is a direct tributary to Drainage 21. Drainage 24 exhibits an earthen streambed characterized by substrate consisting of sand and gravel. No surface water was observed within Drainage 24; however, evidence of a Corps OHWM was observed via the following; scour, and changes in terrestrial vegetation. Drainage 24 measures approximately 1,399 linear feet in length, and 3 feet in width for the Corps and 10 feet in width for the CDFW.

The channel invert of Drainage 24 is primarily unvegetated. Native vegetation present along the banks during the site visit included. Non-native species included black mustard (UPL), tree tobacco (FAC), Italian thistle (UPL), wild oat (UPL), foxtail brome (UPL), and ripgut brome (UPL). No dominant hydrophytic vegetation was observed within Drainage 24; therefore, soil samples were not warranted.

5.1.31 Drainage 25

Drainage 25 is an unnamed ephemeral drainage feature which is completely contained within the Carnegie SVRA Expansion Area. Following significant storm events, surface water is conveyed into Drainage 25 from the surrounding landscape, and into Drainage 21.

Drainage 25 is a direct tributary to Drainage 21. Drainage 25 exhibits an earthen streambed characterized by substrate consisting of sand and gravel. No surface water was observed within Drainage 25; however, evidence of a Corps OHWM was observed via the following; scour and changes in terrestrial vegetation. Drainage 25 measures approximately 918 linear feet in length, and 2 feet in width for the Corps and 6 feet in width for the CDFW.

The channel invert of Drainage 25 is primarily unvegetated. Native vegetation present along the banks during the site visit included valley oak (FACU) and blue oak (UPL). Non-native species included Italian thistle (UPL), wild oat (UPL), foxtail brome (UPL), and ripgut brome (UPL). No dominant hydrophytic vegetation was observed within Drainage 25; therefore, soil samples were not warranted.

5.1.32 Drainage 26

Drainage 26 is an unnamed ephemeral drainage feature which is completely contained within the Carnegie SVRA Expansion Area. Following significant storm events, surface water is conveyed into Drainage 26 from the surrounding landscape, and into Drainage 21. Drainage 26 is a direct tributary to Drainage 21. Drainage 26 exhibits an earthen streambed characterized by substrate consisting of sand, gravel, and cobble. No surface water was observed within Drainage 26; however, evidence of a Corps OHWM was observed via the following; scour and changes in terrestrial vegetation. Drainage 26 measures approximately 1,193 linear feet in length, and 1 foot in width for the Corps and ranges from 1 to 10 feet in width for the CDFW.

The channel invert of Drainage 26 is primarily unvegetated. Native vegetation present along the banks during the site visit included valley oak (FACU) and toyon (UPL). Non-native species included Italian thistle (UPL), wild oat (UPL), foxtail brome (UPL), and ripgut brome (UPL). No dominant hydrophytic vegetation was observed within Drainage 26; therefore, soil samples were not warranted.

5.1.33 Drainage 27

Drainage 27 is an unnamed ephemeral drainage feature which is partially contained within the Carnegie SVRA Expansion Area. Following significant storm events, surface water is conveyed into Drainage 27 from the surrounding landscape, downstream out of the park boundary, and eventually into Corral Hollow Creek. Drainage 27 exhibits an earthen streambed characterized by substrate consisting of sand, gravel, and cobble. No surface water was observed within Drainage 27; however, evidence of a Corps OHWM was observed via the following; scour, drift/debris, sediment deposition, and changes in terrestrial vegetation. Drainage 27 measures approximately 1,831 linear feet in length, and 2 feet in width for the Corps and 3 feet in width for the CDFW.

The channel invert of Drainage 27 is primarily unvegetated. Native vegetation present along the banks during the site visit included black sage (UPL), poison oak (FACU), blue oak (UPL), and California sagebrush (UPL). Non-native species included black mustard (UPL), Italian thistle (UPL), wild oat (UPL), foxtail brome (UPL), and ripgut brome (UPL). No dominant hydrophytic vegetation was observed within Drainage 27; therefore, soil samples were not warranted.

5.1.34 Sector Pond

Sector Pond is a water body within the Carnegie SVRA Expansion Area. Bare ground was present within the basin during the site visit. Open water is typically found within Sector Pond from the start of fall rains until mid to late summer.

Vegetation was present along the banks of the pond. Native vegetation present during the site visit included mulefat (FAC), cattail (OBL), and Fremont cottonwood (UPL). Wetlands were determined to be present within Sector Pond (refer to Section 5.2).

5.1.35 Drainage 28

Drainage 28 is an unnamed ephemeral drainage feature which is partially contained within the Carnegie SVRA Expansion Area. Following significant storm events, surface water is conveyed into Drainage 28 from the surrounding landscape, and into Corral Hollow Creek. Drainage 28 is a direct tributary to Corral Hollow Creek via sheet flow. Drainage 28 exhibits an earthen streambed characterized by substrate consisting of sand, gravel, and cobble. No surface water was observed within Drainage 28; however, evidence of a Corps OHWM was observed via the following; scour, sediment deposition, and changes in terrestrial vegetation. Drainage 28 measures approximately 3,770 linear feet in length, and ranges from 1 to 5 feet in width for the Corps and 3 to 10 feet in width for the CDFW.

The channel invert of Drainage 28 is primarily unvegetated. Native vegetation present along the banks during the site visit included cattail (OBL), Fremont cottonwood (UPL), cocklebur (FAC), toyon (UPL), coast live oak (Quercus agrifolia; UPL), jimson weed (UPL), salt grass (FAC), California sagebrush (UPL), and dove weed (UPL). Non-native species included black mustard (UPL), tree tobacco (FAC), milk thistle (UPL), horehound (FACU), Russian thistle (FACU). No dominant hydrophytic vegetation was observed within Drainage 28; therefore, soil samples were not warranted.

5.1.36 Pond 3

Pond 3 is tributary to Corral Hollow Creek via overflow into Drainage 28. Open water was present within the pond during the site visit. Open water is typically found within Pond 3 from the start of fall rains until mid to late summer.

Vegetation was present along the banks of the pond. Native vegetation present during the site visit included cattail (OBL). Non-native species included milk thistle (UPL), black mustard (UPL), and Russian thistle (FACU). Wetlands were determined to be present within Pond 3 (refer to Section 5.2).

5.1.37 Drainage 29

Drainage 29 is an unnamed ephemeral drainage feature which is completely contained within the Carnegie SVRA Expansion Area. Following significant storm events, surface water is conveyed into Drainage 29 from the surrounding landscape, and into Drainage 28. Drainage 29 is a direct tributary to Drainage 28. Drainage 29 exhibits an earthen streambed characterized by substrate consisting of sand, gravel, and cobble. No surface water was observed within Drainage 29; however, evidence of a Corps OHWM was observed via the following; scour and changes in terrestrial vegetation. Drainage 29 measures approximately 542 linear feet in length, and 1 foot in width for the Corps and 1 foot in width for the CDFW.

The channel invert of Drainage 29 is primarily unvegetated. Native vegetation present along the banks during the site visit included California sagebrush (UPL), valley oak (FACU), black sage (UPL), sticky monkey flower (UPL), poison oak (FACU), and toyon (UPL). Non-native species included black mustard (UPL), and horehound (FACU). No dominant hydrophytic vegetation was observed within Drainage 29; therefore, soil samples were not warranted.

5.1.38 Drainage 30

Drainage 30 is an unnamed ephemeral drainage feature which is completely contained within the Carnegie SVRA Expansion Area. Following significant storm events, surface water is conveyed into Drainage 30 from the surrounding landscape, and into Corral Hollow Creek. Drainage 30 is a direct tributary to Corral Hollow Creek. Drainage 30 exhibits an earthen streambed characterized by substrate consisting of sand, gravel, and cobble. No surface water was observed within Drainage 30; however, evidence of a Corps OHWM was observed via the following; scour, sediment deposition, and changes in terrestrial vegetation. Drainage 30 measures approximately 1,760 linear feet in length, and ranges from 1 to 10 feet in width for the Corps and 1 to 10 feet in width for the CDFW.

The channel invert of Drainage 30 is primarily unvegetated. Native vegetation present along the banks during the site visit included salt grass (FAC) and California sagebrush (UPL). Non-native species included black mustard (UPL), Italian thistle (UPL), wild oat (UPL), foxtail brome (UPL), and ripgut brome (UPL). No dominant hydrophytic vegetation was observed within Drainage 30; therefore, soil samples were not warranted.

5.1.39 Drainage 31

Drainage 31 is an unnamed ephemeral drainage feature which is completely contained within the Carnegie SVRA Expansion Area. Following significant storm events, surface water is conveyed into Drainage 31 from the surrounding landscape, and into Drainage 30. Drainage 31 is a direct tributary to Drainage 30. Drainage 31 exhibits an earthen streambed characterized by substrate consisting of sand, gravel, and cobble. No surface water was observed within Drainage 31; however, evidence of a Corps OHWM was observed via the following; scour and changes in terrestrial vegetation. Drainage 31 measures approximately 209 linear feet in length, and 1 foot in width for the Corps and 1 foot in width for the CDFW.

The channel invert of Drainage 31 is primarily unvegetated. Native vegetation present along the banks during the site visit included salt grass (FAC) and California fuchsia (UPL). Non-native species included black mustard (UPL), Italian thistle (UPL), wild oat (UPL), yellow sweet clover (FACU), and ripgut brome (UPL). No dominant hydrophytic vegetation was observed within Drainage 31; therefore, soil samples were not warranted.

5.1.40 Drainage 32

Drainage 32 is an unnamed ephemeral drainage feature which is completely contained within the Carnegie SVRA Expansion Area. Following significant storm events, surface water is conveyed into Drainage 32 from the surrounding landscape, and into Corral Hollow Creek. Drainage 32 is a direct tributary to Corral Hollow Creek. Drainage 32 exhibits an earthen streambed characterized by substrate consisting of sand, gravel, cobble, and boulders. No surface water was observed within Drainage 32; however, evidence of a Corps OHWM was observed via the following; scour and changes in terrestrial vegetation. Drainage 32 measures approximately 526 linear feet in length, and 1 foot in width for the Corps and 1 foot in width for the CDFW.

The channel invert of Drainage 32 is primarily unvegetated. Non-native species included milk thistle (UPL), black mustard (UPL), wild oat (UPL), foxtail brome (UPL), and ripgut brome (UPL). No dominant hydrophytic vegetation was observed within Drainage 32; therefore, soil samples were not warranted.

5.1.41 Drainage 33

Drainage 33 is an unnamed ephemeral drainage feature which is completely contained within the Carnegie SVRA Expansion Area. Following significant storm events, surface water is conveyed into Drainage 33 from the surrounding landscape, and into Drainage 16. Drainage 33 is a direct tributary to Drainage 16. Drainage 33 exhibits an earthen streambed characterized by substrate consisting of sand, gravel, and cobble. No surface water was observed within Drainage 33; however, evidence of a Corps OHWM was observed via the following; scour and changes in terrestrial vegetation. Drainage 33 measures approximately

1,689 linear feet in length, and 1 foot in width for the Corps and ranges from 1 to 3 feet in width for the CDFW.

The channel invert of Drainage 33 is primarily unvegetated. Native vegetation present along the banks during the site visit included California juniper (UPL) and blue oak (UPL). Non-native species included short-podded mustard (UPL), Italian thistle (UPL), wild oat (UPL), foxtail brome (UPL), and ripgut brome (UPL). No dominant hydrophytic vegetation was observed within Drainage 33; therefore, soil samples were not warranted.

5.1.42 Lone Oak Pond

Lone Oak Pond is tributary to Drainage 33 via overflow. Bare ground was present within the pond during the site visit. Open water is typically found within Lone Oak Pond from the start of fall rains until mid to late summer.

Vegetation was present along the banks of the pond. Native vegetation present during the site visit included dove weed (UPL), common gumplant (FACW), California juniper (UPL), and valley oak (FACU). Non-native species included ripgut brome (UPL), wild oat (UPL), and foxtail brome (UPL). No dominant hydrophytic vegetation was observed within Lone Oak Pond; therefore, soil samples were not warranted.

5.1.43 Drainage 34

Drainage 34 is an unnamed ephemeral drainage feature which is completely contained within the Carnegie SVRA Expansion Area. Following significant storm events, surface water is conveyed into Drainage 34 from the surrounding landscape, and into Drainage 16. Drainage 34 is a direct tributary to Drainage 16. Drainage 34 exhibits an earthen streambed characterized by substrate consisting of sand, gravel, and cobble. No surface water was observed within Drainage 34; however, evidence of a Corps OHWM was observed via the following; scour and changes in terrestrial vegetation. Drainage 34 measures approximately 2,241 linear feet in length, and 1 foot in width for the Corps and 3 feet in width for the CDFW.

The channel invert of Drainage 34 is primarily unvegetated. Native vegetation present along the banks during the site visit included valley oak (FACU) and California juniper (UPL). Non-native species included Italian thistle (UPL), wild oat (UPL), foxtail brome (UPL), and ripgut brome (UPL). No dominant hydrophytic vegetation was observed within Drainage 34; therefore, soil samples were not warranted.

5.1.44 Pond 4

Pond 4 is tributary to Drainage 34 via overflow. Open water and bare ground was present within the pond during the site visit. Open water is typically found within Pond 4 from the start of fall rains until mid to late summer.

Vegetation was present along the banks of the pond. Native vegetation present during the site visit included California juniper (UPL). Non-native species included ripgut brome (UPL) and foxtail brome (UPL). No dominant hydrophytic vegetation was observed within Pond 4; therefore, soil samples were not warranted.

5.1.45 Drainage 35

Drainage 35 is an unnamed ephemeral drainage feature which is completely contained within the Carnegie SVRA Expansion Area. Following significant storm events, surface water is conveyed into Drainage 35 from the surrounding landscape, and into Corral Hollow Creek. Drainage 35 is a direct tributary to Corral Hollow Creek. Drainage 35 exhibits an earthen streambed characterized by substrate consisting of sand, gravel, cobble, and boulders. No surface water was observed within Drainage 35; however, evidence of a Corps OHWM was observed via the following; scour, drift/debris, sediment deposition, and changes in terrestrial vegetation. Drainage 35 measures approximately 6,778 linear feet in length, and ranges from 1 to 4 feet in width for the Corps and 5 to 6 feet in width for the CDFW.

The channel invert of Drainage 35 is primarily unvegetated. Native vegetation present along the banks during the site visit included valley oak (FACU), vinegar weed (FACU), common gumplant (FACW), desert olive (UPL), toyon (UPL), sticky monkey flower (UPL), California juniper (UPL), Fremont's bush mallow (UPL), salt heliotrope (*Heliotropium curassavicum*; FAC), California sagebrush (UPL), and dove weed (UPL). Non-native species included milk thistle (UPL), short-podded mustard (UPL), tree tobacco (FAC), rabbits foot grass (UPL), Italian thistle (UPL), wild oat (UPL), foxtail brome (UPL), and ripgut brome (UPL). No dominant hydrophytic vegetation was observed within Drainage 35; therefore, soil samples were not warranted.

5.1.46 Lucky Find Pond

Lucky Find Pond is tributary to Drainage 35. Bare ground was present within the pond during the site visit. Open water is typically found within Lucky Find Pond from the start of fall rains until mid to late summer.

Vegetation was present along the banks of the pond. Native vegetation present during the site visit included common gumplant (FACW), vinegar weed (FACU), dove weed (UPL), and valley oak (FACU). Non-native species included ripgut brome (UPL), wild oat (UPL), and

foxtail brome (UPL). No dominant hydrophytic vegetation was observed within Lucky Find pond; therefore, soil samples were not warranted.

5.1.47 Skull Pond

Skull Pond is tributary to Drainage 35. Bare ground was present within the pond during the site visit. Open water is typically found within Skull Pond from the start of fall rains until mid to late summer.

Vegetation was present along the banks of the pond. Native vegetation present during the site visit included salt heliotrope (FAC) and vinegar weed (FAC). Non-native species included tree tobacco (FAC), Italian thistle (UPL), and rabbits foot grass (UPL). No dominant hydrophytic vegetation was observed within Skull Pond; therefore, soil samples were not warranted.

5.1.48 Drainage 36

Drainage 36 is an unnamed ephemeral drainage feature which is completely contained within the Carnegie SVRA Expansion Area. Following significant storm events, surface water is conveyed into Drainage 36 from the surrounding landscape, and into Corral Hollow Creek. Drainage 36 is a direct tributary to Corral Hollow Creek. Drainage 36 exhibits an earthen streambed characterized by substrate consisting of sand and gravel. No surface water was observed within Drainage 36; however, evidence of a Corps OHWM was observed via the following; scour and changes in terrestrial vegetation. Drainage 36 measures approximately 2,736 linear feet in length, and 2 feet in width for the Corps and 6 feet in width for the CDFW.

The channel invert of Drainage 36 is primarily unvegetated. Native vegetation present along the banks during the site visit included valley oak (FACU) and dove weed (UPL). Non-native species included tree of heaven (*Ailanthus altissima*; FACU), black mustard (UPL), milk thistle (UPL), wild oat (UPL), foxtail brome (UPL), and ripgut brome (UPL). No dominant hydrophytic vegetation was observed within Drainage 36; therefore, soil samples were not warranted.

5.1.49 Drainage 37

Drainage 37 is an unnamed ephemeral drainage feature which is completely contained within the Carnegie SVRA Expansion Area. Following significant storm events, surface water is conveyed into Drainage 37 from the surrounding landscape, and into Corral Hollow Creek. Drainage 37 is a direct tributary to Corral Hollow Creek. Drainage 37 exhibits an earthen streambed characterized by substrate consisting of sand, gravel, cobble, and boulders. No surface water was observed within Drainage 37; however, evidence of a Corps OHWM was observed via the following; scour, drift/debris, sediment deposition, and

changes in terrestrial vegetation. Drainage 37 measures approximately 3,270 linear feet in length, and ranges from 2 to 10 feet in width for the Corps and 5 to 20 feet in width for the CDFW.

The channel invert of Drainage 37 is primarily unvegetated. Native vegetation present along the banks during the site visit included valley oak (FACU), toyon (UPL), California maidenhair fern (*Adiantum jordanii*; FAC), and goldenback fern (*Pentagramma triangularis*; UPL). Non-native species included Italian thistle (UPL), wild oat (UPL), foxtail brome (UPL), and ripgut brome (UPL). No dominant hydrophytic vegetation was observed within Drainage 37; therefore, soil samples were not warranted.

5.1.50 Pond 5

Pond 5 is tributary to Drainage 37 via overflow. Bare ground was present within the basin during the site visit. Open water is typically found within Pond 5 from the start of fall rains until mid to late summer.

Vegetation was present along the banks of the pond. Native vegetation present during the site visit included valley oak (FACU). Non-native species included ripgut brome (UPL), wild oat (UPL), and foxtail brome (UPL). No dominant hydrophytic vegetation was observed within Pond 5; therefore, soil samples were not warranted.

5.1.51 Drainage 38

Drainage 38 is an unnamed ephemeral drainage feature which is completely contained within the Carnegie SVRA Expansion Area. Following significant storm events, surface water is conveyed into Drainage 38 from the surrounding landscape, and into Drainage 37. Drainage 38 is a direct tributary to Drainage 37. Drainage 38 exhibits an earthen streambed characterized by substrate consisting of sand and gravel. No surface water was observed within Drainage 38; however, evidence of a Corps OHWM was observed via the following; scour and changes in terrestrial vegetation. Drainage 38 measures approximately 479 linear feet in length, and 1 foot in width for the Corps and 1 foot in width for the CDFW.

The channel invert of Drainage 38 is primarily unvegetated. Native vegetation present along the banks during the site visit included valley oak (FACU). Non-native species included Italian thistle (UPL), wild oat (UPL), foxtail brome (UPL), and ripgut brome (UPL). No dominant hydrophytic vegetation was observed within Drainage 38; therefore, soil samples were not warranted.

5.1.52 Drainage 39

Drainage 39 is an unnamed ephemeral drainage feature which is completely contained within the Carnegie SVRA Expansion Area. Following significant storm events, surface

water is conveyed into Drainage 39 from the surrounding landscape, and into Corral Hollow Creek. Drainage 39 is a direct tributary to Corral Hollow Creek. Drainage 39 exhibits an earthen streambed characterized by substrate consisting of sand, gravel, cobble, and boulders. No surface water was observed within Drainage 39; however, evidence of a Corps OHWM was observed via the following; scour and changes in terrestrial vegetation. Drainage 39 measures approximately 3,562 linear feet in length, and ranges from 3 to 7 feet in width for the Corps and 6 to 10 feet in width for the CDFW.

The channel invert of Drainage 39 is primarily unvegetated. Native vegetation present along the banks during the site visit included California sycamore (FACW), mulefat (FAC), desert olive (UPL), common gumplant (FACW), California fuchsia (UPL), toyon (UPL), sticky monkey flower (UPL), poison oak (FACU), Fremont's bush mallow (UPL), blue oak (UPL), and California sagebrush (UPL). Non-native species included tocalote (UPL), curly dock (FAC), and prickly lettuce (FACU), black mustard (UPL), Italian thistle (UPL), wild oat (UPL), foxtail brome (UPL), and ripgut brome (UPL). No dominant hydrophytic vegetation was observed within Drainage 39; therefore, soil samples were not warranted.

5.1.53 Drainage 40

Drainage 40 is an unnamed ephemeral drainage feature which is completely contained within the Carnegie SVRA Expansion Area. Following significant storm events, surface water is conveyed into Drainage 40 from the surrounding landscape, and into Drainage 39. Drainage 40 is a direct tributary to Drainage 39. Drainage 40 exhibits an earthen streambed characterized by substrate consisting of sand, gravel, and cobble. No surface water was observed within Drainage 40; however, evidence of a Corps OHWM was observed via the following; scour and changes in terrestrial vegetation. Drainage 40 measures approximately 960 linear feet in length, and ranges from 2 to 4 feet in width for the Corps and 6 to 8 feet in width for the CDFW.

The channel invert of Drainage 40 is primarily unvegetated. Native vegetation present along the banks during the site visit included toyon (UPL), blue oak (UPL), and California sagebrush (UPL). Non-native species included Italian thistle (UPL), wild oat (UPL), foxtail brome (UPL), and ripgut brome (UPL). No dominant hydrophytic vegetation was observed within Drainage 40; therefore, soil samples were not warranted.

5.1.54 Drainage 41

Drainage 41 is an unnamed ephemeral drainage feature which is completely contained within the Carnegie SVRA Expansion Area. Following significant storm events, surface water is conveyed into Drainage 41 from the surrounding landscape, and into Drainage 40. Drainage 41 is a direct tributary to Drainage 40. Drainage 41 exhibits an earthen streambed characterized by substrate consisting of sand, gravel, and cobble. No surface water was

observed within Drainage 41; however, evidence of a Corps OHWM was observed via the following; scour and changes in terrestrial vegetation. Drainage 41 measures approximately 550 linear feet in length, and 2 feet in width for the Corps and 6 feet in width for the CDFW.

The channel invert of Drainage 41 is primarily unvegetated. Native vegetation present along the banks during the site visit included blue oak (UPL). Non-native species included Italian thistle (UPL), wild oat (UPL), foxtail brome (UPL), and ripgut brome (UPL). No dominant hydrophytic vegetation was observed within Drainage 41; therefore, soil samples were not warranted.

5.1.55 Drainage 42

Drainage 42 is an unnamed ephemeral drainage feature which is completely contained within the Carnegie SVRA Expansion Area. Drainage 42 is tributary to Corral Hollow Creek. Following significant storm events, overland sheet flows originating in the surrounding landscape enter Drainage 42 and are conveyed southeast towards Corral Hollow Creek. Drainage 42 exhibits an earthen streambed characterized by substrate consisting of sand, gravel, and cobble. No surface water was observed within Drainage 42. Due to the steep nature of the landscape, evidence of a Corps OHWM and surface hydrology was observed primarily via the following indicators: incision, scour, and litter/debris. Within the boundaries of the project site, Drainage A measures approximately 2,781 linear feet in length, and jurisdictional limits range from 1 to 8 feet in width for the Corps and 1 to 12 feet in width for the CDFW.

Portions of the channel invert of Drainage 42 are vegetated and unvegetated. Native vegetation located within the channel and along the banks of Drainage 42 included California sagebrush (UPL), blue oak (UPL), Turkey-mullein (*Croton* setiger; UPL), common gumplant (FACW), desert buckwheat (*Erigonum faciculatum* var. polifolium; UPL), and mesquite (*Prosopis sp*.; FACU). Non-native vegetation observed included wild oat (UPL), black mustard (UPL), foxtail brome (UPL), prickly lettuce (*Lactuca serriola*; FACU), and milk thistle (UPL). No dominant hydrophytic vegetation was observed within Drainage 42; therefore, soil samples were not warranted.

5.1.56 Drainage 43

Drainage 43 is an unnamed ephemeral drainage feature which is completely contained within the Carnegie SVRA Expansion Area. Drainage 43 is tributary to Corral Hollow Creek. Following significant storm events, overland sheet flows originating in the surrounding landscape enter Drainage 43 and are conveyed southeast towards Corral Hollow Creek. Historically, Drainage 43 conveyed flows through a historical channel located to the east of the on-site roadway along the western edge of a large mine tailing and into Corral Hollow Creek. No evidence of hydrology or an OHWM were observed within the historic channel.

Drainage 43 exhibits an earthen streambed characterized by substrate consisting of sand, gravel, and cobble. No surface water was observed within Drainage 43. Due to the steep nature of the landscape, evidence of a Corps OHWM and surface hydrology was observed primarily via the following indicators: incision, scour, sediment deposition, and litter/debris. Within the boundaries of the project site, Drainage 43 measures approximately 3,539 linear feet in length, and jurisdictional limits range from 1 to 4 feet in width for the Corps and 2 to 12 feet in width for the CDFW.

Portions of the channel invert of Drainage 43 are vegetated and unvegetated. Native vegetation located within the channel and along the banks of Drainage 43 included blue elderberry (FAC), toyon (UPL), California sagebrush (UPL), purple owl's clover (UPL), goldenback fern (UPL), blue oak (UPL), black sage (UPL), common manzanita (*Arctostaphylos manzanita*; UPL), poison oak (UPL), Turkey-mullein (UPL), and common gumplant (FACW). Non-native vegetation observed included wild oat (UPL), tocalote (*Centaurea melitensis*; UPL), black mustard (UPL), Russian thistle (FACU), Italian thistle (UPL), ripgut brome (UPL), common sowthistle (*Sonchus oleraceus*; UPL), annual yellow sweetclover (FACU), foothill filaree (*Erodium brachycarpum*; UPL), foxtail brome (UPL), curly dock (*Rumex crispus*; FAC), farmer's foxtail (*Hordeum murinum*; FACU), prickly lettuce (FACU), prickly sowthistle (*Sonchus asper* ssp. *asper*; FAC), soft chess (*Bromus hordeaceus*; FACU), rabbit's foot grass (*Polypogon monspeliensis*; FACW), Italian rye grass (*Festuca perennis*; FAC), milk thistle (UPL), tree of heaven (FACU), and horehound (FACU). No dominant hydrophytic vegetation was observed within Drainage 43; therefore, soil samples were not warranted.

5.1.57 Drainage 44

Drainage 44 is an unnamed ephemeral drainage feature which is completely contained within the Carnegie SVRA Expansion Area. Drainage 44 is a direct tributary to Drainage 43. Following significant storm events, surface water is conveyed into Drainage 44 from the surrounding landscape, and into Drainage 43 via direct flow. Drainage 44 exhibits an earthen streambed characterized by substrate consisting of sand, gravel, and cobble. No surface water was observed within Drainage 44; however, evidence of a Corps OHWM and surface hydrology was observed via the following; scour, incision, and litter/debris. Within the boundaries of the project site, Drainage 44 measures approximately 1,090 linear feet in length, and jurisdictional limits range from 1 to 3 feet in width for the Corps and 2 to 6 feet in width for the CDFW.

Portions of the channel invert of Drainage 44 are vegetated and unvegetated. Native vegetation located within the channel and along the banks of Drainage 44 included California sagebrush (UPL), black sage (UPL), common manzanita (UPL), and blue oak (UPL). Non-native vegetation observed included wild oat (UPL), ripgut brome (UPL),

Russian thistle (FACU), and annual yellow sweet clover (FACU). No dominant hydrophytic vegetation was observed within Drainage 44; therefore, soil samples were not warranted.

5.1.58 Drainage 45

Drainage 45 is an unnamed ephemeral drainage feature which is completely contained within the Carnegie SVRA Expansion Area. Drainage 45 is a direct tributary to Drainage 43. Following significant storm events, surface water is conveyed into Drainage 45 from the surrounding landscape, and into Drainage 43 via direct flow. Drainage 45 exhibits an earthen streambed characterized by substrate consisting of sand, gravel, and cobble. No surface water was observed within Drainage 45; however, evidence of a Corps OHWM and surface hydrology was observed via the following; scour, incision, and litter/debris. Within the boundaries of the project site, Drainage 45 measures approximately 635 linear feet in length, and jurisdictional limits range from 2 feet in width for the Corps and 4 feet in width for the CDFW.

The channel invert of Drainage 45 is primarily vegetated. Vegetation located within the channel and along the banks of Drainage 45 included wild oat (UPL), blue oak (UPL), California sagebrush (UPL), and California Juniper (FACU). No dominant hydrophytic vegetation was observed within Drainage 45; therefore, soil samples were not warranted.

5.1.59 Drainage 46

Drainage 46 is an unnamed ephemeral drainage feature which is completely contained within the Carnegie SVRA Expansion Area. Drainage 46 is a tributary to Drainage 45. Following significant storm events, surface water is conveyed into Drainage 46 from the surrounding landscape, and into Drainage 45 via direct flow. Drainage 46 exhibits an earthen streambed characterized by substrate consisting of sand, gravel, and cobble. No surface water was observed within Drainage 46; however, evidence of a Corps OHWM and surface hydrology was observed via the following; scour, incision, and litter/debris. Within the boundaries of the project site, Drainage 46 measures approximately 301 linear feet in length, and jurisdictional limits range from 3 feet in width for the Corps and 6 feet in width for the CDFW.

Portions of the channel invert of Drainage 46 are vegetated and unvegetated. Vegetation located within the channel and along the banks of Drainage 46 included wild oat (UPL), blue oak (UPL), California sagebrush (UPL), and California Juniper (FACU). No dominant hydrophytic vegetation was observed within Drainage 46; therefore, soil samples were not warranted.

5.1.60 Drainage 47

Drainage 47 is an unnamed ephemeral drainage feature which is completely contained within the Carnegie SVRA Expansion Area. The headwaters of Drainage 47 consist of several small unnamed ephemeral drainages which are located within the north central portion of the project site. Drainage 47 is tributary to Corral Hollow Creek via overland sheet flow. Drainage 47 is also tributary to the sediment basin via overland sheet flow. Following significant storm events, overland sheet flows originating in the surrounding landscape enter Drainage 47 and are generally conveyed southeast towards Corral Hollow Creek. Drainage 47 exhibits an earthen streambed characterized by substrate consisting of sand, gravel, cobble, and boulder. No surface water was observed within Drainage 47; however, evidence of a Corps OHWM and surface hydrology was observed via the following indicators: scour; shelving; drift/debris; sediment deposition; and changes in terrestrial vegetation. Within the boundaries of the project site, Drainage 47 measures approximately 2,138 linear feet in length, and jurisdictional limits range from 1 to 8 feet in width for the Corps and 1 to 10 feet in width for the CDFW.

Portions of the channel invert of Drainage 47 are vegetated and unvegetated. Native vegetation located along the banks of Drainage 47 included black sage (UPL), toyon (UPL), blue oak (UPL), Indian paintbrush (*Castilleja affinis*; UPL), common manzanita (UPL), California sagebrush (UPL), and gray pine (UPL). Non-native vegetation observed included wild oat (UPL), black mustard (UPL), broad leaf filaree (*Erodium botrys*; FACU), foothill filaree (UPL), ripgut brome (UPL), and tocalote (UPL). No dominant hydrophytic vegetation was observed within Drainage 47; therefore, soil samples were not warranted.

5.1.61 Drainage 48

Drainage 48 is an unnamed ephemeral drainage feature which is completely contained within the Carnegie SVRA Expansion Area. Drainage 48 is tributary to Corral Hollow Creek. Following significant storm events, overland sheet flows originating in the surrounding landscape enter Drainage 48 and are conveyed southeast and into a series of inline detention basins. Drainage 48 exhibits an earthen streambed characterized by substrate consisting of sand, gravel, cobble, and boulder. No surface water was observed within Drainage 48; however, evidence of a Corps OHWM and surface hydrology was observed via the following indicators: scour, incision, presence of litter and debris, and sediment deposition. Within the boundaries of the project site, Drainage 48 measures approximately 290 linear feet in length, and jurisdictional limits range from 1 to 3 feet in width for the Corps and the CDFW.

Portions of the channel invert of Drainage 48 are vegetated and unvegetated. Native vegetation located within the channel and along the banks of Drainage 48 include California sagebrush (UPL), black sage (UPL), and gray pine (UPL). Non-native vegetation observed

included wild oat (UPL), and foxtail brome (UPL). No dominant hydrophytic vegetation was observed within Drainage 48; therefore, soil samples were not warranted.

5.1.62 Sediment Basin

Drainage 48 flows into a series of inline check dams located at the base of a mine tailing in the western portion of the project site. These check dams which comprise the sediment basin are designed to reduce surface water flow velocities allowing suspended sediment to be deposited within the basin prior to reaching Corral Hollow Creek. The sediment basin is tributary to Corral Hollow Creek via overflow into an unnamed ephemeral drainage (Drainage 49). No surface water was present within the sediment basin, however evidence of surface hydrology and a Corps OHWM was observed via the following indicators; soil cracks and lack of vegetation below the OHWM.

Sparse vegetation within the basin floor and along the bank slopes consisted primarily of Italian rye grass (FAC), as well as ripgut brome (UPL), wild oat (UPL), and miniature lupine (*Lupinus bicolor*, UPL). One soil pit was dug within the sediment basin due to the presence of hydrophytic vegetation and hydrology (refer to section 5.2).

5.1.63 Drainage 49

Drainage 49 is an unnamed ephemeral drainage feature which is completely contained within the Carnegie SVRA Expansion Area. Drainage 49 is tributary to Corral Hollow Creek. Following significant storm events, overland sheet flows originating in the surrounding landscape enter Drainage 49 and are conveyed south towards Corral Hollow Creek. Drainage 49 exhibits an earthen streambed characterized by substrate consisting of sand, gravel, cobble, and boulder. No surface water was observed within Drainage 49; however, evidence of a Corps OHWM and surface hydrology was observed via the following indicators: scour, incision, presence of litter and debris, sediment deposition, and changes in terrestrial vegetation. Within the boundaries of the project site, Drainage 49 measures approximately 1,421 linear feet in length, and jurisdictional limits range from 1 to 3 feet in width for the Corps and 2 to 3 feet in width for the CDFW.

Portions of the channel invert of Drainage 49 are vegetated and unvegetated. Native vegetation located along the banks of Drainage 49 included California sagebrush (UPL), toyon (UPL), clay mariposa lily (*Calochortus argillosus*; UPL), blue oak (UPL), goldenback fern (UPL), and foothill needle grass (*Stipa lepida*; UPL). Non-native vegetation observed soft chess (FACU), wild oat (UPL), tocalote (UPL), foothill filaree (UPL), foxtail brome (UPL), broad leaf filaree (FACU), and prickly lettuce (FACU). No dominant hydrophytic vegetation was observed within Drainage 49; therefore, soil samples were not warranted.

5.1.64 Drainage 50

Drainage 50 is an unnamed ephemeral drainage feature which is completely contained within the Carnegie SVRA Expansion Area. Drainage 50 is a direct tributary to Drainage 49. Following significant storm events, surface water is conveyed into Drainage 50 from the surrounding landscape, and into Drainage 49 via direct flow. Drainage 50 exhibits an earthen streambed characterized by substrate consisting of sand, gravel, cobble, and boulder. No surface water was observed within Drainage 50; however, evidence of a Corps OHWM and surface hydrology was observed via the following indicators; scour, incision, and litter/debris. Within the boundaries of the project site, Drainage 50 measures approximately 389 linear feet in length, and jurisdictional limits are approximately 1 foot in width for the Corps and the CDFW.

Portions of the channel invert of Drainage 50 are vegetated and unvegetated. Native vegetation located along the banks of Drainage 50 included California sagebrush (UPL), toyon (UPL), and blue oak (UPL). Non-native vegetation observed included wild oat (UPL), and Turkey-mullein (UPL). No dominant hydrophytic vegetation was observed within Drainage 50; therefore, soil samples were not warranted.

5.1.65 Drainage 51

Drainage 51 is an unnamed ephemeral drainage feature which is completely contained within the Carnegie SVRA Expansion Area. Following significant storm events, surface water is conveyed into Drainage 51 from the surrounding landscape and conveyed off-site to the east and underneath Tesla Road via an underground metal pipe culvert. Drainage 51 is tributary to an unnamed ephemeral drainage located to the east of the project site. This unnamed tributary conveys flows south towards Corral Hollow Creek. Drainage 51 exhibits an earthen streambed characterized by substrate consisting of sand, gravel, and cobble. No surface water was observed within Drainage 51; however, evidence of a Corps OHWM and surface hydrology was observed via the following indicators; scour, incision, and litter/debris. Within the boundaries of the project site, Drainage 51 measures approximately 518 linear feet in length, and jurisdictional limits are approximately 1 foot in width for the Corps and the CDFW.

Portions of the channel invert of Drainage 51 are vegetated and unvegetated. Native vegetation located along the banks of Drainage 51 included, toyon (UPL), blue oak (UPL), matchweed (*Gutierrezia californica,* UPL), and common gumplant (FACW). Non-native vegetation observed included wild oat (UPL). No dominant hydrophytic vegetation was observed within Drainage 51; therefore, soil samples were not warranted.

5.1.66 Drainage 52

Drainage 52 is an unnamed ephemeral drainage feature which is completely contained within the Carnegie SVRA Expansion Area. Drainage 52 is tributary to Corral Hollow Creek. Following significant storm events, overland sheet flows originating in the surrounding landscape enter Drainage 52 and are conveyed south towards Corral Hollow Creek. Drainage 52 exhibits an earthen streambed characterized by substrate consisting of sand, gravel, and cobble. No surface water was observed within Drainage 52; however, evidence of a Corps OHWM and surface hydrology was observed via the following indicators: scour, incision, litter/debris, and changes in terrestrial vegetation. Within the boundaries of the project site, Drainage 52 measures approximately 842 linear feet in length, and jurisdictional limits range from 1 to 2 feet in width for the Corps and 3 to 6 feet in width for the CDFW.

The channel invert of Drainage 52 is primarily vegetated. Native vegetation located with the channel and along the banks included California sagebrush (UPL), toyon (UPL), matchweed (UPL), common gumplant (FACW), Turkey-mullein (UPL), and California yerba santa (UPL). Non-native vegetation observed soft chess (FACU), wild oat (UPL), and foxtail brome (UPL). No dominant hydrophytic vegetation was observed within Drainage 52; therefore, soil samples were not warranted.

5.1.67 Tesla Pond

Tesla Pond is located adjacent to the southern bank of Corral Hollow Creek in the western portion of the project site. This pond did not appear to have a direct connection to Corral Hollow Creek. However, due to site topography and proximity to the streambed it is assumed peak flows from Corral Hollow Creek enter Tesla Pond and are retained for an unknown period of time. Tesla Pond exhibits a substrate consisting of sand, gravel, cobble, and boulder. No surface water was observed within Tesla Pond, however evidence of surface hydrology and a Corps OHWM was observed via the following indicators; a clear, natural line impressed on the bank, and lack of vegetation below the OHWM.

Tesla Pond is primarily an open water pond with an unvegetated invert. Sparse vegetation located along the banks of Tesla Pond included mulefat (FAC), alkali mallow (*Malvella leprosa*; FACU), narrow leaf milkweed (*Asclepias fascicularis*, FAC), wild oat (UPL), common gumplant (FACW), and rabbit's foot grass (FACW). At no location along the banks of Tesla Pond was hydrophytic vegetation determined to be dominant; therefore, soil samples were not warranted.

5.2 WETLAND FEATURES

A total of seven soil pits were dug within the Carnegie SVRA Expansion Area (refer to Appendix C, *Wetland Data Forms*). Three soil pits (SP 1, 3, and 5) were dug within Corral

Hollow Creek due to the presence of hydrophitic vegetation and evidence of hydrology. Hydric soils were not present within Corral Hollow Creek, and the area was determined to be non-wetland. Corral Hollow Creek displayed consistent hydrology and vegetation along its course; therefore, it was determined additional soil pits within Corral Hollow Creek were not necessary.

One soil pit (SP 2) was dug within the Drainage 7, tributary to Corral Hollow Creek, due to the presence of dominant hydrophitic vegetation and evidence of hydrology. Hydric soils were not present within Drainage 7, and the area was determined to be non-wetland.

One soil pit (SP 4) was dug within Drainage 21 due to the presence of hydrophitic vegetation and evidence of hydrology. Hydric soils were present within Drainage 21, and the area was determined to be wetland (refer to Section 5.2.1).

One soil pit (SP 6) was dug within the the Sediment Basin downstream of Drainage 48, due to the presence of dominant hydrophitic vegetation (Italian rye grass, FAC) and evidence of hydrology including soil cracks. Hydric soils were not present within SP 6, and the area was determined to be non-wetland.

Due to evidence of hydrology, one soil pit (SP 7) was dug within a small depression located to the north of Corral Hollow Creek in the southwestern portion of the project site. Indicators of Redox Dark Surface (F6) hydric soils were present within SP 7. Vegetation within the vicinity of SP 7 consisted of alkali mallow (FACU), farmer's foxtail (FACU), and wild oat (UPL). No hydrophytic dominant vegetation was present within the vicinity of SP 7 and the are was deteremined to be non-wetland.

5.2.1 Wetland 1

A wetland feature (Wetland 1) was identified within Pond 1 located to the north of Corral Hollow Creek near the confluence of Drainage 7 and Corral Hollow Creek. Due to the presence of senitive amphibian species within the area, a soil pit was not dug. However, due to the presence of hydrophitic vegetation and evidence of hydrology (surface water), it was assumed that wetland soils were present within the area. Ponded water was present within Wetland 1 at the time of this delineaiton. Vegetation within Wetland 1 consisted of cattail (OBL) and mulefat (FAC). Due to site topography and proximity, Wetland 1 is assumed to be tributary to Corral Hollow Creek via overland sheet flow should it fill and overtop.

5.2.2 Wetland 2

A wetland feature (Wetland 2) was identified within Drainage 21. A soil pit was dug due to the presence of dominant hydrophitic vegetation and evidence of hydrology (surface water and saturation). The soil sample consisted of a redox dark surface, as well as hydrogen

sulfide present near the area where the soil pit was dug. Vegetation within Wetland 2 consisted of scattered red willow (FACW) and valley oak (FACU).

5.2.3 Wetland 3

A wetland feature (Wetland 3) was identified within Sector Pond located to the south of Corral Hollow Creek near the Sector Office driveway. Due to the presence of senitive amphibian species within the area, a soil pit was not dug. However, due to the presence of dominant hydrophitic vegetation and evidence of hydrology (surface water), it was assumed that wetland soils were present within the area. Native vegetation within Wetland 3 consisted of cattail (OBL) and mulefat (FAC). Due to site topography and proximity, Wetland 3 is assumed to be tributary to Corral Hollow Creek via overland sheet flow should it fill and overtop.

5.2.4 Wetland 4

A wetland feature (Wetland 4) was identified within Pond 3 located along the northern portion of Drainage 28. Due to the presence of senitive amphibian species within the area, a soil pit was not dug. However, due to the presence of dominant hydrophitic vegetation and evidence of hydrology (surface water), it was assumed that wetland soils were present within the area. Native vegetation within Wetland 4 consisted of cattail (OBL). Due to site topography and proximity, Wetland 4 is assumed to be tributary to Drainage 28 via a culvert.

Section 6 Findings

This delineation has been prepared for the OHMVRD in order to delineate the Corps, Regional Board, and CDFW jurisdictional authority within the Carnegie SVRA Expansion Area. This report presents Michael Baker's best effort at determining the jurisdictional boundaries using the most up-to-date regulations, written policy, and guidance from the regulatory agencies. However, as with any jurisdictional delineation, only the regulatory agencies can make a final determination of jurisdictional boundaries within a project site/property.

6.1 U.S. ARMY CORPS OF ENGINEERS DETERMINATION

6.1.1 Non-Wetland Determination

Most waters within Carnegie SVRA Expansion Area are tributary to Corral Hollow Creek. Corral Hollow Creek (a Relatively Permanent Water [RPW]), is an intermittent drainage that flows seasonally (approximately five months a year). Corral Hollow Creek is a significant tributary that carries sediment and water to the floodplain in the central valley, where it is anticipated that surface flow can reach the San Joaquin River (a Traditionally Navigable Water [TNW]). Drainages 21-26 are tributary to Alameda Creek, and ultimately the San Francisco Bay (TNW). Therefore, all waters onsite are determined to be Corps jurisdictional waters of the U.S. It is determined that approximately 23.71-acres of Corps non-wetland waters of the U.S. are located within the project site. Refer to Figures 4a-4z (in Appendix D), for an illustration of on-site Corps jurisdictional areas. Corps jurisdictional features and associated acreages are summarized in Table 2 below.

6.1.2 Wetland Determination

As previously noted, an area must exhibit all three wetland parameters described in the Corps Regional Supplement to be considered a jurisdictional wetland. Based on the results of the site visit, four wetland features were identified within the project site. It is determined that approximately 0.56-acres of Corps jurisdictional wetland is located within the Carnegie SVRA Expansion Area.

6.2 REGIONAL WATER QUALITY CONTROL BOARD DETERMINATION

It is determined that approximately 24.27-acres of Regional Board waters of the State is located within Carnegie SVRA Expansion Area. The Regional Board follows that of Corps jurisdiction within all drainage features.

Table 2. Corps/Regional Board Jurisdictional Summary

Feature	Cowardin Classification	Location (lat/long)	Minimum Width (feet)	Maximum Width (feet)	Length (linear feet)	Area (acre)
Drainage 1-Corral Hollow Creek	Riverine, Intermittent	37.638°/-121.602°	11	50	15,677	8.24
Drainage 2	N/A - Ephemeral drainage	37.609°/-121.595°	2	2	1,278	0.06
Drainage 3	N/A - Ephemeral drainage	37.608°/-121.602°	4	4	2,223	0.20
Drainage 4	N/A - Ephemeral drainage	37.614°/-121.595°	2	2	2,476	0.11
Drainage 5	N/A - Ephemeral drainage	37.622°/-121.603°	4	4	2,345	0.22
Drainage 6	N/A - Ephemeral drainage	37.622°/-121.599°	2	4	1,777	0.09
Drainage 7-Mitchell Ravine	Riverine, Intermittent	37.631°/-121.578°	10	120	6,176	7.52
Drainage 8	N/A - Ephemeral drainage	37.624°/-121.575°	1	2	434	0.01
Drainage 9	N/A - Ephemeral drainage	37.624°/-121.576°	1	3	695	0.03
Drainage 10	N/A - Ephemeral drainage	37.626°/-121.577°	2	2	834	0.04
Drainage 11	N/A - Ephemeral drainage	37.627°/-121.575°	1	1	282	0.01
Drainage 12	N/A - Ephemeral drainage	37.627°/-121.575°	1	1	375	0.01
Drainage 13	N/A - Ephemeral drainage	37.628°/-121.576°	1	1	579	0.01
Drainage 14	N/A - Ephemeral drainage	37.628°/-121.576°	1	10	421	0.03
Drainage 15	N/A - Ephemeral drainage	37.623°/-121.574°	1	1	202	0.01
Drainage 16	Riverine, Intermittent	37.628°/-121.589°	1	5	10,096	0.96
Drainage 17	N/A - Ephemeral drainage	37.619°/-121.589°	1	1	712	0.02
Drainage 18	N/A - Ephemeral drainage	37.621°/-121.590°	1	1	465	0.01
Drainage 19	N/A - Ephemeral drainage	37.621°/-121.594°	1	2	1,018	0.01
Drainage 20	N/A - Ephemeral drainage	37.625°/-121.593°	2	2	315	0.01
Drainage 21-Arroyo Seco	Freshwater, Forested	37.647°/-121.621°	3	30	5,838	0.80
Drainage 22	N/A - Ephemeral drainage	37.644°/-121.628°	1	1	549	0.01
Drainage 23	Freshwater, Emergent	37.645°/-121.621°	2	10	1,649	0.18
Drainage 24	N/A - Ephemeral drainage	37.646°/-121.618°	3	3	1,267	0.09
Drainage 25	N/A - Ephemeral drainage	37.649°/-121.615°	2	2	762	0.03
Drainage 26	N/A - Ephemeral drainage	37.613°/-121.613°	1	1	1,258	0.03
Drainage 27	N/A - Ephemeral drainage	37.648°/-121.604°	2	2	1,599	0.07

Feature	Cowardin Classification	Location (lat/long)	Minimum Width (feet)	Maximum Width (feet)	Length (linear feet)	Area (acre)
Drainage 28	Riverine, Intermittent	37.647°/-121.589°	1	5	4,254	0.13
Drainage 29	N/A - Ephemeral drainage	37.649°/-121.590°	1	1	582	0.01
Drainage 30	N/A - Ephemeral drainage	37.639°/-121.614°	1	10	1,731	0.07
Drainage 31	N/A - Ephemeral drainage	37.639°/-121.611°	1	1	157	0.01
Drainage 32	N/A - Ephemeral drainage	37.640°/-121.582°	1	1	783	0.02
Drainage 33	N/A - Ephemeral drainage	37.626°/-121.589°	1	1	1,649	0.03
Drainage 34	N/A - Ephemeral drainage	37.623°/-121.587°	1	1	2,120	0.04
Drainage 35	Freshwater, Forested	37.631°/-121.595°	1	4	7,200	0.38
Drainage 36	Riverine, Intermittent	37.637°/-121.593°	2	2	1,738	0.04
Drainage 37	Freshwater, Forested	37.634°/-121.609°	2	10	4,294	0.39
Drainage 38	N/A - Ephemeral drainage	37.629°/-121.605°	1	1	361	0.01
Drainage 39	N/A - Ephemeral drainage	37.634°/-121.603°	3	7	1,259	0.39
Drainage 40	N/A - Ephemeral drainage	37.631°/-121.599°	2	4	565	0.09
Drainage 41	N/A - Ephemeral drainage	37.631°/-121.600°	2	2	3,723	0.02
Drainage 42	N/A - Ephemeral drainage	37.641°/-121.606°	1	8	2,781	0.16
Drainage 43	N/A - Ephemeral drainage	37.641°/-121.605°	1	4	3,539	0.23
Drainage 44	N/A - Ephemeral drainage	37.644°/-121.605°	1	3	1,090	0.05
Drainage 45	N/A - Ephemeral drainage	37.644°/-121.607°	2	2	635	0.03
Drainage 46	N/A - Ephemeral drainage	37.643°/-121.607°	3	3	301	0.02
Drainage 47	N/A - Ephemeral drainage	37.642°/-121.602°	1	8	2,138	0.13
Drainage 48	N/A - Ephemeral drainage	37.641°/-121.601°	1	3	290	0.01
Drainage 49	N/A - Ephemeral drainage	37.641°/-121.599°	1	3	1,421	0.07
Drainage 50	N/A - Ephemeral drainage	37.641°/-121.600°	1	1	389	0.01
Drainage 51	N/A - Ephemeral drainage	37.643°/-121.598°	1	1	518	0.01
Drainage 52	N/A - Ephemeral drainage	37.641°/-121.597°	1	2	842	0.04
Refrigerator Pond	Palustrine, Unconsolidated Bottom	37.609°/-121.590°	-	-	-	0.26
Small Pond	Palustrine, Unconsolidated Bottom	37.625°/-121.601°	-	-	-	0.08
Large Pond	Palustrine, Unconsolidated Bottom	37.625°/-121.600°	-	-	-	0.32
Hidden Pond	Palustrine, Unconsolidated Bottom	37.617°/-121.591°	-	-	-	0.34
Sector Pond	Palustrine, Unconsolidated Bottom	37.640°/-121.589°	-	-	-	0.16
Lone Oak Pond	Palustrine, Unconsolidated Bottom	37.624°/-121.589°	-	-	-	0.06

Feature	Cowardin Classification	Location (lat/long)	Minimum Width (feet)	Maximum Width (feet)	Length (linear feet)	Area (acre)
Lucky Find Pond	N/A	37.629°/-121.597°	-	-	-	0.06
Skull Pond	Palustrine, Unconsolidated Bottom	37.636°/-121.582°	-	-	-	0.25
Tesla Pond	Palustrine, Unconsolidated Bottom	37.636°/-121.608°	-	-	-	0.05
Sediment Basin	N/A	37.640°/ -121.600°	-	-	-	0.32
Pond 1	Palustrine, Unconsolidated Bottom	37.637°/-121.574°	-	-	-	0.02
Pond 2	N/A	37.621°/-121.594°	-	-	-	0.10
Pond 3	Palustrine, Unconsolidated Bottom	37.646°/-121.588°	-	-	-	0.37
Pond 4	Palustrine, Unconsolidated Bottom	37.622°/-121.586°	-	-	-	0.10
Pond 5	Palustrine, Unconsolidated Bottom	37.630°/-121.605°	-	-	-	0.02
Wetland 1	Palustrine, Unconsolidated Bottom	37.637°/-121.574°	-	-	-	0.15
Wetland 2	Freshwater, Forested	37.646°/-121.596°	-	-	-	0.24
Wetland 3	Palustrine, Unconsolidated Bottom	37.646°/-121.588°	-	-	-	0.05
Wetland 4	Palustrine, Unconsolidated Bottom	37.640°/-121.589°	-	-	-	0.12
				TOTAL	**105,662**	**24.27**

6.3 CALIFORNIA DEPARTMENT OF FISH AND WILDLIFE DETERMINATION

All of the onsite drainages and ponds exhibited a bed and bank, and are considered CDFW jurisdictional streambed. It is determined that approximately 46.50-acres of CDFW jurisdictional streambed and associated vegetation is located within the project site. Refer to Figures 5a-5z (in Appendix E) for an illustration of CDFW on-site jurisdictional areas. CDFW jurisdictional features and associated acreages are summarized in Table 3 below.

Table 3. CDFW Jurisdictional Summary

Feature	Type	Minimum Width (feet)	Maximum Width (feet)	Length (linear feet)	Area (acre)
Drainage 1-Corral Hollow Creek	Vegetated streambed	11	75	15,677	15.23
Drainage 2	Vegetated streambed	2	2	1,278	0.27
Drainage 3	Vegetated streambed	4	4	2,223	0.20
Drainage 4	Vegetated streambed	2	2	2,476	0.48
Drainage 5	Vegetated streambed	4	4	2,345	1.45
Drainage 6	Vegetated streambed	2	4	1,777	0.69
Drainage 7-Mitchell Ravine	Vegetated streambed	10	120	6,176	8.16
Drainage 8	Vegetated streambed	1	2	434	0.03
Drainage 9	Vegetated streambed	1	3	695	0.03
Drainage 10	Vegetated streambed	2	2	834	0.04
Drainage 11	Vegetated streambed	1	1	282	0.02
Drainage 12	Vegetated streambed	1	1	375	0.01
Drainage 13	Vegetated streambed	1	1	579	0.01
Drainage 14	Vegetated streambed	1	10	421	0.06
Drainage 15	Vegetated streambed	1	1	202	0.01
Drainage 16	Vegetated streambed	1	20	10,096	3.50
Drainage 17	Vegetated streambed	1	1	712	0.19
Drainage 18	Vegetated streambed	1	1	465	0.20
Drainage 19	Vegetated streambed	1	2	1,018	0.10
Drainage 20	Vegetated streambed	2	2	315	0.01
Drainage 21-Arroyo Seco	Vegetated streambed	5	30	5,838	3.19
Drainage 22	Vegetated streambed	1	1	549	0.01
Drainage 23	Vegetated streambed	4	10	1,649	0.84
Drainage 24	Vegetated streambed	10	10	1,267	0.29
Drainage 25	Vegetated streambed	6	6	762	0.11
Drainage 26	Vegetated streambed	1	10	1,258	0.25
Drainage 27	Vegetated streambed	3	3	1,599	0.15
Drainage 28	Vegetated streambed	3	10	4,254	0.39

Feature	Type	Minimum Width (feet)	Maximum Width (feet)	Length (linear feet)	Area (acre)
Drainage 29	Vegetated streambed	1	1	582	0.01
Drainage 30	Vegetated streambed	1	10	1,731	0.17
Drainage 31	Vegetated streambed	1	1	157	0.01
Drainage 32	Vegetated streambed	1	1	783	0.02
Drainage 33	Vegetated streambed	1	3	1,649	0.32
Drainage 34	Vegetated streambed	3	3	2,120	0.75
Drainage 35	Vegetated streambed	5	6	7,200	1.13
Drainage 36	Vegetated streambed	6	6	1,738	0.13
Drainage 37	Vegetated streambed	5	20	4,294	1.12
Drainage 38	Vegetated streambed	1	1	361	0.11
Drainage 39	Vegetated streambed	6	10	1,259	0.80
Drainage 40	Vegetated streambed	6	8	565	0.62
Drainage 41	Vegetated streambed	6	6	3,723	0.29
Drainage 42	Vegetated streambed	1	12	2,781	0.35
Drainage 43	Vegetated streambed	2	12	3,539	0.69
Drainage 44	Vegetated streambed	2	6	1,090	0.20
Drainage 45	Vegetated streambed	4	4	635	0.10
Drainage 46	Vegetated streambed	6	6	301	0.08
Drainage 47	Vegetated streambed	1	10	2,138	0.35
Drainage 48	Vegetated streambed	1	3	290	0.04
Drainage 49	Vegetated streambed	2	3	1,421	0.12
Drainage 50	Vegetated streambed	1	1	389	0.14
Drainage 51	Vegetated streambed	1	1	518	0.10
Drainage 52	Vegetated streambed	3	6	842	0.10
Refrigerator Pond	Unvegetated Basin	-	-	-	0.26
Small Pond	Unvegetated Basin	-	-	-	0.08
Large Pond	Unvegetated Basin	-	-	-	0.32
Hidden Pond	Unvegetated Basin	-	-	-	0.34
Sector Pond	Vegetated Basin	-	-	-	0.21
Lone Oak Pond	Unvegetated Basin	-	-	-	0.06
Lucky Find Pond	Unvegetated Basin	-	-	-	0.06
Skull Pond	Vegetated Basin	-	-	-	0.25
Tesla Pond	Unvegetated Basin	-	-	-	0.05
Sediment Basin	Vegetated Basin	-	-	-	0.32
Pond 1	Vegetated Basin	-	-	-	0.17
Pond 2	Unvegetated Basin	-	-	-	0.10
Pond 3	Vegetated Basin	-	-	-	0.49
Pond 4	Unvegetated Basin	-	-	-	0.10
Pond 5	Unvegetated Basin	-	-	-	0.02
			TOTAL	**105,662**	**46.50**

Section 7 Regulatory Approval Process

The following is a summary of the various permits, agreements, and certifications required before construction activities take place within the jurisdictional areas.

7.1 U.S. ARMY CORPS OF ENGINEERS

The Corps regulates discharges of dredged or fill materials into WoUS and wetlands pursuant to Section 404 of the CWA. A permit will be required from the Corps prior to commencement of any construction activities (i.e., dredge or fill) within the Corps delineated jurisdictional areas.

7.2 REGIONAL WATER QUALITY CONTROL BOARD

The Regional Board regulates discharges to surface waters under the Federal CWA and the California Porter-Cologne Water Quality Control Act. For a Corps 404 permit to be approved, a 401 Water Quality Certification from the Regional Board will be required. The Regional Board also requires that CEQA compliance be obtained prior to obtaining the 401 Certification. A Regional Board application fee is required with the application package, and is calculated based on the acreage and linear feet of jurisdictional impacts.

7.3 CALIFORNIA DEPARTMENT OF FISH AND WILDLIFE

The CDFW regulates alteration to streambeds and associated vegetation under the Fish and Game Code. The CDFW must be notified prior to activities that alter jurisdictional areas. A Streambed Alteration Agreement from the CDFW would be required prior to commencement of any construction activities within the CDFW delineated jurisdictional areas. A CDFW application fee is required with the application package, and is calculated based on project costs.

7.4 GLOBAL RECOMMENDATIONS

It is highly recommended that the delineation be forwarded to each of the regulatory agencies for their concurrence.

Section 8 References

The following resources were utilized during preparation of this Delineation of State and Federal Jurisdictional Waters:

California Department of Fish and Wildlife, *Lake and Streambed Alteration Program*. (https://www.wildlife.ca.gov/Conservation/LSA)

California Department of Parks and Recreation, *Storm Water Management Plan for Carnegie SVRA,* August 2011.

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U.S. Army Corps of Engineers, *Final Summary Report: Guidelines for Jurisdictional Determinations for Waters of the United States in the Arid Southwest*, June 2001.

U.S. Army Corps of Engineers, *Sacramento District Regulatory Program.* (http://www.spk.usace.army.mil/Missions/Regulatory.aspx)

U.S. Army Corps of Engineers, *Minimum Standards for Acceptance of Aquatic Resources Delineation Reports*, January 2016.

U.S. Army Corps of Engineers, *Practices for Documenting Jurisdiction under Section 404 of the CWA*, Regional Guidance Letter 07-01, June 5, 2007.

U.S. Army Corps of Engineers, *Public Notice: Updated Map and Drawing Standards for the South Pacific Division Regulatory Program*, February 2016.

U.S. Army Corps of Engineers, *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region (Version 2.0)*, ed. J.S. Wakeley, R. W. Lichvar, and

C. V. Nobel. ERDC/EL TR-08-28. Vicksburg, MS: U.S. Army Engineer Research and Development Center, 2008.

U.S. Army Corps of Engineers, *Updated Datasheet for the Identification of the Ordinary High Water Mark in the Arid West Region of the Western United States*, July 2010.

U.S. Department of Agriculture, Natural Resources Conservation Service, *Web Soil Survey.* (http://websoilsurvey.nrcs.usda.gov/app/)

U.S. Department of Homeland Security, Federal Emergency Management Agency, National Flood Insurance Program, *Flood Insurance Rate Map No. 06077C0725F.*

U.S. Environmental Protection Agency. *San Francisco Bay Delta: About the Watershed*, November 2017. (https://www.epa.gov/sfbay-delta/about-watershed)

U.S. Fish and Wildlife Service, Department of Habitat and Resource Conservation, *Wetland Geodatabase*. (http://wetlandsfws.er.usgs.gov/NWI/index.html)

U.S. Geological Survey, 7.5 Minute Series Topographic Quadrangle, *Midway, California*, 1953, photorevised 1980.

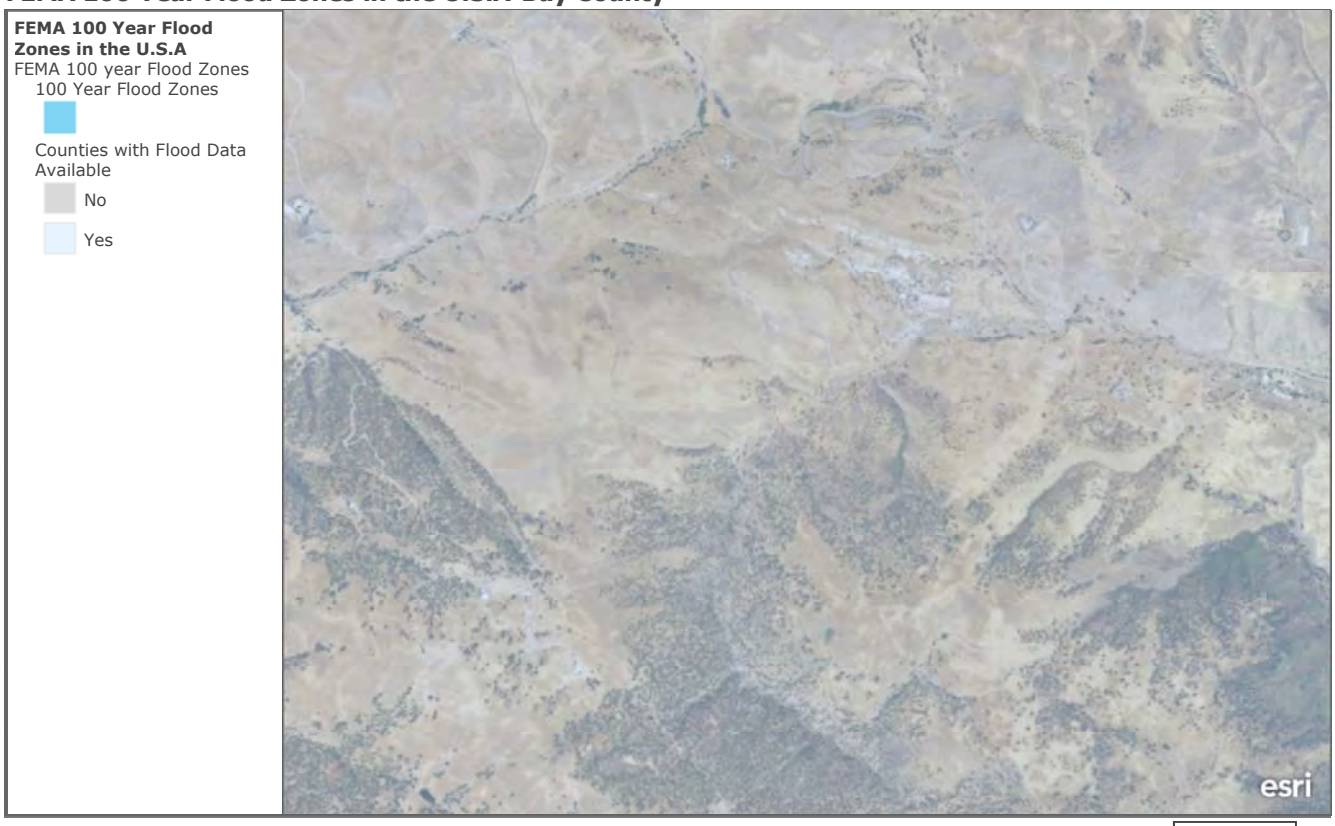
U.S. Geological Survey, 7.5 Minute Series Topographic Quadrangle, *Altamont, California*, 1953, photorevised 1981.

U.S. Geological Survey, 7.5 Minute Series Topographic Quadrangle, *Cedar Mountain, California*, 1956, photorevised 1971, Minor Revision 1994.

Western Regional Climate Center, *Tracy Carbona, California.* (http://www.wrcc.dri.edu/cgi-bin/cliMAIN.pl?ca8999)

Appendix A *Documentation*

FEMA 100 Year Flood Zones in the U.S.A-Bay County

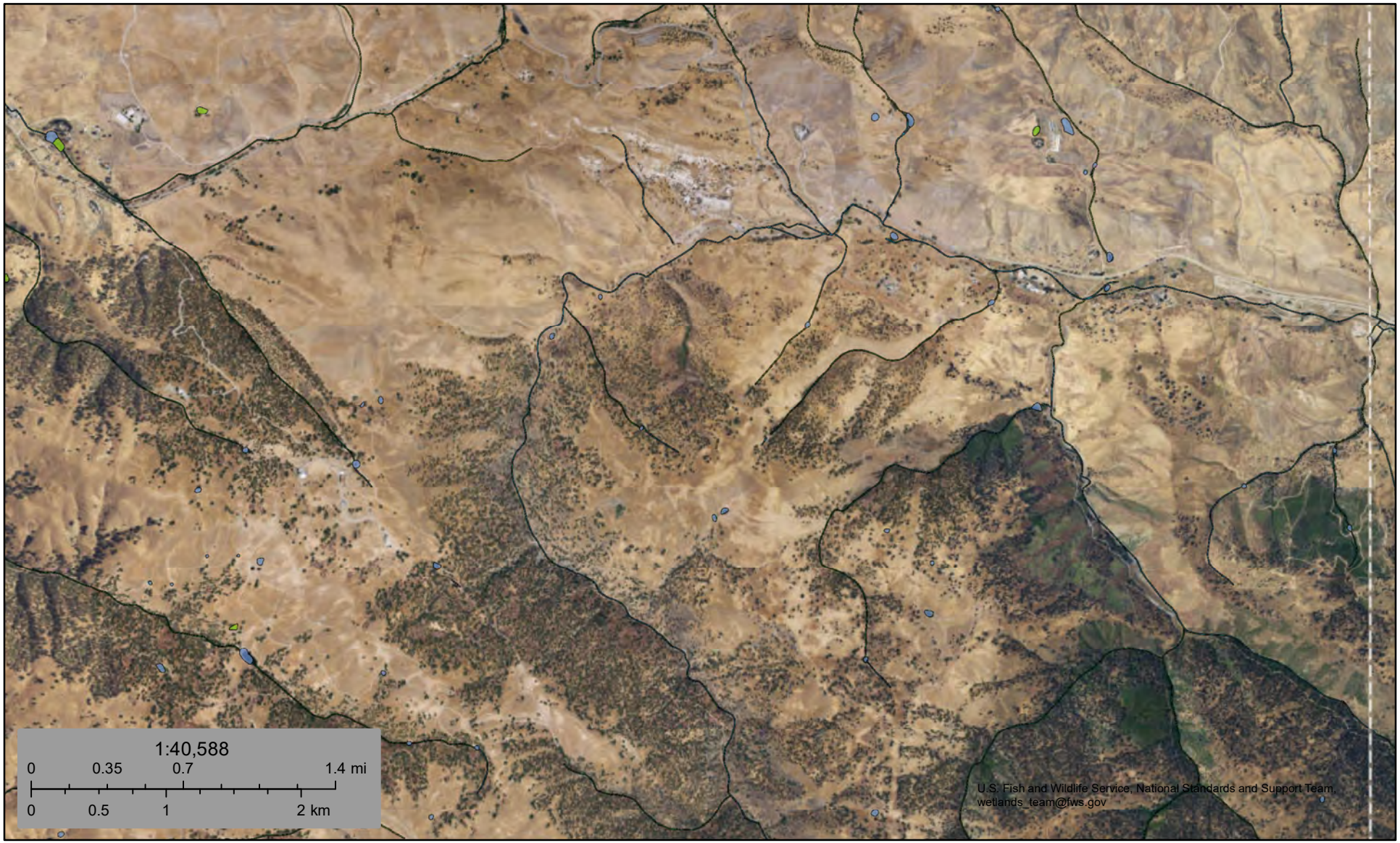


This map service represents Flood Insurance Rate Map (FIRM) data important for floodplain management, mitigation, and insurance activities for the National Flood Insurance Program (NFIP).

Earthstar Geographics, CNES/Airbus DS | Federal Emergency Management Agency (FEMA) | Esri, HERE, Garmin

U.S. Fish and Wildlife Service

National Wetlands Inventory



October 23, 2017

Wetlands

- Estuarine and Marine Deepwater
- Estuarine and Marine Wetland
- Freshwater Emergent Wetland
- Freshwater Forested/Shrub Wetland
- Freshwater Pond
- Lake
- Other
- Riverine

This map is for general reference only. The US Fish and Wildlife Service is not responsible for the accuracy or currentness of the base data shown on this map. All wetlands related data should be used in accordance with the layer metadata found on the Wetlands Mapper web site.

U.S. Fish and Wildlife Service
National Wetlands Inventory

Wetlands

October 23, 2017

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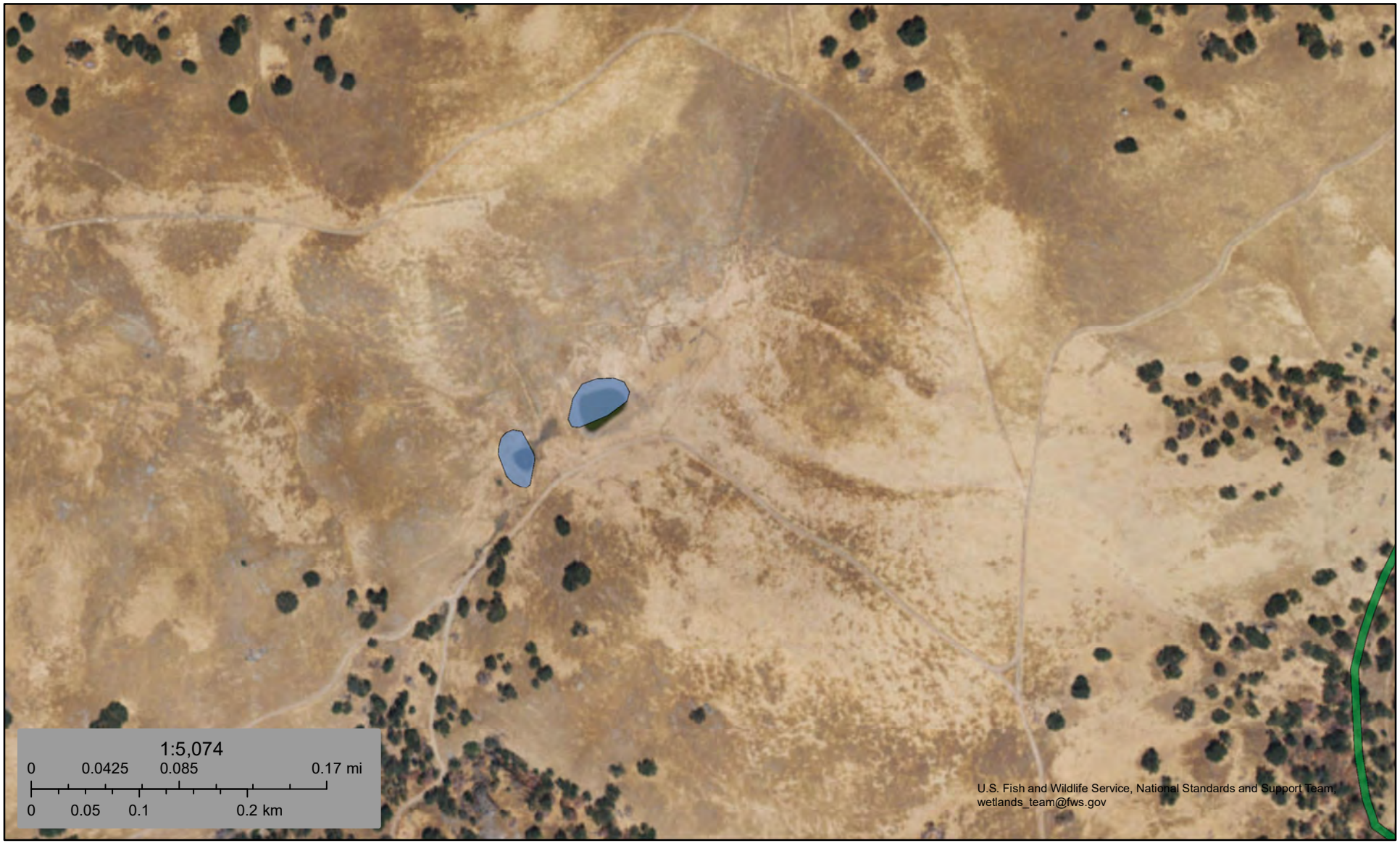
U.S. Fish and Wildlife Service
National Wetlands Inventory



October 23, 2017

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U.S. Fish and Wildlife Service
National Wetlands Inventory

October 23, 2017

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U.S. Fish and Wildlife Service
National Wetlands Inventory

NWI Map 4

October 23, 2017

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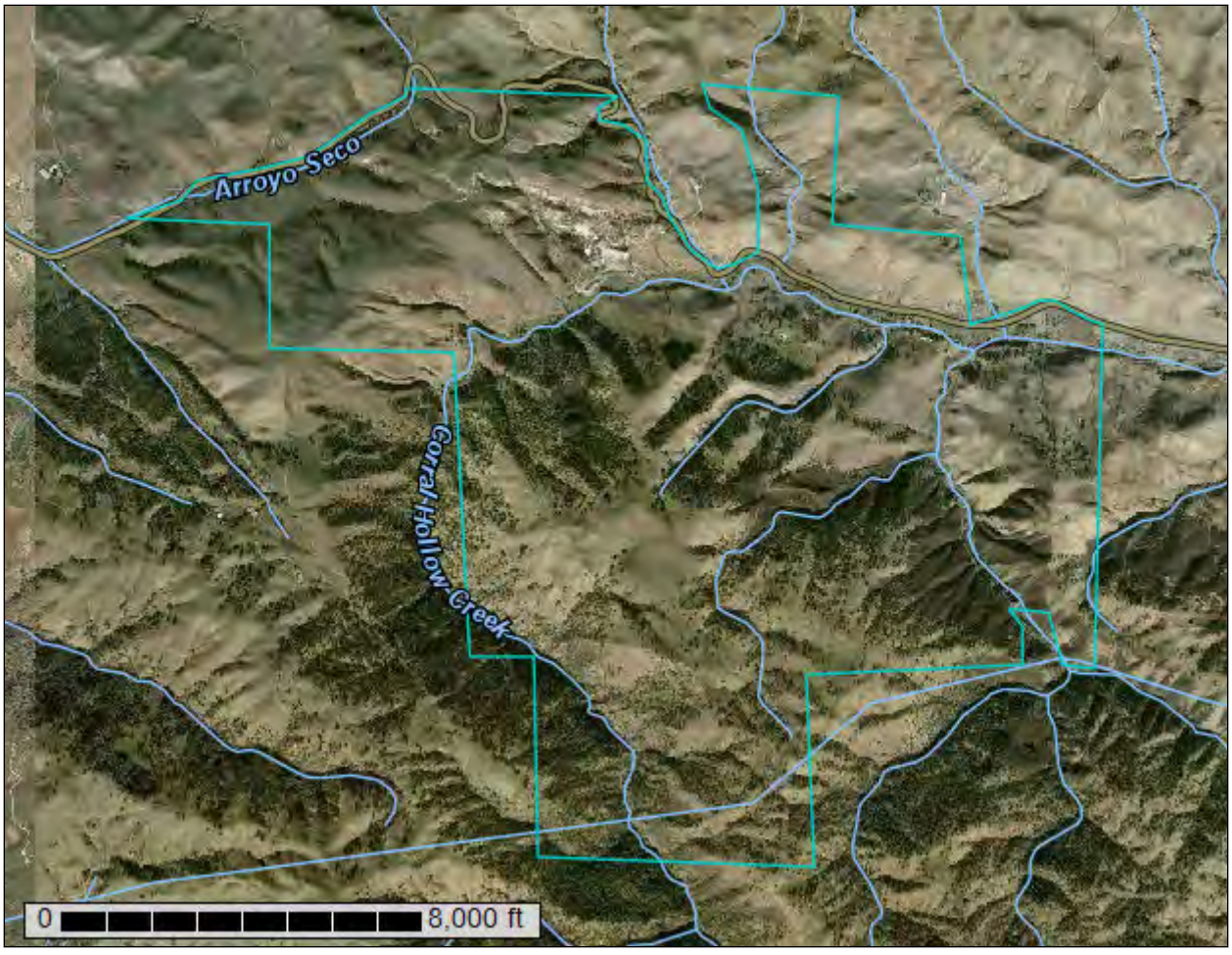
United States Department of Agriculture

NRCS

Natural Resources Conservation Service

A product of the National Cooperative Soil Survey, a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local participants

Custom Soil Resource Report for Alameda Area, California



October 20, 2017

Preface

Soil surveys contain information that affects land use planning in survey areas. They highlight soil limitations that affect various land uses and provide information about the properties of the soils in the survey areas. Soil surveys are designed for many different users, including farmers, ranchers, foresters, agronomists, urban planners, community officials, engineers, developers, builders, and home buyers. Also, conservationists, teachers, students, and specialists in recreation, waste disposal, and pollution control can use the surveys to help them understand, protect, or enhance the environment.

Various land use regulations of Federal, State, and local governments may impose special restrictions on land use or land treatment. Soil surveys identify soil properties that are used in making various land use or land treatment decisions. The information is intended to help the land users identify and reduce the effects of soil limitations on various land uses. The landowner or user is responsible for identifying and complying with existing laws and regulations.

Although soil survey information can be used for general farm, local, and wider area planning, onsite investigation is needed to supplement this information in some cases. Examples include soil quality assessments (http://www.nrcs.usda.gov/wps/portal/nrcs/main/soils/health/) and certain conservation and engineering applications. For more detailed information, contact your local USDA Service Center (https://offices.sc.egov.usda.gov/locator/app?agency=nrcs) or your NRCS State Soil Scientist (http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/contactus/?cid=nrcs142p2_053951).

Great differences in soil properties can occur within short distances. Some soils are seasonally wet or subject to flooding. Some are too unstable to be used as a foundation for buildings or roads. Clayey or wet soils are poorly suited to use as septic tank absorption fields. A high water table makes a soil poorly suited to basements or underground installations.

The National Cooperative Soil Survey is a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local agencies. The Natural Resources Conservation Service (NRCS) has leadership for the Federal part of the National Cooperative Soil Survey.

Information about soils is updated periodically. Updated information is available through the NRCS Web Soil Survey, the site for official soil survey information.

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Contents

How Soil Surveys Are Made

Soil surveys are made to provide information about the soils and miscellaneous areas in a specific area. They include a description of the soils and miscellaneous areas and their location on the landscape and tables that show soil properties and limitations affecting various uses. Soil scientists observed the steepness, length, and shape of the slopes; the general pattern of drainage; the kinds of crops and native plants; and the kinds of bedrock. They observed and described many soil profiles. A soil profile is the sequence of natural layers, or horizons, in a soil. The profile extends from the surface down into the unconsolidated material in which the soil formed or from the surface down to bedrock. The unconsolidated material is devoid of roots and other living organisms and has not been changed by other biological activity.

Currently, soils are mapped according to the boundaries of major land resource areas (MLRAs). MLRAs are geographically associated land resource units that share common characteristics related to physiography, geology, climate, water resources, soils, biological resources, and land uses (USDA, 2006). Soil survey areas typically consist of parts of one or more MLRA.

The soils and miscellaneous areas in a survey area occur in an orderly pattern that is related to the geology, landforms, relief, climate, and natural vegetation of the area. Each kind of soil and miscellaneous area is associated with a particular kind of landform or with a segment of the landform. By observing the soils and miscellaneous areas in the survey area and relating their position to specific segments of the landform, a soil scientist develops a concept, or model, of how they were formed. Thus, during mapping, this model enables the soil scientist to predict with a considerable degree of accuracy the kind of soil or miscellaneous area at a specific location on the landscape.

Commonly, individual soils on the landscape merge into one another as their characteristics gradually change. To construct an accurate soil map, however, soil scientists must determine the boundaries between the soils. They can observe only a limited number of soil profiles. Nevertheless, these observations, supplemented by an understanding of the soil-vegetation-landscape relationship, are sufficient to verify predictions of the kinds of soil in an area and to determine the boundaries.

Soil scientists recorded the characteristics of the soil profiles that they studied. They noted soil color, texture, size and shape of soil aggregates, kind and amount of rock fragments, distribution of plant roots, reaction, and other features that enable them to identify soils. After describing the soils in the survey area and determining their properties, the soil scientists assigned the soils to taxonomic classes (units). Taxonomic classes are concepts. Each taxonomic class has a set of soil characteristics with precisely defined limits. The classes are used as a basis for comparison to classify soils systematically. Soil taxonomy, the system of taxonomic classification used in the United States, is based mainly on the kind and character of soil properties and the arrangement of horizons within the profile. After the soil

scientists classified and named the soils in the survey area, they compared the individual soils with similar soils in the same taxonomic class in other areas so that they could confirm data and assemble additional data based on experience and research.

The objective of soil mapping is not to delineate pure map unit components; the objective is to separate the landscape into landforms or landform segments that have similar use and management requirements. Each map unit is defined by a unique combination of soil components and/or miscellaneous areas in predictable proportions. Some components may be highly contrasting to the other components of the map unit. The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The delineation of such landforms and landform segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, onsite investigation is needed to define and locate the soils and miscellaneous areas.

Soil scientists make many field observations in the process of producing a soil map. The frequency of observation is dependent upon several factors, including scale of mapping, intensity of mapping, design of map units, complexity of the landscape, and experience of the soil scientist. Observations are made to test and refine the soil-landscape model and predictions and to verify the classification of the soils at specific locations. Once the soil-landscape model is refined, a significantly smaller number of measurements of individual soil properties are made and recorded. These measurements may include field measurements, such as those for color, depth to bedrock, and texture, and laboratory measurements, such as those for content of sand, silt, clay, salt, and other components. Properties of each soil typically vary from one point to another across the landscape.

Observations for map unit components are aggregated to develop ranges of characteristics for the components. The aggregated values are presented. Direct measurements do not exist for every property presented for every map unit component. Values for some properties are estimated from combinations of other properties.

While a soil survey is in progress, samples of some of the soils in the area generally are collected for laboratory analyses and for engineering tests. Soil scientists interpret the data from these analyses and tests as well as the field-observed characteristics and the soil properties to determine the expected behavior of the soils under different uses. Interpretations for all of the soils are field tested through observation of the soils in different uses and under different levels of management. Some interpretations are modified to fit local conditions, and some new interpretations are developed to meet local needs. Data are assembled from other sources, such as research information, production records, and field experience of specialists. For example, data on crop yields under defined levels of management are assembled from farm records and from field or plot experiments on the same kinds of soil.

Predictions about soil behavior are based not only on soil properties but also on such variables as climate and biological activity. Soil conditions are predictable over long periods of time, but they are not predictable from year to year. For example, soil scientists can predict with a fairly high degree of accuracy that a given soil will have a high water table within certain depths in most years, but they cannot predict that a high water table will always be at a specific level in the soil on a specific date.

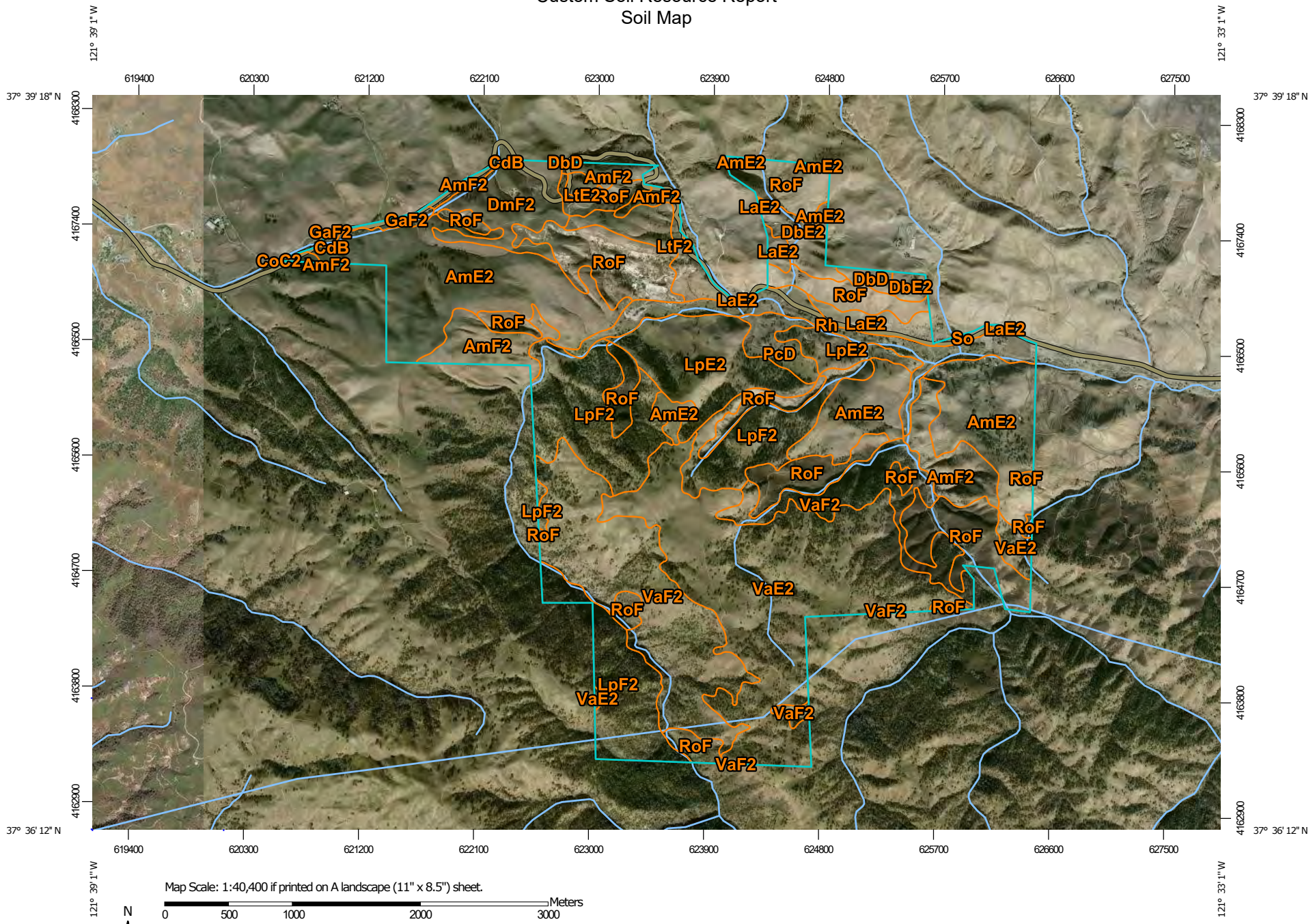
After soil scientists located and identified the significant natural bodies of soil in the survey area, they drew the boundaries of these bodies on aerial photographs and

identified each as a specific map unit. Aerial photographs show trees, buildings, fields, roads, and rivers, all of which help in locating boundaries accurately.

Soil Map

The soil map section includes the soil map for the defined area of interest, a list of soil map units on the map and extent of each map unit, and cartographic symbols displayed on the map. Also presented are various metadata about data used to produce the map, and a description of each soil map unit.

Custom Soil Resource Report
Soil Map



Map Scale: 1:40,400 if printed on A landscape (11" x 8.5") sheet.

N

Meters: 0 500 1000 2000 3000

Feet: 0 1500 3000 6000 9000

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 10N WGS84

MAP LEGEND

Area of Interest (AOI)
- Area of Interest (AOI)

Soils
- Soil Map Unit Polygons
- Soil Map Unit Lines
- Soil Map Unit Points

Special Point Features
- Blowout
- Borrow Pit
- Clay Spot
- Closed Depression
- Gravel Pit
- Gravelly Spot
- Landfill
- Lava Flow
- Marsh or swamp
- Mine or Quarry
- Miscellaneous Water
- Perennial Water
- Rock Outcrop
- Saline Spot
- Sandy Spot
- Severely Eroded Spot
- Sinkhole
- Slide or Slip
- Sodic Spot
- Spoil Area
- Stony Spot
- Very Stony Spot
- Wet Spot
- Other
- Special Line Features

Water Features
- Streams and Canals

Transportation
- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

Background
- Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:20,000.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Alameda Area, California
Survey Area Data: Version 10, Sep 28, 2016

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: May 12, 2010—Nov 15, 2010

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
AmE2	Altamont clay, moderately deep, 30 to 45 percent slopes, eroded	617.1	16.6%
AmF2	Altamont clay, moderately deep, 45 to 75 percent slopes, eroded	193.7	5.2%
CdB	Clear Lake clay, drained, 3 to 7 percent slopes	5.2	0.1%
CoC2	Cotati fine sandy loam, eroded	0.1	0.0%
DbD	Diablo clay, 15 to 30 percent slopes, MLRA 15	14.3	0.4%
DbE2	Diablo clay, 30 to 45 percent slopes, eroded	57.7	1.6%
DmF2	Diablo clay, moderately deep, 45to 60 percent slopes, eroded	110.7	3.0%
GaF2	Gaviota rocky sandy loam, 40 to 75 percent slopes, eroded	11.0	0.3%
LaE2	Linne clay loam, 30 to 45 percent slopes, eroded	49.2	1.3%
LpE2	Los Gatos-Los Osos complex, 30 to 45 percent slopes, eroded	219.8	5.9%
LpF2	Los Gatos-Los Osos complex, 30 to 75 percent slopes, eroded, MLRA 15	475.5	12.8%
LtE2	Los Osos silty clay loam, 30 to 45 percent slopes, eroded	9.6	0.3%
LtF2	Los Osos silty clay loam, 45 to 75 percent slopes, eroded	71.2	1.9%
PcD	Perkins loam, 3 to 30 percent slopes	44.1	1.2%
Rh	Riverwash	138.1	3.7%
RoF	Rock land	538.9	14.5%
So	Sycamore silt loam	5.8	0.2%
VaE2	Vallecitos rocky loam, 30 to 45 percent slopes, eroded	648.0	17.5%
VaF2	Vallecitos loam, 30 to 75 percent slopes, eroded, MLRA 15	496.8	13.4%
Totals for Area of Interest		**3,706.6**	**100.0%**

Map Unit Descriptions

The map units delineated on the detailed soil maps in a soil survey represent the soils or miscellaneous areas in the survey area. The map unit descriptions, along with the maps, can be used to determine the composition and properties of a unit.

A map unit delineation on a soil map represents an area dominated by one or more major kinds of soil or miscellaneous areas. A map unit is identified and named according to the taxonomic classification of the dominant soils. Within a taxonomic class there are precisely defined limits for the properties of the soils. On the landscape, however, the soils are natural phenomena, and they have the characteristic variability of all natural phenomena. Thus, the range of some observed properties may extend beyond the limits defined for a taxonomic class. Areas of soils of a single taxonomic class rarely, if ever, can be mapped without including areas of other taxonomic classes. Consequently, every map unit is made up of the soils or miscellaneous areas for which it is named and some minor components that belong to taxonomic classes other than those of the major soils.

Most minor soils have properties similar to those of the dominant soil or soils in the map unit, and thus they do not affect use and management. These are called noncontrasting, or similar, components. They may or may not be mentioned in a particular map unit description. Other minor components, however, have properties and behavioral characteristics divergent enough to affect use or to require different management. These are called contrasting, or dissimilar, components. They generally are in small areas and could not be mapped separately because of the scale used. Some small areas of strongly contrasting soils or miscellaneous areas are identified by a special symbol on the maps. If included in the database for a given area, the contrasting minor components are identified in the map unit descriptions along with some characteristics of each. A few areas of minor components may not have been observed, and consequently they are not mentioned in the descriptions, especially where the pattern was so complex that it was impractical to make enough observations to identify all the soils and miscellaneous areas on the landscape.

The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The objective of mapping is not to delineate pure taxonomic classes but rather to separate the landscape into landforms or landform segments that have similar use and management requirements. The delineation of such segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, however, onsite investigation is needed to define and locate the soils and miscellaneous areas.

An identifying symbol precedes the map unit name in the map unit descriptions. Each description includes general facts about the unit and gives important soil properties and qualities.

Soils that have profiles that are almost alike make up a *soil series*. Except for differences in texture of the surface layer, all the soils of a series have major horizons that are similar in composition, thickness, and arrangement.

Soils of one series can differ in texture of the surface layer, slope, stoniness, salinity, degree of erosion, and other characteristics that affect their use. On the basis of such differences, a soil series is divided into *soil phases*. Most of the areas

shown on the detailed soil maps are phases of soil series. The name of a soil phase commonly indicates a feature that affects use or management. For example, Alpha silt loam, 0 to 2 percent slopes, is a phase of the Alpha series.

Some map units are made up of two or more major soils or miscellaneous areas. These map units are complexes, associations, or undifferentiated groups.

A *complex* consists of two or more soils or miscellaneous areas in such an intricate pattern or in such small areas that they cannot be shown separately on the maps. The pattern and proportion of the soils or miscellaneous areas are somewhat similar in all areas. Alpha-Beta complex, 0 to 6 percent slopes, is an example.

An *association* is made up of two or more geographically associated soils or miscellaneous areas that are shown as one unit on the maps. Because of present or anticipated uses of the map units in the survey area, it was not considered practical or necessary to map the soils or miscellaneous areas separately. The pattern and relative proportion of the soils or miscellaneous areas are somewhat similar. Alpha-Beta association, 0 to 2 percent slopes, is an example.

An *undifferentiated group* is made up of two or more soils or miscellaneous areas that could be mapped individually but are mapped as one unit because similar interpretations can be made for use and management. The pattern and proportion of the soils or miscellaneous areas in a mapped area are not uniform. An area can be made up of only one of the major soils or miscellaneous areas, or it can be made up of all of them. Alpha and Beta soils, 0 to 2 percent slopes, is an example.

Some surveys include *miscellaneous areas*. Such areas have little or no soil material and support little or no vegetation. Rock outcrop is an example.

Alameda Area, California

AmE2—Altamont clay, moderately deep, 30 to 45 percent slopes, eroded

Map Unit Setting

National map unit symbol: hb2q
Elevation: 700 to 1,700 feet
Mean annual precipitation: 10 to 15 inches
Mean annual air temperature: 57 degrees F
Frost-free period: 240 to 260 days
Farmland classification: Not prime farmland

Map Unit Composition

Altamont and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Altamont

Setting

Landform: Hills
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Side slope
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Residuum weathered from sandstone and shale

Typical profile

H1 - 0 to 20 inches: clay
H2 - 20 to 28 inches: clay
H3 - 28 to 32 inches: weathered bedrock

Properties and qualities

Slope: 30 to 45 percent
Depth to restrictive feature: 18 to 36 inches to paralithic bedrock
Natural drainage class: Well drained
Runoff class: Very high
Capacity of the most limiting layer to transmit water (Ksat): Very low (0.00 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum in profile: 15 percent
Salinity, maximum in profile: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Available water storage in profile: Low (about 4.3 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 6e
Hydrologic Soil Group: D
Ecological site: CLAYEY HILLS (R015XD137CA)
Hydric soil rating: No

Minor Components

Diablo
Percent of map unit: 7 percent
Hydric soil rating: No

Linne
Percent of map unit: 6 percent
Hydric soil rating: No

Clear lake
Percent of map unit: 1 percent
Landform: Basin floors
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Talf
Down-slope shape: Linear
Across-slope shape: Linear
Hydric soil rating: Yes

Pescadero
Percent of map unit: 1 percent
Landform: Basin floors
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Talf
Down-slope shape: Linear
Across-slope shape: Linear
Hydric soil rating: Yes

AmF2—Altamont clay, moderately deep, 45 to 75 percent slopes, eroded

Map Unit Setting
National map unit symbol: hb2r
Elevation: 700 to 1,700 feet
Mean annual precipitation: 10 to 15 inches
Mean annual air temperature: 57 degrees F
Frost-free period: 240 to 260 days
Farmland classification: Not prime farmland

Map Unit Composition
Altamont and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Altamont

Setting
Landform: Hills
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Side slope
Down-slope shape: Convex

Across-slope shape: Convex
Parent material: Residuum weathered from sandstone and shale

Typical profile

H1 - 0 to 18 inches: clay
H2 - 18 to 24 inches: clay
H3 - 24 to 28 inches: weathered bedrock

Properties and qualities

Slope: 45 to 75 percent
Depth to restrictive feature: 18 to 30 inches to paralithic bedrock
Natural drainage class: Well drained
Runoff class: Very high
Capacity of the most limiting layer to transmit water (Ksat): Very low (0.00 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum in profile: 15 percent
Salinity, maximum in profile: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Available water storage in profile: Low (about 3.7 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 7e
Hydrologic Soil Group: D
Ecological site: STEEP CLAYEY SLOPES (R015XD138CA)
Hydric soil rating: No

Minor Components

Diablo

Percent of map unit: 7 percent
Hydric soil rating: No

Linne

Percent of map unit: 6 percent
Hydric soil rating: No

Clear lake

Percent of map unit: 1 percent
Landform: Basin floors
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Talf
Down-slope shape: Linear
Across-slope shape: Linear
Hydric soil rating: Yes

Pescadero

Percent of map unit: 1 percent
Landform: Basin floors
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Talf
Down-slope shape: Linear
Across-slope shape: Linear
Hydric soil rating: Yes

CdB—Clear Lake clay, drained, 3 to 7 percent slopes

Map Unit Setting

National map unit symbol: hb31
Elevation: 100 to 900 feet
Mean annual precipitation: 14 to 15 inches
Mean annual air temperature: 57 degrees F
Frost-free period: 240 to 260 days
Farmland classification: Prime farmland if irrigated

Map Unit Composition

Clear lake and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Clear Lake

Setting

Landform: Basin floors
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Talf
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Alluvium derived from sedimentary rock

Typical profile

H1 - 0 to 36 inches: clay
H2 - 36 to 65 inches: clay

Properties and qualities

Slope: 3 to 7 percent
Depth to restrictive feature: More than 80 inches
Natural drainage class: Moderately well drained
Runoff class: Medium
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.06 to 0.20 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum in profile: 5 percent
Salinity, maximum in profile: Nonsaline to moderately saline (0.0 to 8.0 mmhos/cm)
Available water storage in profile: Moderate (about 8.4 inches)

Interpretive groups

Land capability classification (irrigated): 2e
Land capability classification (nonirrigated): 4e
Hydrologic Soil Group: C
Hydric soil rating: Yes

Minor Components

Unnamed

Percent of map unit: 5 percent
Landform: Basin floors
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Talf
Down-slope shape: Linear
Across-slope shape: Linear
Hydric soil rating: Yes

Capay

Percent of map unit: 5 percent
Hydric soil rating: No

San ysidro

Percent of map unit: 5 percent
Hydric soil rating: No

CoC2—Cotati fine sandy loam, eroded

Map Unit Setting

National map unit symbol: hb32
Elevation: 600 to 2,500 feet
Mean annual precipitation: 15 to 20 inches
Mean annual air temperature: 57 degrees F
Frost-free period: 260 to 360 days
Farmland classification: Not prime farmland

Map Unit Composition

Cotati and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Cotati

Setting

Landform: Hills
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Side slope
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Residuum weathered from sandstone and shale

Typical profile

H1 - 0 to 27 inches: fine sandy loam
H2 - 27 to 49 inches: clay
H3 - 49 to 53 inches: weathered bedrock

Properties and qualities

Slope: 5 to 20 percent

Depth to restrictive feature: About 27 inches to abrupt textural change; 24 to 49 inches to paralithic bedrock
Natural drainage class: Moderately well drained
Runoff class: Medium
Capacity of the most limiting layer to transmit water (Ksat): Very low (0.00 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water storage in profile: Low (about 3.5 inches)

Interpretive groups

Land capability classification (irrigated): 4e
Land capability classification (nonirrigated): 4e
Hydrologic Soil Group: D
Hydric soil rating: No

Minor Components

Los osos

Percent of map unit: 5 percent
Hydric soil rating: No

Gaviota

Percent of map unit: 5 percent
Hydric soil rating: No

Millsholm

Percent of map unit: 5 percent
Hydric soil rating: No

DbD—Diablo clay, 15 to 30 percent slopes, MLRA 15

Map Unit Setting

National map unit symbol: 2w60p
Elevation: 70 to 4,230 feet
Mean annual precipitation: 11 to 39 inches
Mean annual air temperature: 56 to 61 degrees F
Frost-free period: 200 to 325 days
Farmland classification: Not prime farmland

Map Unit Composition

Diablo and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Diablo

Setting

Landform: Mountain slopes, hillslopes
Down-slope shape: Linear, convex
Across-slope shape: Linear, convex

Parent material: Residuum weathered from calcareous shale

Typical profile

A1 - 0 to 5 inches: clay
A2 - 5 to 18 inches: clay
Bkss1 - 18 to 30 inches: clay
Bkss2 - 30 to 39 inches: clay
Ck - 39 to 53 inches: clay
Cr - 53 to 79 inches: bedrock

Properties and qualities

Slope: 15 to 30 percent
Depth to restrictive feature: 40 to 59 inches to paralithic bedrock
Natural drainage class: Well drained
Runoff class: Very high
Capacity of the most limiting layer to transmit water (Ksat): Very low to moderately low (0.00 to 0.06 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum in profile: 5 percent
Available water storage in profile: High (about 9.0 inches)

Interpretive groups

Land capability classification (irrigated): 4e
Land capability classification (nonirrigated): 4e
Hydrologic Soil Group: C
Ecological site: CLAYEY HILLS (R014XC009CA), CLAYEY (R015XD001CA)
Hydric soil rating: No

Minor Components

Alo

Percent of map unit: 4 percent
Landform: Hillslopes
Down-slope shape: Convex
Across-slope shape: Convex
Hydric soil rating: No

Cropley

Percent of map unit: 4 percent
Landform: Terraces, valleys
Landform position (two-dimensional): Toeslope
Down-slope shape: Linear
Across-slope shape: Linear
Hydric soil rating: No

Sehorn

Percent of map unit: 3 percent
Landform: Hillslopes
Down-slope shape: Convex
Across-slope shape: Convex
Hydric soil rating: No

Haire

Percent of map unit: 1 percent
Landform: Terraces
Down-slope shape: Linear

Across-slope shape: Linear
Hydric soil rating: No

Raynor

Percent of map unit: 1 percent
Landform: Hillslopes
Down-slope shape: Convex
Across-slope shape: Convex
Hydric soil rating: No

Altamont

Percent of map unit: 1 percent
Landform: Hillslopes
Down-slope shape: Convex
Across-slope shape: Convex
Hydric soil rating: No

Linne

Percent of map unit: 1 percent
Landform: Hillslopes
Down-slope shape: Convex
Across-slope shape: Convex
Hydric soil rating: No

DbE2—Diablo clay, 30 to 45 percent slopes, eroded

Map Unit Setting

National map unit symbol: hb38
Elevation: 300 to 1,700 feet
Mean annual precipitation: 10 to 15 inches
Mean annual air temperature: 57 degrees F
Frost-free period: 240 to 280 days
Farmland classification: Not prime farmland

Map Unit Composition

Diablo and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Diablo

Setting

Landform: Hills
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Side slope
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Alluvium derived from shale and siltstone

Typical profile

H1 - 0 to 6 inches: clay

H2 - 6 to 42 inches: silty clay
H3 - 42 to 50 inches: silty clay
H4 - 50 to 54 inches: weathered bedrock

Properties and qualities

Slope: 30 to 45 percent
Depth to restrictive feature: 40 to 60 inches to paralithic bedrock
Natural drainage class: Well drained
Runoff class: Very high
Capacity of the most limiting layer to transmit water (Ksat): Very low (0.00 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum in profile: 5 percent
Salinity, maximum in profile: Nonsaline to moderately saline (0.0 to 8.0 mmhos/cm)
Available water storage in profile: Moderate (about 8.5 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 6e
Hydrologic Soil Group: C
Ecological site: CLAYEY HILLS (R015XD137CA)
Hydric soil rating: No

Minor Components

Clear lake

Percent of map unit: 5 percent
Landform: Basin floors
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Talf
Down-slope shape: Linear
Across-slope shape: Linear
Hydric soil rating: Yes

Pescadero

Percent of map unit: 5 percent
Landform: Basin floors
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Talf
Down-slope shape: Linear
Across-slope shape: Linear
Hydric soil rating: Yes

Landslips

Percent of map unit: 3 percent
Hydric soil rating: No

Seeps

Percent of map unit: 2 percent
Hydric soil rating: No

DmF2—Diablo clay, moderately deep, 45to 60 percent slopes, eroded

Map Unit Setting

National map unit symbol: hb39
Elevation: 300 to 1,700 feet
Mean annual precipitation: 10 to 15 inches
Mean annual air temperature: 57 degrees F
Frost-free period: 240 to 280 days
Farmland classification: Not prime farmland

Map Unit Composition

Diablo and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Diablo

Setting

Landform: Hills
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Side slope
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Alluvium derived from shale and siltstone

Typical profile

H1 - 0 to 5 inches: clay
H2 - 5 to 23 inches: clay
H3 - 23 to 30 inches: clay loam
H4 - 30 to 34 inches: weathered bedrock

Properties and qualities

Slope: 45 to 60 percent
Depth to restrictive feature: 18 to 36 inches to paralithic bedrock
Natural drainage class: Well drained
Runoff class: Very high
Capacity of the most limiting layer to transmit water (Ksat): Very low (0.00 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum in profile: 5 percent
Salinity, maximum in profile: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Available water storage in profile: Low (about 4.5 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 7e
Hydrologic Soil Group: D
Ecological site: STEEP CLAYEY SLOPES (R015XD138CA)

Hydric soil rating: No

Minor Components

Clear lake

Percent of map unit: 5 percent
Landform: Basin floors
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Talf
Down-slope shape: Linear
Across-slope shape: Linear
Hydric soil rating: Yes

Pescadero

Percent of map unit: 5 percent
Landform: Basin floors
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Talf
Down-slope shape: Linear
Across-slope shape: Linear
Hydric soil rating: Yes

Landslips

Percent of map unit: 5 percent
Hydric soil rating: No

GaF2—Gaviota rocky sandy loam, 40 to 75 percent slopes, eroded

Map Unit Setting

National map unit symbol: hb3h
Elevation: 600 to 2,500 feet
Mean annual precipitation: 15 to 20 inches
Mean annual air temperature: 57 degrees F
Frost-free period: 280 to 360 days
Farmland classification: Not prime farmland

Map Unit Composition

Gaviota and similar soils: 60 percent
Minor components: 40 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Gaviota

Setting

Landform: Hills
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Side slope
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Residuum weathered from sandstone

Typical profile

H1 - 0 to 17 inches: sandy loam
H2 - 17 to 21 inches: unweathered bedrock

Properties and qualities

Slope: 40 to 75 percent
Depth to restrictive feature: 10 to 20 inches to lithic bedrock
Natural drainage class: Excessively drained
Runoff class: Very high
Capacity of the most limiting layer to transmit water (Ksat): Very low (0.00 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water storage in profile: Very low (about 1.9 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 7e
Hydrologic Soil Group: D
Ecological site: STEEP SHALLOW LOAMY UPLANDS (R015XD130CA)
Hydric soil rating: No

Minor Components

Rock outcrop

Percent of map unit: 25 percent
Hydric soil rating: No

Los osos

Percent of map unit: 10 percent
Hydric soil rating: No

Vallecitos

Percent of map unit: 5 percent
Hydric soil rating: No

LaE2—Linne clay loam, 30 to 45 percent slopes, eroded

Map Unit Setting

National map unit symbol: hb3n
Elevation: 700 to 1,700 feet
Mean annual precipitation: 10 to 15 inches
Mean annual air temperature: 57 degrees F
Frost-free period: 240 to 260 days
Farmland classification: Not prime farmland

Map Unit Composition

Linne and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Linne

Setting

Landform: Hills
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Side slope
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Residuum weathered from sandstone and shale

Typical profile

H1 - 0 to 36 inches: clay loam
H2 - 36 to 40 inches: weathered bedrock

Properties and qualities

Slope: 30 to 45 percent
Depth to restrictive feature: 20 to 40 inches to paralithic bedrock
Natural drainage class: Well drained
Runoff class: High
Capacity of the most limiting layer to transmit water (Ksat): Very low (0.00 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum in profile: 10 percent
Salinity, maximum in profile: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Available water storage in profile: Moderate (about 6.4 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 6e
Hydrologic Soil Group: C
Ecological site: CLAYEY HILLS (R014XD092CA)
Hydric soil rating: No

Minor Components

Altamont

Percent of map unit: 5 percent
Hydric soil rating: No

Diablo

Percent of map unit: 5 percent
Hydric soil rating: No

Clear lake

Percent of map unit: 3 percent
Landform: Basin floors
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Talf
Down-slope shape: Linear
Across-slope shape: Linear
Hydric soil rating: Yes

Pescadero

Percent of map unit: 2 percent
Landform: Basin floors

Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Talf
Down-slope shape: Linear
Across-slope shape: Linear
Hydric soil rating: Yes

LpE2—Los Gatos-Los Osos complex, 30 to 45 percent slopes, eroded

Map Unit Setting

National map unit symbol: hb3t
Elevation: 600 to 2,500 feet
Mean annual precipitation: 10 to 20 inches
Mean annual air temperature: 57 degrees F
Frost-free period: 240 to 360 days
Farmland classification: Not prime farmland

Map Unit Composition

Los gatos and similar soils: 40 percent
Los osos and similar soils: 40 percent
Minor components: 20 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Los Gatos

Setting

Landform: Hills
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Side slope
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Residuum weathered from sandstone and shale

Typical profile

H1 - 0 to 11 inches: loam
H2 - 11 to 42 inches: clay loam
H3 - 42 to 44 inches: unweathered bedrock

Properties and qualities

Slope: 30 to 45 percent
Depth to restrictive feature: 12 to 48 inches to lithic bedrock
Natural drainage class: Well drained
Runoff class: High
Capacity of the most limiting layer to transmit water (Ksat): Very low (0.00 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water storage in profile: Moderate (about 6.9 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 6e

Hydrologic Soil Group: B
Ecological site: SHALLOW LOAMY UPLANDS (R015XD129CA)
Hydric soil rating: No

Description of Los Osos

Setting

Landform: Hills
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Side slope
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Residuum weathered from sandstone, shale and in some places from conglomerate

Typical profile

H1 - 0 to 8 inches: silty clay loam
H2 - 8 to 30 inches: silty clay
H3 - 30 to 34 inches: weathered bedrock

Properties and qualities

Slope: 30 to 45 percent
Depth to restrictive feature: 18 to 48 inches to lithic bedrock
Natural drainage class: Well drained
Runoff class: High
Capacity of the most limiting layer to transmit water (Ksat): Very low (0.00 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water storage in profile: Low (about 4.5 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 6e
Hydrologic Soil Group: C
Ecological site: LOAMY UPLAND (R015XD126CA)
Hydric soil rating: No

Minor Components

Millsholm

Percent of map unit: 10 percent
Hydric soil rating: No

Henneke

Percent of map unit: 10 percent
Hydric soil rating: No

LpF2—Los Gatos-Los Osos complex, 30 to 75 percent slopes, eroded, MLRA 15

Map Unit Setting

National map unit symbol: 2tb6z
Elevation: 90 to 3,810 feet
Mean annual precipitation: 13 to 29 inches
Mean annual air temperature: 55 to 63 degrees F
Frost-free period: 300 to 365 days
Farmland classification: Not prime farmland

Map Unit Composition

Los gatos and similar soils: 40 percent
Los osos and similar soils: 40 percent
Minor components: 20 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Los Gatos

Setting

Landform: Mountain slopes, hillslopes
Down-slope shape: Concave
Across-slope shape: Convex
Parent material: Residuum weathered from sandstone and shale

Typical profile

A - 0 to 11 inches: loam
Bt - 11 to 39 inches: loam
R - 39 to 49 inches: bedrock

Properties and qualities

Slope: 30 to 75 percent
Depth to restrictive feature: 24 to 39 inches to lithic bedrock
Natural drainage class: Well drained
Runoff class: Very high
Capacity of the most limiting layer to transmit water (Ksat): Very low (0.00 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water storage in profile: Moderate (about 6.8 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 7e
Hydrologic Soil Group: C
Ecological site: STEEP SHALLOW LOAMY UPLANDS (R015XD130CA)
Hydric soil rating: No

Description of Los Osos

Setting

Landform: Mountain slopes, hillslopes
Down-slope shape: Concave
Across-slope shape: Convex
Parent material: Residuum weathered from sandstone, shale and in some places from conglomerate

Typical profile

A - 0 to 8 inches: silty clay loam
Bt - 8 to 30 inches: silty clay loam
R - 30 to 40 inches: weathered bedrock

Properties and qualities

Slope: 30 to 75 percent
Depth to restrictive feature: 24 to 40 inches to lithic bedrock
Natural drainage class: Well drained
Runoff class: Very high
Capacity of the most limiting layer to transmit water (Ksat): Very low (0.00 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water storage in profile: Low (about 5.7 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 7e
Hydrologic Soil Group: C
Ecological site: STEEP LOAMY SLOPES (R015XD139CA)
Hydric soil rating: No

Minor Components

Gaviota

Percent of map unit: 10 percent
Hydric soil rating: No

Henneke

Percent of map unit: 5 percent
Hydric soil rating: No

Millsholm

Percent of map unit: 4 percent
Hydric soil rating: No

Rock outcrop

Percent of map unit: 1 percent

LtE2—Los Osos silty clay loam, 30 to 45 percent slopes, eroded

Map Unit Setting

National map unit symbol: hb3y
Elevation: 600 to 2,500 feet
Mean annual precipitation: 10 to 20 inches
Mean annual air temperature: 57 degrees F
Frost-free period: 240 to 360 days
Farmland classification: Not prime farmland

Map Unit Composition

Los osos and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Los Osos

Setting

Landform: Hills
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Side slope
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Residuum weathered from sandstone, shale and in some places from conglomerate

Typical profile

H1 - 0 to 8 inches: silty clay loam
H2 - 8 to 30 inches: silty clay
H3 - 30 to 34 inches: weathered bedrock

Properties and qualities

Slope: 30 to 45 percent
Depth to restrictive feature: 18 to 48 inches to paralithic bedrock
Natural drainage class: Well drained
Runoff class: High
Capacity of the most limiting layer to transmit water (Ksat): Very low (0.00 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water storage in profile: Low (about 4.5 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 6e
Hydrologic Soil Group: C
Ecological site: LOAMY UPLAND (R015XD126CA)
Hydric soil rating: No

Minor Components

Gaviota
Percent of map unit: 5 percent
Hydric soil rating: No

Millsholm
Percent of map unit: 5 percent
Hydric soil rating: No

Los gatos
Percent of map unit: 5 percent
Hydric soil rating: No

LtF2—Los Osos silty clay loam, 45 to 75 percent slopes, eroded

Map Unit Setting
National map unit symbol: hb3z
Elevation: 600 to 2,500 feet
Mean annual precipitation: 10 to 20 inches
Mean annual air temperature: 57 degrees F
Frost-free period: 240 to 360 days
Farmland classification: Not prime farmland

Map Unit Composition
Los osos and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Los Osos

Setting
Landform: Hills
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Side slope
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Residuum weathered from sandstone, shale and in some places from conglomerate

Typical profile
H1 - 0 to 8 inches: silty clay loam
H2 - 8 to 30 inches: silty clay
H3 - 30 to 34 inches: weathered bedrock

Properties and qualities
Slope: 45 to 75 percent
Depth to restrictive feature: 18 to 48 inches to lithic bedrock
Natural drainage class: Somewhat excessively drained
Runoff class: High
Capacity of the most limiting layer to transmit water (Ksat): Very low (0.00 in/hr)

Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water storage in profile: Low (about 4.5 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 7e
Hydrologic Soil Group: C
Ecological site: STEEP LOAMY SLOPES (R015XD139CA)
Hydric soil rating: No

Minor Components

Gaviota

Percent of map unit: 5 percent
Hydric soil rating: No

Millsholm

Percent of map unit: 5 percent
Hydric soil rating: No

Los gatos

Percent of map unit: 5 percent
Hydric soil rating: No

PcD—Perkins loam, 3 to 30 percent slopes

Map Unit Setting

National map unit symbol: hb46
Elevation: 300 to 1,500 feet
Mean annual precipitation: 12 to 15 inches
Mean annual air temperature: 57 degrees F
Frost-free period: 260 to 280 days
Farmland classification: Not prime farmland

Map Unit Composition

Perkins and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Perkins

Setting

Landform: Fluvial terraces
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Alluvium derived from sandstone and shale

Typical profile

H1 - 0 to 10 inches: loam
H2 - 10 to 33 inches: gravelly clay loam
H3 - 33 to 65 inches: stratified very gravelly sandy loam to very gravelly clay loam

Properties and qualities

Slope: 3 to 30 percent
Depth to restrictive feature: More than 80 inches
Natural drainage class: Well drained
Runoff class: Medium
Capacity of the most limiting layer to transmit water (Ksat): Moderately high (0.20 to 0.57 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water storage in profile: Moderate (about 8.6 inches)

Interpretive groups

Land capability classification (irrigated): 4e
Land capability classification (nonirrigated): 4e
Hydrologic Soil Group: C
Hydric soil rating: No

Minor Components

Positas

Percent of map unit: 5 percent
Hydric soil rating: No

Azule

Percent of map unit: 5 percent
Hydric soil rating: No

Pleasanton

Percent of map unit: 5 percent
Hydric soil rating: No

Rh—Riverwash

Map Unit Setting

National map unit symbol: hb4l
Elevation: 10 to 900 feet
Mean annual precipitation: 12 to 16 inches
Mean annual air temperature: 57 degrees F
Frost-free period: 240 to 280 days
Farmland classification: Not prime farmland

Map Unit Composition

Riverwash: 100 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Riverwash

Setting

Landform: Channels
Landform position (three-dimensional): Talf
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Alluvium derived from sandstone and shale

Typical profile

H1 - 0 to 6 inches: Error
H2 - 6 to 60 inches: Error

Properties and qualities

Slope: 0 to 2 percent
Natural drainage class: Excessively drained
Runoff class: Negligible
Capacity of the most limiting layer to transmit water (Ksat): Very high (19.98 to 99.90 in/hr)
Depth to water table: About 0 to 24 inches
Frequency of flooding: Frequent

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 8w
Hydrologic Soil Group: A
Hydric soil rating: Yes

RoF—Rock land

Map Unit Setting

National map unit symbol: hb4m
Elevation: 600 to 3,800 feet
Mean annual precipitation: 10 to 25 inches
Mean annual air temperature: 57 degrees F
Frost-free period: 240 to 360 days
Farmland classification: Not prime farmland

Map Unit Composition

Rock land: 100 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Rock Land

Setting

Landform: Hills
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Side slope
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Alluvium derived from sandstone and shale

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 8
Hydric soil rating: No

So—Sycamore silt loam

Map Unit Setting

National map unit symbol: hb4x
Elevation: 220 to 800 feet
Mean annual precipitation: 14 inches
Mean annual air temperature: 57 degrees F
Frost-free period: 260 to 280 days
Farmland classification: Prime farmland if irrigated

Map Unit Composition

Sycamore and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Sycamore

Setting

Landform: Valley floors
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Talf
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Alluvium derived from calcareous sandstone and/or alluvium derived from calcareous shale

Typical profile

H1 - 0 to 18 inches: silt loam
H2 - 18 to 60 inches: silt loam

Properties and qualities

Slope: 0 to 2 percent
Depth to restrictive feature: More than 80 inches
Natural drainage class: Moderately well drained
Runoff class: Low
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.57 to 1.98 in/hr)
Depth to water table: About 48 to 60 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum in profile: 10 percent
Salinity, maximum in profile: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Available water storage in profile: High (about 9.2 inches)

Interpretive groups

Land capability classification (irrigated): 1

Land capability classification (nonirrigated): 4c
Hydrologic Soil Group: B
Hydric soil rating: No

Minor Components

Unnamed
Percent of map unit: 5 percent
Landform: Flood plains
Landform position (three-dimensional): Talf
Down-slope shape: Linear
Across-slope shape: Linear
Hydric soil rating: Yes

Yolo
Percent of map unit: 5 percent
Hydric soil rating: No

Clear lake
Percent of map unit: 5 percent
Landform: Basin floors
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Talf
Down-slope shape: Linear
Across-slope shape: Linear
Hydric soil rating: Yes

VaE2—Vallecitos rocky loam, 30 to 45 percent slopes, eroded

Map Unit Setting
National map unit symbol: hb4z
Elevation: 1,000 to 3,800 feet
Mean annual precipitation: 15 to 25 inches
Mean annual air temperature: 57 degrees F
Frost-free period: 260 to 280 days
Farmland classification: Not prime farmland

Map Unit Composition
Vallecitos and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Vallecitos

Setting
Landform: Mountains
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Mountainflank
Down-slope shape: Concave
Across-slope shape: Convex
Parent material: Residuum weathered from sandstone and shale

Typical profile

H1 - 0 to 6 inches: gravelly loam
H2 - 6 to 16 inches: clay loam
H3 - 16 to 20 inches: unweathered bedrock

Properties and qualities

Slope: 30 to 45 percent
Depth to restrictive feature: 12 to 36 inches to lithic bedrock
Natural drainage class: Well drained
Runoff class: High
Capacity of the most limiting layer to transmit water (Ksat): Very low (0.00 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Salinity, maximum in profile: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Available water storage in profile: Very low (about 2.1 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 6e
Hydrologic Soil Group: D
Ecological site: SHALLOW LOAMY UPLANDS (R015XD129CA)
Hydric soil rating: No

Minor Components

Rock outcrop

Percent of map unit: 10 percent
Hydric soil rating: No

Henneke

Percent of map unit: 5 percent
Hydric soil rating: No

VaF2—Vallecitos loam, 30 to 75 percent slopes, eroded, MLRA 15

Map Unit Setting

National map unit symbol: 2w61h
Elevation: 150 to 4,050 feet
Mean annual precipitation: 14 to 32 inches
Mean annual air temperature: 56 to 61 degrees F
Frost-free period: 200 to 300 days
Farmland classification: Not prime farmland

Map Unit Composition

Vallecitos and similar soils: 80 percent
Minor components: 20 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Vallecitos

Setting

Landform: Ridges, mountain slopes, hillslopes
Down-slope shape: Convex, linear, concave
Across-slope shape: Convex, linear, concave
Parent material: Residuum weathered from shale

Typical profile

A - 0 to 10 inches: loam
Bt - 10 to 16 inches: clay loam
R - 16 to 26 inches: bedrock

Properties and qualities

Slope: 30 to 75 percent
Depth to restrictive feature: 12 to 24 inches to lithic bedrock
Natural drainage class: Well drained
Runoff class: High
Capacity of the most limiting layer to transmit water (Ksat): Very low (0.00 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Salinity, maximum in profile: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Available water storage in profile: Very low (about 2.6 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 7e
Hydrologic Soil Group: D
Ecological site: STEEP SHALLOW LOAMY UPLANDS (R015XD130CA), SHALLOW LOAMY (R015XD093CA)
Hydric soil rating: No

Minor Components

Rock outcrop

Percent of map unit: 10 percent
Hydric soil rating: No

Los gatos

Percent of map unit: 3 percent
Landform: Mountain slopes, hillslopes
Down-slope shape: Concave, convex
Across-slope shape: Concave, convex
Hydric soil rating: No

Henneke

Percent of map unit: 3 percent
Landform: Mountain slopes, hillslopes
Down-slope shape: Concave, convex
Across-slope shape: Concave, convex
Hydric soil rating: No

Los osos

Percent of map unit: 3 percent
Landform: Mountain slopes, hillslopes

Down-slope shape: Concave, convex
Across-slope shape: Concave, convex
Hydric soil rating: No

Gaviota

Percent of map unit: 1 percent
Landform: Mountain slopes, hillslopes
Down-slope shape: Concave, convex
Across-slope shape: Concave, convex
Hydric soil rating: No

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Appendix B *On-Site Photographs*

Photo 1: Corral Hollow Creek

Photo 2: Corral Hollow Creek

Photo 3: Corral Hollow Creek

Photo 4: Corral Hollow Creek

Photo 5: Drainage 2

Photo 6: Drainage 3

Photo 7: Drainage 4

Photo 8: Drainage 5

Photo 9: Drainage 6

Photo 10: Small Pond

Photo 11: Large Pond

Photo 12: Refrigerator Pond

Photo 13: Hidden Pond

Photo 14: Drainage 7

Photo 15: Drainage 7

Photo 16: Drainage 8

Photo 17: Drainage 9

Photo 18: Drainage 10

Photo 19: Drainage 11

Photo 20: Drainage 12

Photo 21: Drainage 13

Photo 22: Drainage 14

Photo 23: Drainage 15

Photo 24: Pond 1 with Wetland 1

Photo 25: Drainage 16

Photo 26: Drainage 16

Photo 27: Drainage 17

Photo 28: Drainage 18

Photo 29: Drainage 19

Photo 30: Pond 2

Photo 31: Drainage 20

Photo 32: Drainage 21

Photo 33: Drainage 21

Photo 34: Wetland 2 in Drainage 21

Photo 35: Drainage 22

Photo 36: Drainage 23

Photo 37: Drainage 24

Photo 38: Drainage 25

Photo 39: Drainage 26

Photo 40: Drainage 27

Photo 41: Sector Pond with Wetland 3

Photo 42: Pond 3

Photo 43: Wetland 4

Photo 44: Drainage 28

Photo 45: Drainage 29

Photo 46: Drainage 30

Photo 47: Drainage 31

Photo 48: Drainage 32

Photo 49: Lone Oak Pond

Photo 50: Drainage 33

Photo 51: Pond 4

Photo 52: Drainage 34

Photo 53: Lucky Find Pond

Photo 54: Drainage 35

Photo 55: Skull Pond

Photo 56: Drainage 36

Photo 57: Drainage 37

Photo 58: Drainage 38

Photo 59: Pond 5

Photo 60: Drainage 39

Photo 61: Drainage 40

Photo 62: Drainage 41

Photo 63: Drainage 42

Photo 64: Drainage 43

Photo 65: Drainage 44

Photo 66: Drainage 45 (right) and 46 (left)

Photo 67: Drainage 47

Photo 68: Drainage 48

Photo 69: Drainage 49

Photo 70: Drainage 50

Photo 71: Drainage 51

Photo 72: Drainage 52

Photo 73: Tesla Pond

Photo 74: Sediment Basin

Appendix C *Wetland Data Forms*

WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: Carnegie SVRA Expansion Area | City/County: Alameda and San Joaquin | Sampling Date: 11/6/17

Applicant/Owner: CA State Parks | State: CA | Sampling Point: SP 1

Investigator(s): Stephen Anderson, Lauren Mack | Section, Township, Range: S1, T4S, R3E

Landform (hillslope, terrace, etc.): Bench | Local relief (concave, convex, none): None | Slope (%): 0

Subregion (LRR): C - Mediterranean California | Lat: 37.612011 | Long: -121.599988 | Datum: -

Soil Map Unit Name: Vallecitos loam, 30 to 75 percent slopes, eroded, MLRA 15 | NWI classification: Riverine

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

Are Vegetation [ ] Soil [ ] or Hydrology [ ] significantly disturbed? Are "Normal Circumstances" present? Yes (●) No ( )

Are Vegetation [ ] Soil [ ] or Hydrology [ ] naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes (●)	No ( )	
Hydric Soil Present?	Yes ( )	No (●)	**Is the Sampled Area within a Wetland?** Yes ( ) No (●)
Wetland Hydrology Present?	Yes (●)	No ( )	

Remarks:

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status
1. *Plantanus racemosa*	10	Yes	FAC
2. *Pinus sabiniana*	5	Yes	UPL
3.			
4.			
Total Cover:	15 %		
Sapling/Shrub Stratum			
1. *Baccharis salicifolia*	50	Yes	FAC
2.			
3.			
4.			
5.			
Total Cover:	50 %		
Herb Stratum			
1. *Scrophularia californica*	1	Yes	FAC
2. *Grindelia camporum*	1	Yes	FACW
3.			
4.			
5.			
6.			
7.			
8.			
Total Cover:	2 %		
Woody Vine Stratum			
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: 4 (A)

Total Number of Dominant Species Across All Strata: 5 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 80.0 % (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species		x 1 =	0
FACW species	1	x 2 =	2
FAC species	61	x 3 =	183
FACU species		x 4 =	0
UPL species	5	x 5 =	25
Column Totals:	67 (A)		210 (B)

Prevalence Index = B/A = 3.13

Hydrophytic Vegetation Indicators:

- [X] Dominance Test is >50%
- [ ] Prevalence Index is ≤3.0[1]
- [ ] Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- [ ] Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? Yes (●) No ( )

Remarks:

SOIL

Sampling Point: SP 1

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture[3]	Remarks
0-6	10 YR 3/3	100					Sand	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, M=Matrix.

[3]Soil Textures: Clay, Silty Clay, Sandy Clay, Loam, Sandy Clay Loam, Sandy Loam, Clay Loam, Silty Clay Loam, Silt Loam, Silt, Loamy Sand, Sand.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (**LRR C**)
- ☐ 1 cm Muck (A9) (**LRR D**)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Vernal Pools (F9)

Indicators for Problematic Hydric Soils:[4]

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

[4]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type: Large cobble

Depth (inches): at surface

Hydric Soil Present? Yes ○ No ◉

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1) (**Nonriverine**)
- ☐ Sediment Deposits (B2) (**Nonriverine**)
- ☐ Drift Deposits (B3) (**Nonriverine**)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Salt Crust (B11)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Plowed Soils (C6)
- ☐ 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)
- ☐ Thin Muck Surface (C7)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ○ No ◉ Depth (inches):

Water Table Present? Yes ○ No ◉ Depth (inches):

Saturation Present? (includes capillary fringe) Yes ○ No ◉ Depth (inches):

Wetland Hydrology Present? Yes ◉ No ○

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

Remarks:

WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: Carnegie SVRA Expansion Area | City/County: Alameda and San Joaquin | Sampling Date: 11/7/17

Applicant/Owner: CA State Parks | State: CA | Sampling Point: SP 2

Investigator(s): Stephen Anderson, Lauren MAck | Section, Township, Range: S31, T3S, R4E

Landform (hillslope, terrace, etc.): Terrace | Local relief (concave, convex, none): None | Slope (%): 0

Subregion (LRR): C - Mediterranean California | Lat: 37.628822 | Long: -121.577369 | Datum: -

Soil Map Unit Name: Vallecitos loam, 30 to 76 percent slopes, eroded, MLRA 15 | NWI classification: None

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

Are Vegetation [ ] Soil [ ] or Hydrology [ ] significantly disturbed? Are "Normal Circumstances" present? Yes (●) No ( )

Are Vegetation [ ] Soil [ ] or Hydrology [ ] naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ( )	No (●)	
Hydric Soil Present?	Yes ( )	No (●)	**Is the Sampled Area within a Wetland?** Yes ( ) No (●)
Wetland Hydrology Present?	Yes (●)	No ( )	

Remarks:

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
Total Cover:	%		
Sapling/Shrub Stratum			
1. *Baccharis salicifolia*	25	Yes	FAC
2.			
3.			
4.			
5.			
Total Cover:	25 %		
Herb Stratum			
1. *Brassica nigra*	2	Yes	UPL
2.			
3.			
4.			
5.			
6.			
7.			
8.			
Total Cover:	2 %		
Woody Vine Stratum			
1.			
2.			
Total Cover:	%		

% Bare Ground in Herb Stratum 98 % % Cover of Biotic Crust %

Dominance Test worksheet:

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

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 50.0 % (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species		x 1 =	0
FACW species		x 2 =	0
FAC species	25	x 3 =	75
FACU species		x 4 =	0
UPL species	2	x 5 =	10
Column Totals:	27 (A)		85 (B)

Prevalence Index = B/A = 3.15

Hydrophytic Vegetation Indicators:

- (●) Dominance Test is >50%
- (●) Prevalence Index is ≤3.0[1]
- [ ] Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- [ ] Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? Yes ( ) No (●)

Remarks:

SOIL

Sampling Point: SP 2

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture[3]	Remarks
0-10	10 YR 3/3	100					Sand-gravel	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, M=Matrix.

[3]Soil Textures: Clay, Silty Clay, Sandy Clay, Loam, Sandy Clay Loam, Sandy Loam, Clay Loam, Silty Clay Loam, Silt Loam, Silt, Loamy Sand, Sand.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (**LRR C**)
- ☐ 1 cm Muck (A9) (**LRR D**)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Vernal Pools (F9)

Indicators for Problematic Hydric Soils:[4]

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

[4]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type: Cobble/rock

Depth (inches): 10

Hydric Soil Present? Yes ○ No ◉

Remarks: Rock and cobble in drainage

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1) (**Nonriverine**)
- ☐ Sediment Deposits (B2) (**Nonriverine**)
- ☐ Drift Deposits (B3) (**Nonriverine**)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Salt Crust (B11)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Plowed Soils (C6)
- ☐ 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)
- ☐ Thin Muck Surface (C7)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ○ No ◉ Depth (inches):

Water Table Present? Yes ○ No ◉ Depth (inches):

Saturation Present? (includes capillary fringe) Yes ○ No ◉ Depth (inches):

Wetland Hydrology Present? Yes ◉ No ○

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

Remarks:

WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: Carnegie SVRA Expansion Area | City/County: Alameda and San Joaquin | Sampling Date: 11/7/17

Applicant/Owner: CA State Parks | State: CA | Sampling Point: SP 3

Investigator(s): Stephen Anderson, Lauren Mack | Section, Township, Range: S30, T3S, R4E

Landform (hillslope, terrace, etc.): Terrace | Local relief (concave, convex, none): None | Slope (%): 0

Subregion (LRR): C - Mediterranean California | Lat: 37.626708 | Long: -121.572897 | Datum: -

Soil Map Unit Name: Riverwash | NWI classification: None

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

Are Vegetation [ ] Soil [ ] or Hydrology [ ] significantly disturbed? Are "Normal Circumstances" present? Yes (●) No ( )

Are Vegetation [ ] Soil [ ] or Hydrology [ ] naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes (●)	No ( )	
Hydric Soil Present?	Yes ( )	No (●)	**Is the Sampled Area within a Wetland?** Yes ( ) No (●)
Wetland Hydrology Present?	Yes ( )	No (●)	

Remarks: Located on bank adjacent to low flow channel

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status
1. *Populus fremontii*	50	Yes	UPL
2.			
3.			
4.			
Total Cover:	50 %		
Sapling/Shrub Stratum			
1. *Baccharis salicifolia*	10	Yes	FAC
2.			
3.			
4.			
5.			
Total Cover:	10 %		
Herb Stratum			
1. *Distichlis spicata*	50	Yes	FAC
2. *Brassica nigra*	10	No	UPL
3. *Carduus pycnocephalus*	5	No	UPL
4. *Bromus diandrus*	5	No	UPL
5.			
6.			
7.			
8.			
Total Cover:	70 %		
Woody Vine Stratum			
1.			
2.			
Total Cover:	%		

% Bare Ground in Herb Stratum: 20 % | % Cover of Biotic Crust: %

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 66.7 % (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species		x 1 =	0
FACW species		x 2 =	0
FAC species	60	x 3 =	180
FACU species		x 4 =	0
UPL species	70	x 5 =	350
Column Totals:	130 (A)		530 (B)

Prevalence Index = B/A = 4.08

Hydrophytic Vegetation Indicators:

- [X] Dominance Test is >50%
- [ ] Prevalence Index is ≤3.0[1]
- [ ] Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- [ ] Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? Yes (●) No ( )

Remarks:

SOIL

Sampling Point: SP 3

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture[3]	Remarks
0-10	10 YR 3/2	100					Sandy loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, M=Matrix.

[3]Soil Textures: Clay, Silty Clay, Sandy Clay, Loam, Sandy Clay Loam, Sandy Loam, Clay Loam, Silty Clay Loam, Silt Loam, Silt, Loamy Sand, Sand.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (**LRR C**)
- ☐ 1 cm Muck (A9) (**LRR D**)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Vernal Pools (F9)

Indicators for Problematic Hydric Soils:[4]

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

[4]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type: Cobbles

Depth (inches): 10

Hydric Soil Present? Yes ○ No ◉

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1) (**Nonriverine**)
- ☐ Sediment Deposits (B2) (**Nonriverine**)
- ☐ Drift Deposits (B3) (**Nonriverine**)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Salt Crust (B11)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Plowed Soils (C6)
- ☐ 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)
- ☐ Thin Muck Surface (C7)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ○ No ◉ Depth (inches):

Water Table Present? Yes ○ No ◉ Depth (inches):

Saturation Present? (includes capillary fringe) Yes ○ No ◉ Depth (inches):

Wetland Hydrology Present? Yes ○ No ◉

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

Remarks:

WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: Carnegie SVRA Expansion Area | City/County: Alameda and San Joaquin | Sampling Date: 11/9/17

Applicant/Owner: CA State Parks | State: CA | Sampling Point: SP 4

Investigator(s): Stephen Anderson, Josephine Lim | Section, Township, Range: S26, T3S, R3E

Landform (hillslope, terrace, etc.): Bench | Local relief (concave, convex, none): non | Slope (%): 0

Subregion (LRR): C - Mediterranean California | Lat: 37.650099 | Long: -121.614659 | Datum: -

Soil Map Unit Name: Clear Lake clay, drained, 3 to 7 percent slopes | NWI classification: Freshwater forested/shrub

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

Are Vegetation [ ] Soil [ ] or Hydrology [ ] significantly disturbed? Are "Normal Circumstances" present? Yes (●) No ( )

Are Vegetation [ ] Soil [ ] or Hydrology [ ] naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes (●)	No ( )	
Hydric Soil Present?	Yes (●)	No ( )	**Is the Sampled Area within a Wetland?** Yes (●) No ( )
Wetland Hydrology Present?	Yes (●)	No ( )	

Remarks:

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status
1. *Salix laevigata*	75	Yes	FACW
2. *Quercus lobata*	15	No	FACW
3.			
4.			
Total Cover:	90 %		
Sapling/Shrub Stratum			
1.			
2.			
3.			
4.			
5.			
Total Cover:	%		
Herb Stratum			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
Total Cover:	%		
Woody Vine Stratum			
1.			
2.			
Total Cover:	%		

% Bare Ground in Herb Stratum 100 % | % Cover of Biotic Crust %

Dominance Test worksheet:

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

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100.0 % (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species		x 1 =	0
FACW species	90	x 2 =	180
FAC species		x 3 =	0
FACU species		x 4 =	0
UPL species		x 5 =	0
Column Totals:	90 (A)		180 (B)

Prevalence Index = B/A = 2.00

Hydrophytic Vegetation Indicators:

- [X] Dominance Test is >50%
- [X] Prevalence Index is ≤3.0[1]
- [ ] Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- [ ] Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? Yes (●) No ( )

Remarks:

SOIL

Sampling Point: SP 4

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture[3]	Remarks
0-8	10 YR 3/1	95	N 2.5/	5	C	M	Sandy clay	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, M=Matrix.

[3]Soil Textures: Clay, Silty Clay, Sandy Clay, Loam, Sandy Clay Loam, Sandy Loam, Clay Loam, Silty Clay Loam, Silt Loam, Silt, Loamy Sand, Sand.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (**LRR C**)
- ☐ 1 cm Muck (A9) (**LRR D**)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☒ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Vernal Pools (F9)

Indicators for Problematic Hydric Soils:[4]

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

[4]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type: Cobble

Depth (inches): 8

Hydric Soil Present? Yes ◉ No ○

Remarks: Hydrogen sulfide smell present near soil pit

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ☒ Surface Water (A1)
- ☐ High Water Table (A2)
- ☒ Saturation (A3)
- ☐ Water Marks (B1) (**Nonriverine**)
- ☐ Sediment Deposits (B2) (**Nonriverine**)
- ☐ Drift Deposits (B3) (**Nonriverine**)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Salt Crust (B11)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Plowed Soils (C6)
- ☐ 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)
- ☐ Thin Muck Surface (C7)
- ☐ 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): 1

Wetland Hydrology Present? Yes ◉ No ○

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

Remarks:

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Tesla Mine Site City/County: Alameda Sampling Date: 8-17-16

Applicant/Owner: California State Parks State: CA Sampling Point: SP-5

Investigator(s): Tim Tidwell, Stephen Anderson Section, Township, Range: 25, 3 South, 3 East

Landform (hillslope, terrace, etc.): Streambed Local relief (concave, convex, none): Concave Slope (%): 0-2

Subregion (LRR): C Lat: 37.640083° Long: -121.599089° Datum: WGS 84

Soil Map Unit Name: Rh - Riverwash NWI classification: Riverine

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

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ✓ No _____	**Is the Sampled Area within a Wetland?** Yes _____ No ✓
Hydric Soil Present?	Yes _____ No ✓	
Wetland Hydrology Present?	Yes ✓ No _____	

Remarks:

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 25')	Absolute % Cover	Dominant Species?	Indicator Status
1. Populus fremontii	55	Yes	FAC
2.			
3.			
4.			
	55 = Total Cover		
Sapling/Shrub Stratum (Plot size: 15')			
1. Baccharis salicfolia	15	Yes	FAC
2.			
3.			
4.			
5.			
	15 = Total Cover		
Herb Stratum (Plot size: _____)			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
	_____ = Total Cover		
Woody Vine Stratum (Plot size: _____)			
1.			
2.			
	_____ = Total Cover		

% Bare Ground in Herb Stratum 25 % Cover of Biotic Crust 0

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:	
OBL species	x 1 =	
FACW species	x 2 =	
FAC species 70	x 3 =	210
FACU species	x 4 =	
UPL species	x 5 =	
Column Totals:	(A)	(B)

Prevalence Index = B/A = 3

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 _____

Remarks:

Significant amount of thatch covering bare ground.

SOIL

Sampling Point: SP-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 %	Type[1]	Loc[2]	Texture	Remarks
0-8	10 YR 4/2	100					SL	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)
- ___ 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: Cobble/Boulder

Depth (inches): 8

Hydric Soil Present? Yes ____ No ✓

Remarks:

No redoximorphic features noted.

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 ____

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

Remarks:

This sample point is located adjacent to a stream at the toe of a slight incline (1-2%).

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Tesla Mine Site City/County: Alameda Sampling Date: 8-16-16

Applicant/Owner: California State parks State: CA Sampling Point: SP-6

Investigator(s): Tim Tidwell, Stephen Anderson Section, Township, Range: 25, 3 South, 3 East

Landform (hillslope, terrace, etc.): Basin Local relief (concave, convex, none): Concave Slope (%): 0-2

Subregion (LRR): C Lat: 37.640872° Long: -121.600482° Datum: WGS 84

Soil Map Unit Name: RoF - Rock Land NWI classification: N/A

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

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ✓ No _____	**Is the Sampled Area within a Wetland?** Yes _____ No ✓
Hydric Soil Present?	Yes _____ No ✓	
Wetland Hydrology Present?	Yes ✓ No _____	

Remarks:

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	= Total Cover		
Sapling/Shrub Stratum (Plot size: _____)			
1.			
2.			
3.			
4.			
5.			
	= Total Cover		
Herb Stratum (Plot size: 5')			
1. Festuca perennis	30	YES	FAC
2.			
3.			
4.			
5.			
6.			
7.			
8.			
	= Total Cover		
Woody Vine Stratum (Plot size: _____)			
1.			
2.			
	= Total Cover		

% Bare Ground in Herb Stratum 70 % 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: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species _____	x 1 = _____
FACW species _____	x 2 = _____
FAC species 30	x 3 = 90
FACU species _____	x 4 = _____
UPL species _____	x 5 = _____
Column Totals: 30 (A)	90 (B)

Prevalence Index = B/A = 3

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 _____

Remarks:

SOIL

Sampling Point: SP-6

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	2.5Y 3/2	99	2.5Y 6/8	1	C	PL	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)
- ___ 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: Hard substrate

Depth (inches): 12

Hydric Soil Present? Yes ____ No ✓

Remarks:

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 ____

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

Remarks:

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Tesla Mine Site City/County: Alameda Sampling Date: 8-17-16

Applicant/Owner: California State Parks State: CA Sampling Point: SP-7

Investigator(s): Tim Tidwell, Stephen Anderson Section, Township, Range: 26, 3 South, 3 East

Landform (hillslope, terrace, etc.): Pond/Basin Local relief (concave, convex, none): Concave Slope (%): 0-2

Subregion (LRR): C Lat: 37.637761° Long: -121.607079° Datum: WGS 84

Soil Map Unit Name: AmE2 - Altamount clay, moderately deep, 30-45 % slopes, eroded NWI classification: NA

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

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes _____	No ✓	**Is the Sampled Area within a Wetland?** Yes _____ No ✓
Hydric Soil Present?	Yes ✓	No _____	
Wetland Hydrology Present?	Yes ✓	No _____	

Remarks:

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	_____ = Total Cover		
Sapling/Shrub Stratum (Plot size: _____)			
1.			
2.			
3.			
4.			
5.			
	_____ = Total Cover		
Herb Stratum (Plot size: 5')			
1. Malvella leprosa	20	Yes	FACU
2. Hordeum murinum	5	No	FACU
3. Avena fatua	3	No	UPL
4.			
5.			
6.			
7.			
8.			
	_____ = Total Cover		
Woody Vine Stratum (Plot size: _____)			
1.			
2.			
	_____ = Total Cover		

% Bare Ground in Herb Stratum 72 % Cover of Biotic Crust 0

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:	
OBL species _____	x 1 =	_____
FACW species _____	x 2 =	_____
FAC species _____	x 3 =	_____
FACU species 25	x 4 =	100
UPL species 3	x 5 =	15
Column Totals: 28 (A)		115 (B)

Prevalence Index = B/A = 4.11

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 ✓

Remarks:

SOIL

Sampling Point: SP-7

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-8	10 YR 3/1	70	5 YR 4/6	30	C	M	SL	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)
- ___ 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: Cobble/Boulder

Depth (inches): 8

Hydric Soil Present? Yes ✓ **No** ___

Remarks:

Significant amount of redoximorphic features noted.

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** ___

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

Remarks:

This sample point is located within a depression or pond that is fed by a seep located on the adjacent slope.

Appendix D *Corps/Regional Board Jurisdictional Maps*

D26
D21
D25
D27
D29
D44
D24
D22
D23
D43
D47
D51
D28
D45
D48
D49
37.641518
-121.571227
D46
D52
D31
D32
D42
D50
D30
D36
CORRAL HOLLOW CREEK
D39
D37
D35
D40
D7
D41
D38
D16
D14
D13
D12
D11
D10
CORRAL HOLLOW CREEK
D9
D6
D33
D8
D34
D5
D15
D19
D18
D17
37.613429
-121.612053
CORRAL HOLLOW CREEK
D4
D3
D2

2/1/2018 JN M:\Mdata\130366\Delineation 2017\GIS\MXD\Carnegie_2017_Delineation_Corps_Overview.mxd

Legend

- 8,448 ac. — Project Boundary
- 23.71 ac. — Corps Non Wetland WoUS
- .56 ac. — Corps Wetland
- No OHWM
- Reference Point

January 29, 2018

0 900 1800 Feet

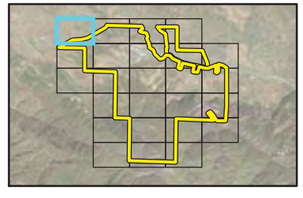
Source: ArcGIS Online

Michael Baker INTERNATIONAL

CARNEGIE SVRA EXPANSION AREA
CORPS JURISDICTIONAL MAP
Figure 4A

Legend

- Project Boundary
- Corps Non Wetland WoUS
- No OHWM
- Culvert
- Flow Direction
- Reference Point
- Photo Point and Direction



January 29, 2018

0 150 300 Feet

Source: ArcGIS Online

2/1/2018 JN M:\Mdata\130366\Delineation 2017\GIS\MXD\Carnegie_2017_CORPS_MapBook2.mxd

Michael Baker INTERNATIONAL

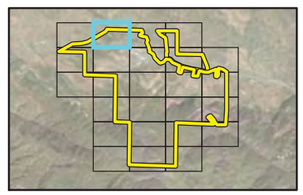
CARNEGIE SVRA EXPANSION AREA

Corps Jurisdictional Map

Figure 4b

Legend

- Project Boundary
- Corps Non Wetland WoUS
- Corps Wetland
- No OHWM
- Wetland Soil Pit
- Flow Direction
- Reference Point
- Photo Point and Direction



January 29, 2018

0 150 300

Feet

Source: ArcGIS Online

2/1/2018 JN M:\Mdata\130866\Delineation 2017\GIS\MXD\Carnegie_2017_CORPS_MapBook2.mxd

Michael Baker INTERNATIONAL

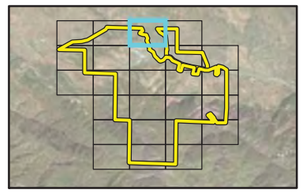
CARNEGIE SVRA EXPANSION AREA

Corps Jurisdictional Map

Figure 4c

Legend

- Project Boundary
- Corps Non Wetland WoUS
- No OHWM
- Flow Direction
- Reference Point
- Photo Point and Direction



January 29, 2018

0 150 300 Feet

Source: ArcGIS Online

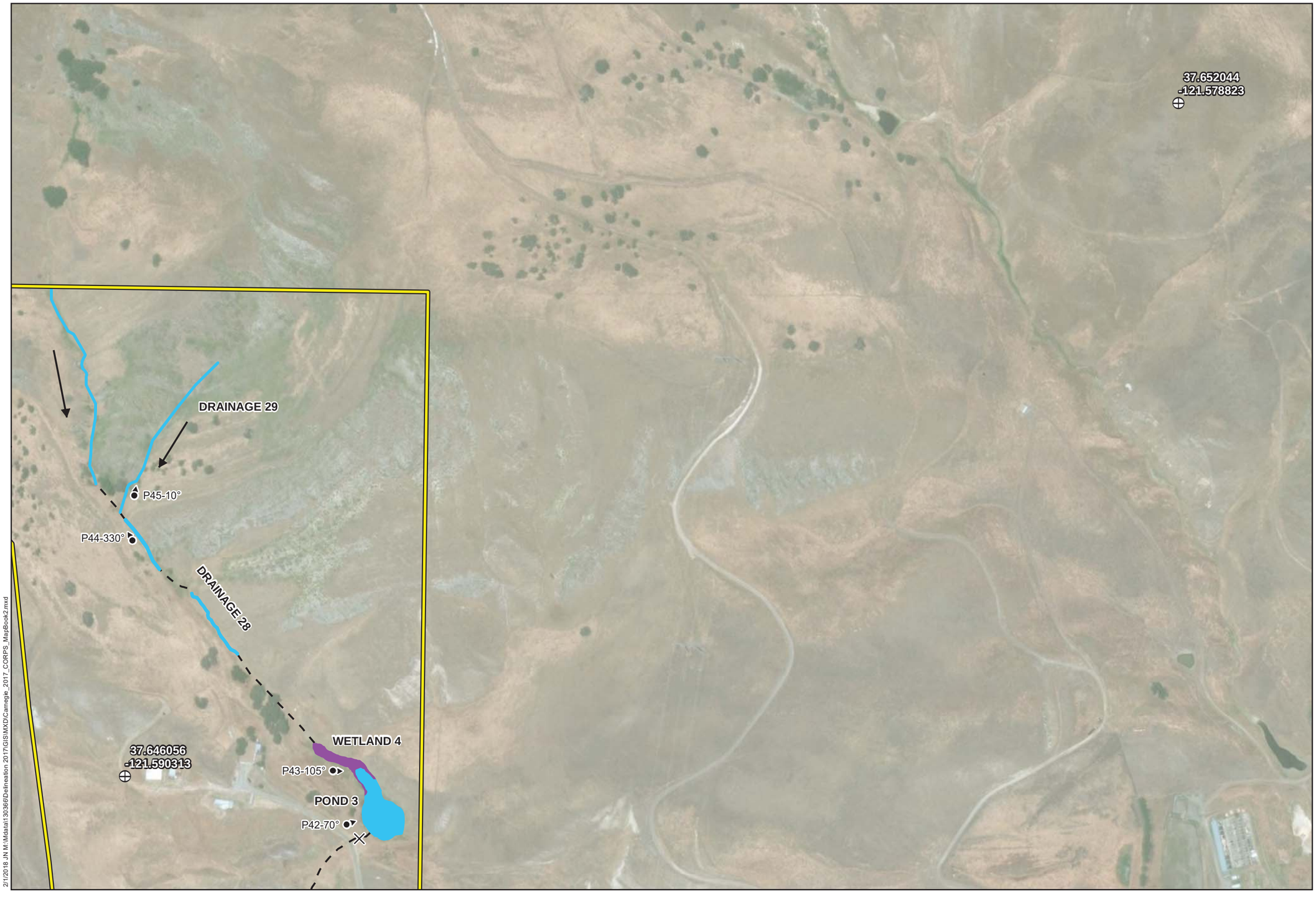
2/1/2018 JN M:\Mdata\130366\Delineation 2017\GIS\MXD\Carnegie_2017_CORPS_MapBook2.mxd

Michael Baker INTERNATIONAL

CARNEGIE SVRA EXPANSION AREA

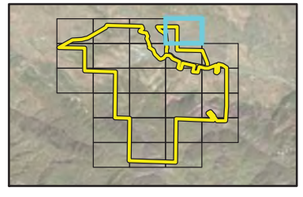
Corps Jurisdictional Map

Figure 4d



Legend

- Project Boundary
- Corps Non Wetland WoUS
- Corps Wetland
- No OHWM
- Culvert
- Flow Direction
- Reference Point
- Photo Point and Direction



January 29, 2018

0 150 300 Feet

Source: ArcGIS Online

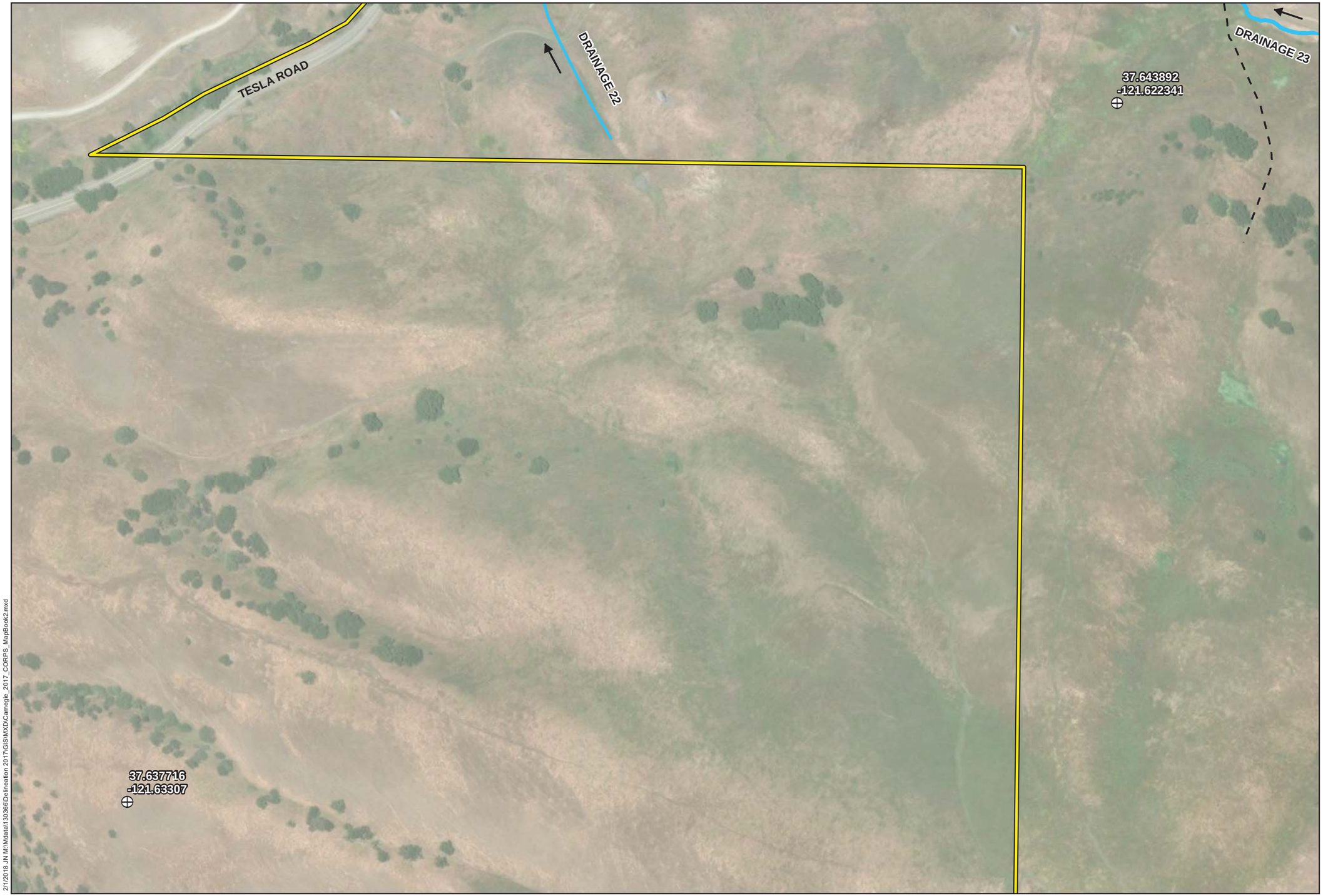
2/1/2018 JN M:\Mdata\130366\Delineation 2017\GIS\MXD\Carnegie_2017_CORPS_MapBook2.mxd

Michael Baker INTERNATIONAL

CARNEGIE SVRA EXPANSION AREA

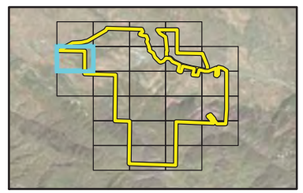
Corps Jurisdictional Map

Figure 4e



Legend

- Project Boundary
- Corps Non Wetland WoUS
- No OHWM
- Flow Direction
- Reference Point



January 29, 2018

0 150 300

Feet

Source: ArcGIS Online

2/1/2018 JN M:\Mdata\130366\Delineation 2017\GIS\MXD\Carnegie_2017_CORPS_MapBook2.mxd

Michael Baker INTERNATIONAL

CARNEGIE SVRA EXPANSION AREA

Corps Jurisdictional Map

Figure 4f

P36-95°
DRAINAGE 23
37.644206
-121.610803
DRAINAGE 43
DRAINAGE 45
P66-270°
DRAINAGE 46
DRAINAGE 42
P46-105°
DRAINAGE 30
DRAINAGE 31
P47-0°
37.637893
-121.618825
SP7
CORRAL HOLLOW CREEK

Legend

- Project Boundary
- Corps Non Wetland WoUS
- No OHWM
- Upland Soil Pit
- Flow Direction
- Reference Point
- Photo Point and Direction

January 29, 2018

0 150 300 Feet

Source: ArcGIS Online

2/1/2018 JN M:\Mdata\130366\Delineation 2017\GIS\MXD\Carnegie_2017_CORPS_MapBook2.mxd

Michael Baker INTERNATIONAL

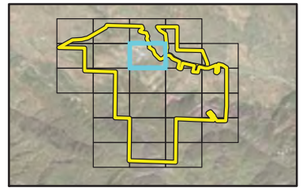
CARNEGIE SVRA EXPANSION AREA

Corps Jurisdictional Map

Figure 4g

Legend

- Project Boundary
- Corps Non Wetland WoUS
- No OHWM
- Upland Soil Pit
- Flow Direction
- Reference Point
- Photo Point and Direction



January 29, 2018

0 150 300 Feet

Source: ArcGIS Online

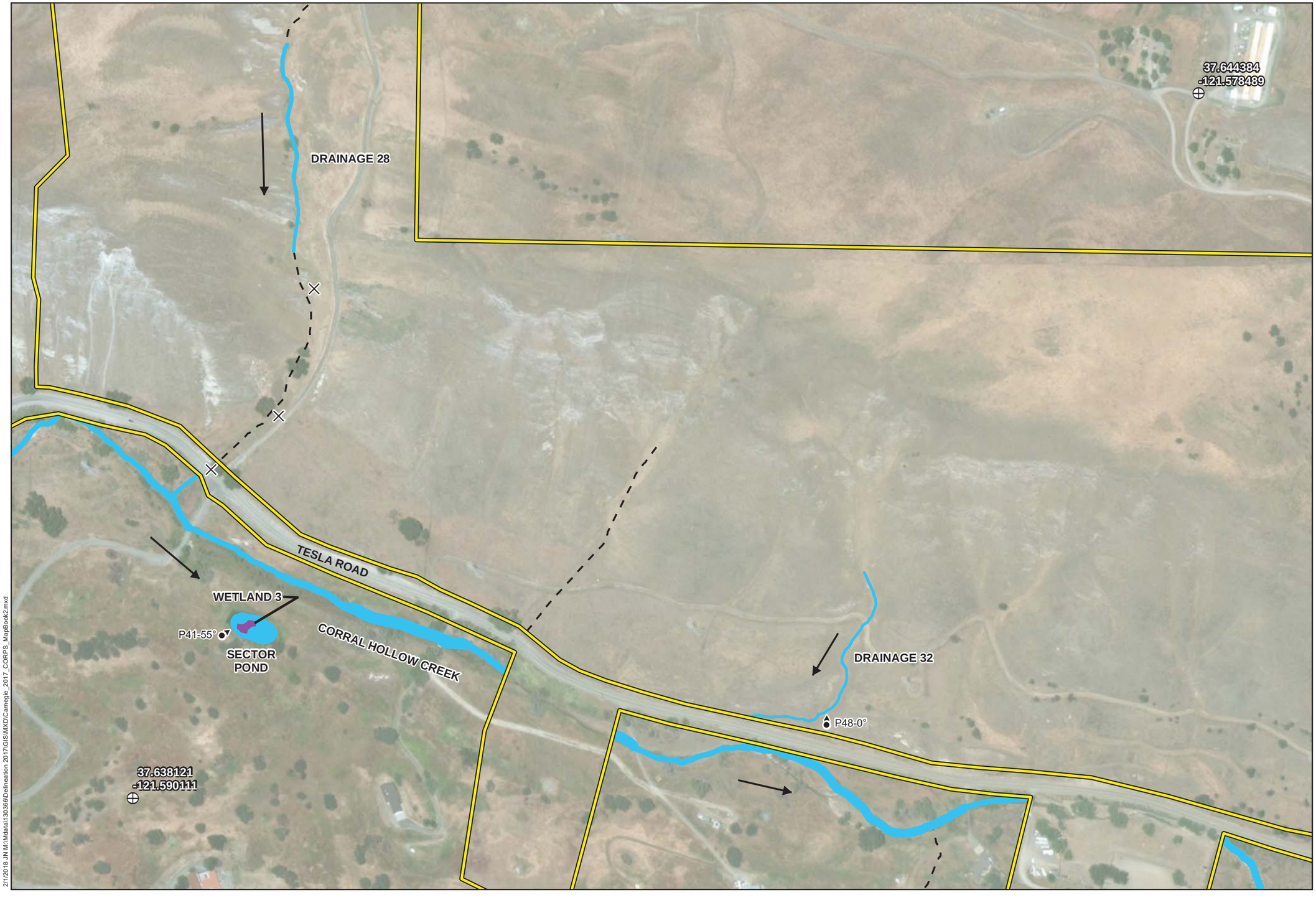
2/1/2018 JN M:\Mdata\130366\Delineation 2017\GIS\MXD\Carnegie_2017_CORPS_MapBook2.mxd

Michael Baker INTERNATIONAL

CARNEGIE SVRA EXPANSION AREA

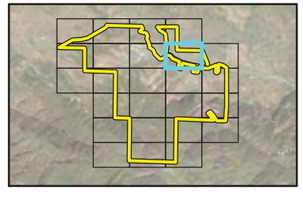
Corps Jurisdictional Map

Figure 4h



Legend

- Project Boundary
- Corps Non Wetland WoUS
- Corps Wetland
- No OHWM
- Culvert
- Flow Direction
- Reference Point
- Photo Point and Direction



January 29, 2018

0 150 300 Feet

Source: ArcGIS Online

2/1/2018 JN M:\Mdata\130366\Delineation 2017\GIS\MXD\Carnegie_2017_CORPS_MapBook2.mxd

Michael Baker INTERNATIONAL

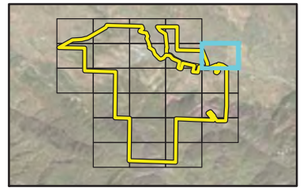
CARNEGIE SVRA EXPANSION AREA

Corps Jurisdictional Map

Figure 4i

Legend

- Project Boundary
- Reference Point



January 29, 2018

0 150 300
Feet

Source: ArcGIS Online

2/1/2018 JN M:\Mdata\130366\Deineation 2017\GIS\MXD\Carnegie_2017_CORPS_MapBook2.mxd

Michael Baker INTERNATIONAL

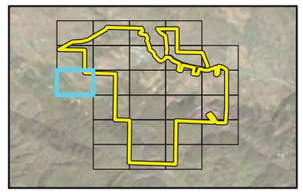
CARNEGIE SVRA EXPANSION AREA

Corps Jurisdictional Map

Figure 4j

Legend

- Project Boundary
- Reference Point



January 29, 2018

0 150 300
Feet

Source: ArcGIS Online

2/1/2018 JN M:\Mdata\130366\Delineation 2017\GIS\MXD\Carnegie_2017_CORPS_MapBook2.mxd

Michael Baker INTERNATIONAL

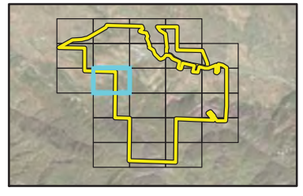
CARNEGIE SVRA EXPANSION AREA

Corps Jurisdictional Map

Figure 4k

Legend

- Project Boundary
- Corps Non Wetland WoUS
- No OHWM
- Flow Direction
- Reference Point
- Photo Point and Direction



January 29, 2018

0 150 300 Feet

Source: ArcGIS Online

2/1/2018 JN M:\Mdata\130366\Definition 2017\GIS\MXD\Carnegie_2017_CORPS_MapBook2.mxd

Michael Baker INTERNATIONAL

CARNEGIE SVRA EXPANSION AREA

Corps Jurisdictional Map

Figure 4I

DRAINAGE 36

37.636344
-121.592705

P56-30°

DRAINAGE 39

P60-0°

DRAINAGE 40

P62-165°

DRAINAGE 41

P61-345°

DRAINAGE 35

37.630504
-121.60416

POND 5

P59-315°

DRAINAGE 37

Legend

- Project Boundary
- Corps Non Wetland WoUS
- Flow Direction
- Reference Point
- Photo Point and Direction

January 29, 2018

0 150 300 Feet

Source: ArcGIS Online

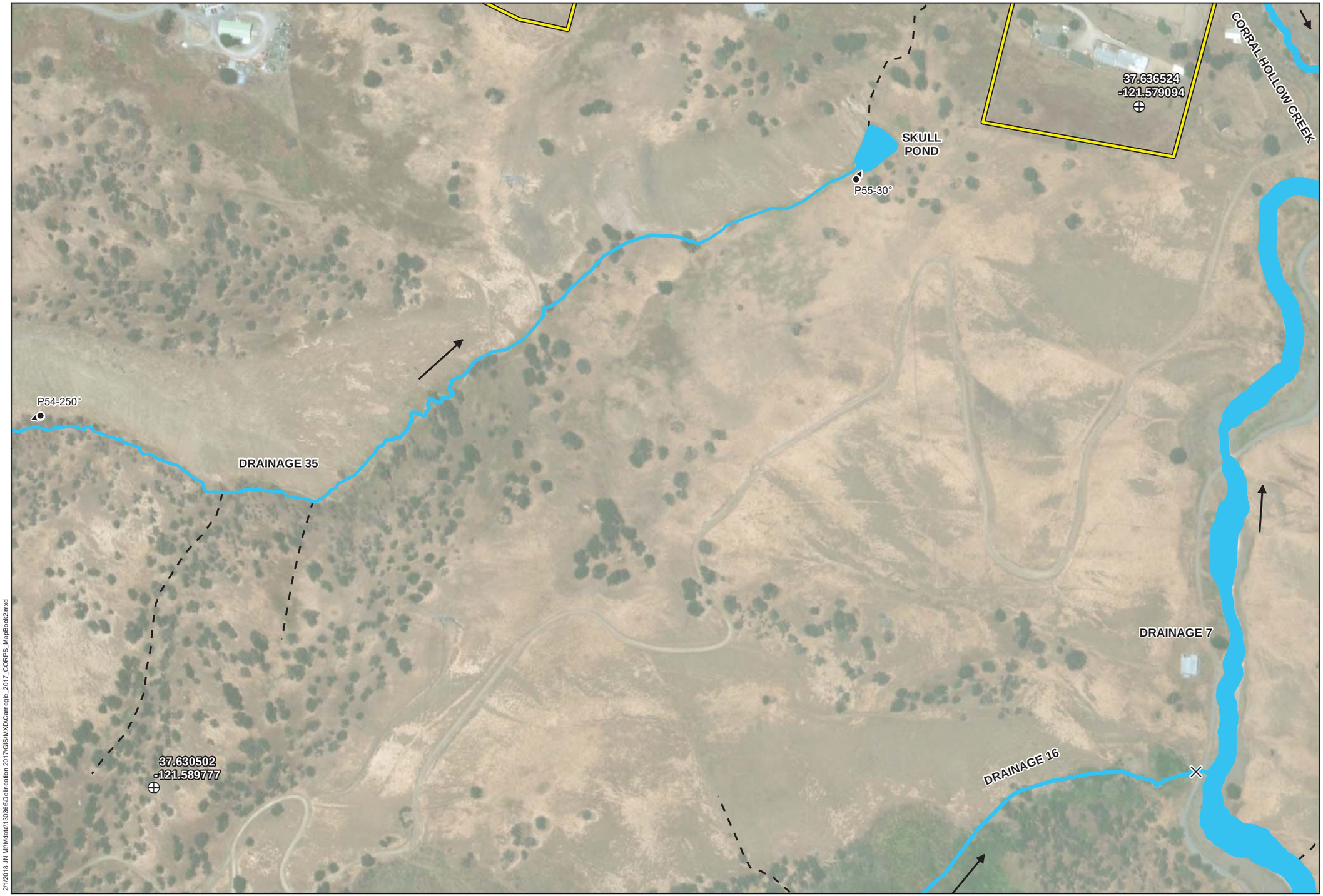
2/1/2018 JN M:\Mdata\130366\Delineation 2017\GIS\MXD\Carnegie_2017_CORPS_MapBook2.mxd

Michael Baker INTERNATIONAL

CARNEGIE SVRA EXPANSION AREA

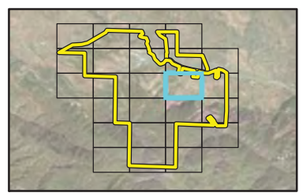
Corps Jurisdictional Map

Figure 4m



Legend

- Project Boundary
- Corps Non Wetland WoUS
- No OHWM
- Culvert
- Flow Direction
- Reference Point
- Photo Point and Direction



January 29, 2018

0 150 300 Feet

Source: ArcGIS Online

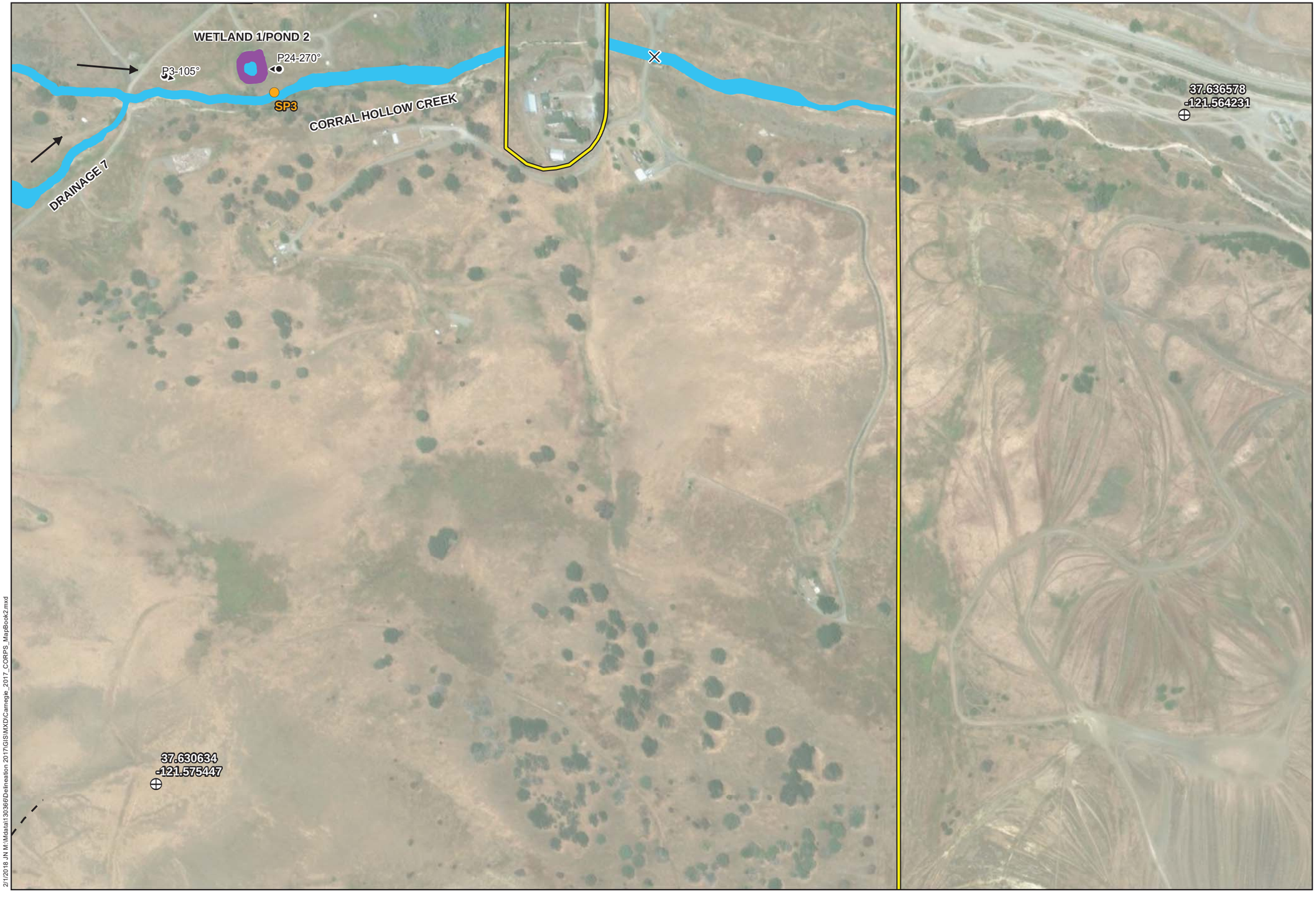
2/1/2018 JN M:\Mdata\130366\Definition 2017\GIS\MXD\Carnegie_2017_CORPS_MapBook2.mxd

Michael Baker INTERNATIONAL

CARNEGIE SVRA EXPANSION AREA

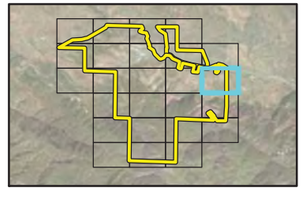
Corps Jurisdictional Map

Figure 4n



Legend

- Project Boundary
- Corps Non Wetland WoUS
- Corps Wetland
- No OHWM
- Upland Soil Pit
- Culvert
- Flow Direction
- Reference Point
- Photo Point and Direction



January 29, 2018

0 150 300 Feet

Source: ArcGIS Online

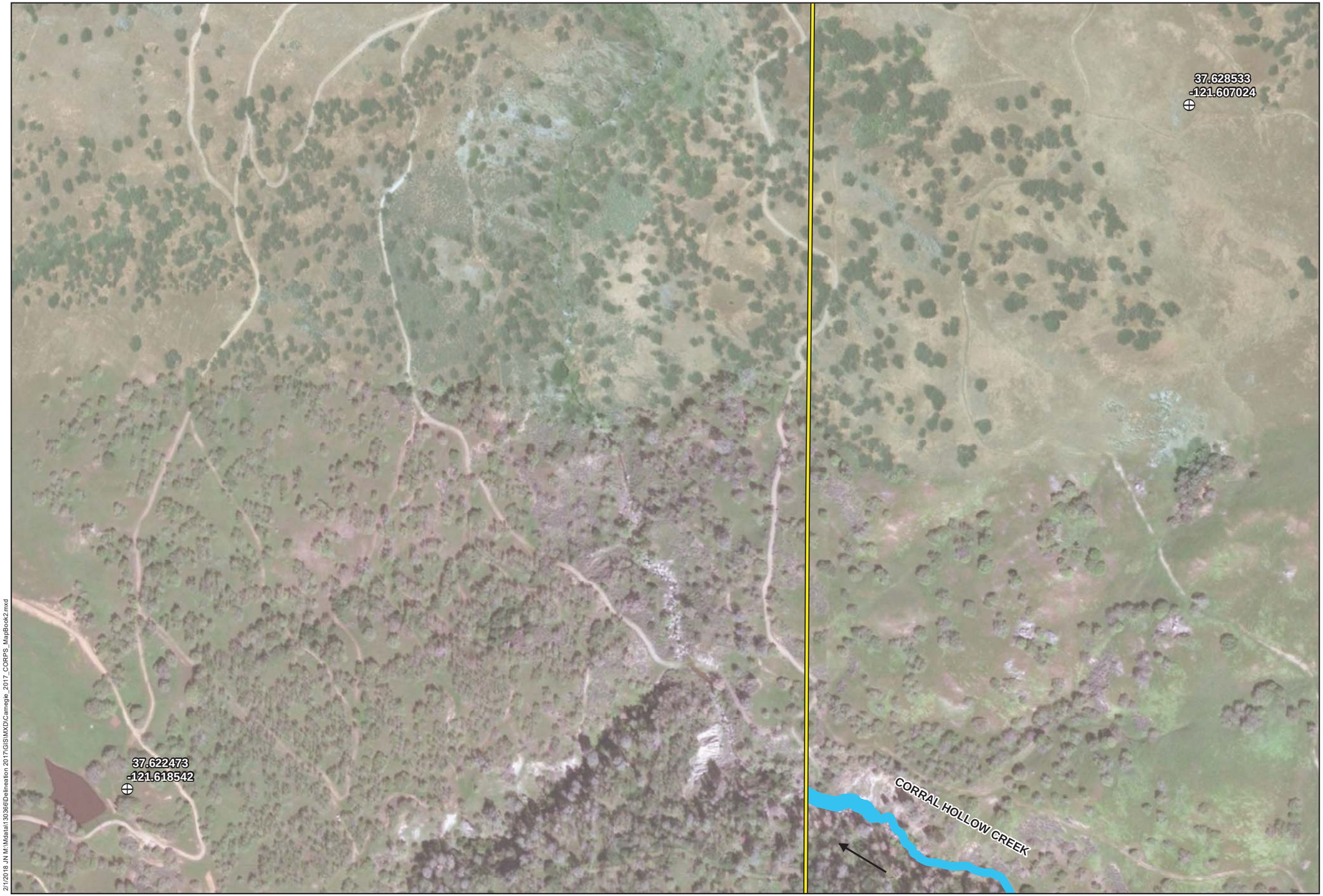
2/1/2018 JN M:\Mdata\130366\Delineation 2017\GIS\MXD\Carnegie_2017_CORPS_MapBook2.mxd

Michael Baker INTERNATIONAL

CARNEGIE SVRA EXPANSION AREA

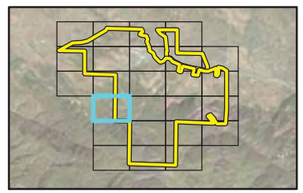
Corps Jurisdictional Map

Figure 4o



Legend

- Project Boundary
- Corps Non Wetland WoUS
- Flow Direction
- Reference Point



January 29, 2018

0 150 300 Feet

Source: ArcGIS Online

2/1/2018 JN M:\Mdata\130386\Delineation 2017\GIS\MXD\Carnegie_2017_CORPS_MapBook2.mxd

Michael Baker INTERNATIONAL

CARNEGIE SVRA EXPANSION AREA

Corps Jurisdictional Map

Figure 4p

Legend

- Project Boundary
- Corps Non Wetland WoUS
- No OHWM
- Culvert
- Flow Direction
- Reference Point
- Photo Point and Direction

January 29, 2018

0 150 300 Feet

Source: ArcGIS Online

2/1/2018 JN M:\Mdata\130366\Definition 2017\GIS\MXD\Carnegie_2017_CORPS_MapBook2.mxd

Michael Baker INTERNATIONAL

CARNEGIE SVRA EXPANSION AREA

Corps Jurisdictional Map

Figure 4q

DRAINAGE 16

37.629196
-121.579587

SP2

DRAINAGE 7

P26-120°

DRAINAGE 33

DRAINAGE 10

P50-0°

LONE
OAK
POND

P49-15°

DRAINAGE 34

37.622562
-121.590192

P52-0°

POND 4

P51-35°

Legend

- Project Boundary
- Corps Non Wetland WoUS
- No OHWM
- Upland Soil Pit
- Flow Direction
- Reference Point
- Photo Point and Direction

January 29, 2018

0 150 300 Feet

Source: ArcGIS Online

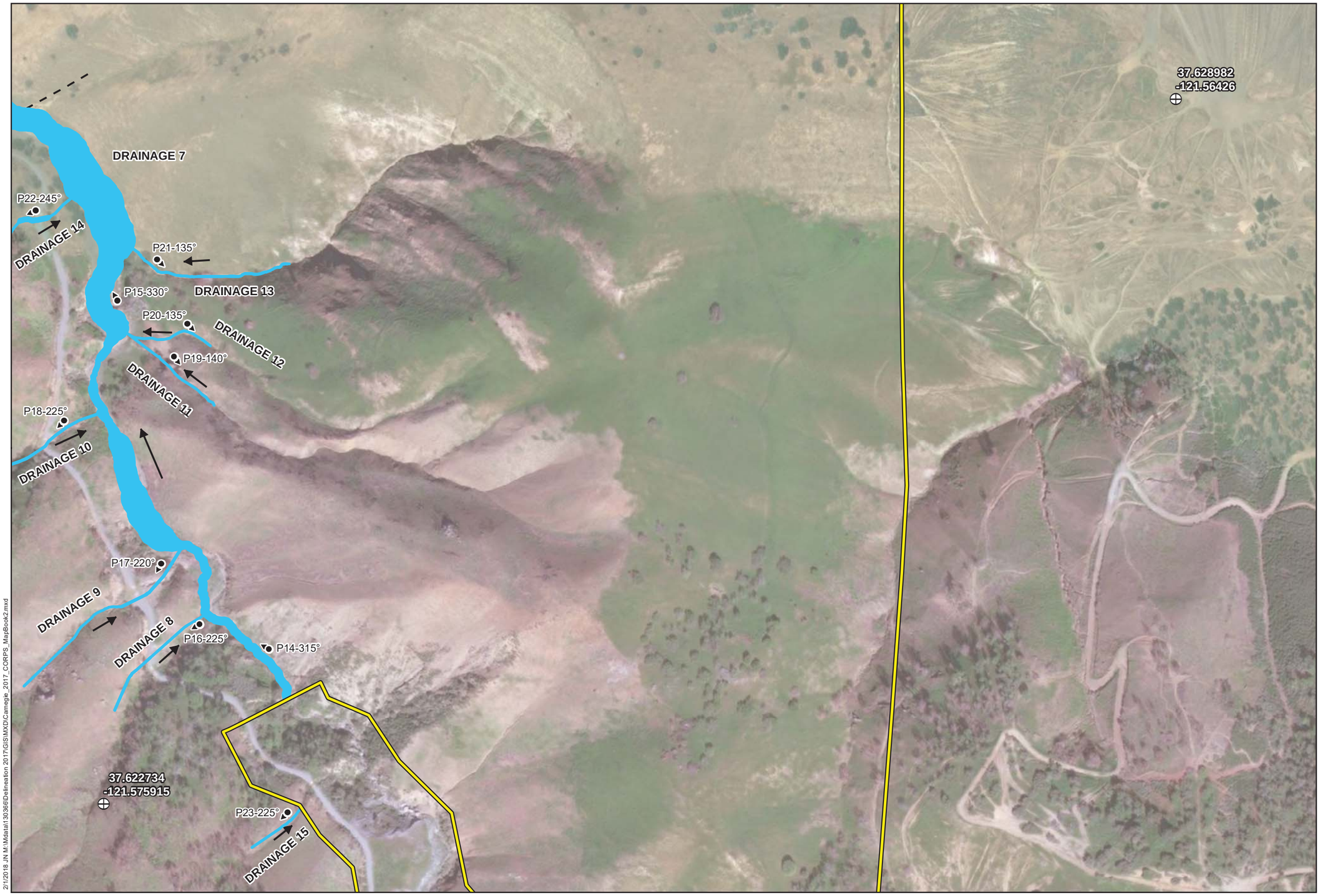
2/1/2018 JN M:\Mdata\130366\Delineation 2017\GIS\MXD\Carnegie_2017_CORPS_MapBook2.mxd

Michael Baker INTERNATIONAL

CARNEGIE SVRA EXPANSION AREA

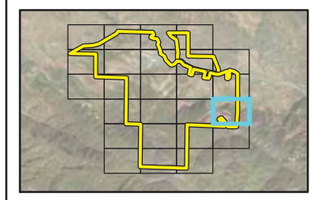
Corps Jurisdictional Map

Figure 4r



Legend

- Project Boundary
- Corps Non Wetland WoUS
- No OHWM
- Flow Direction
- Reference Point
- Photo Point and Direction



January 29, 2018

0 150 300 Feet

Source: ArcGIS Online

2/1/2018 JN M:\Mdata\130366\Delineation 2017\GIS\MXD\Carnegie_2017_CORPS_MapBook2.mxd

Michael Baker INTERNATIONAL

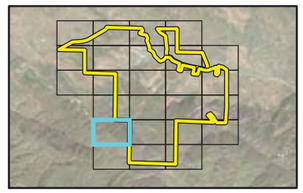
CARNEGIE SVRA EXPANSION AREA

Corps Jurisdictional Map

Figure 4s

Legend

- Project Boundary
- Corps Non Wetland WoUS
- Reference Point



January 29, 2018

0 150 300
Feet

Source: ArcGIS Online

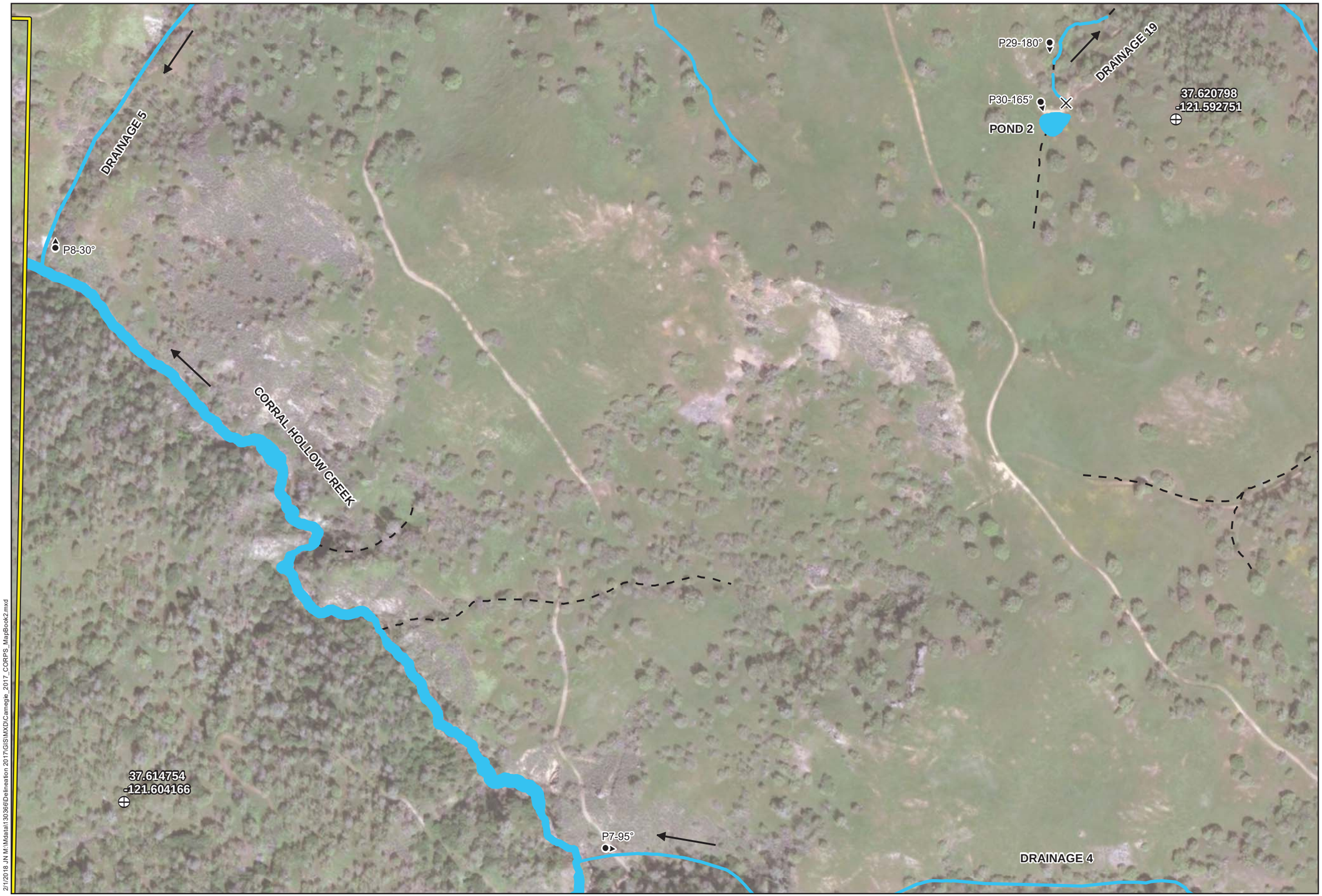
2/1/2018 J:\N:\Mdata\130366\Delineation 2017\GIS\MXD\Carnegie_2017_CORPS_MapBook2.mxd

Michael Baker INTERNATIONAL

CARNEGIE SVRA EXPANSION AREA

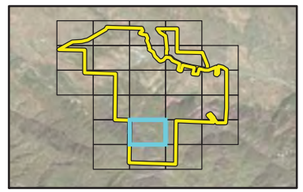
Corps Jurisdictional Map

Figure 4t



Legend

- Project Boundary
- Corps Non Wetland WoUS
- No OHWM
- Culvert
- Flow Direction
- Reference Point
- Photo Point and Direction



January 29, 2018

0 150 300

Feet

Source: ArcGIS Online

2/1/2018 JN M:\Mdata\130366\Delineation 2017\GIS\MXD\Carnegie_2017_CORPS_MapBook2.mxd

Michael Baker INTERNATIONAL

CARNEGIE SVRA EXPANSION AREA

Corps Jurisdictional Map

Figure 4u

DRAINAGE 18

P28-65°

DRAINAGE 16

P27-93°

DRAINAGE 17

P13-150°

HIDDEN POND

37.615065
-121.589791

37.620984
-121.578544

Legend

- Project Boundary
- Corps Non Wetland WoUS
- No OHWM
- Flow Direction
- Reference Point
- Photo Point and Direction

January 29, 2018

0 150 300

Feet

Source: ArcGIS Online

2/1/2018 JN M:\Mdata\130366\Delineation 2017\GIS\MXD\Carnegie_2017_CORPS_MapBook2.mxd

Michael Baker INTERNATIONAL

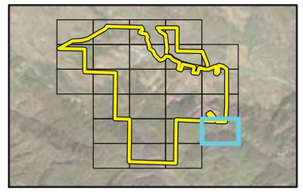
CARNEGIE SVRA EXPANSION AREA

Corps Jurisdictional Map

Figure 4v

Legend

- Project Boundary
- Reference Point



January 29, 2018

0 150 300
Feet

Source: ArcGIS Online

2/1/2018 JN M:\Mdata\136366\Delineation 2017\GIS\MXD\Carnegie_2017_CORPS_MapBook2.mxd

Michael Baker INTERNATIONAL

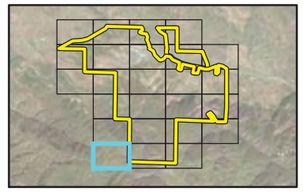
CARNEGIE SVRA EXPANSION AREA

Corps Jurisdictional Map

Figure 4w

Legend

- Project Boundary
- Corps Non Wetland WoUS
- Reference Point



January 29, 2018

0 150 300
Feet

Source: ArcGIS Online

2/1/2018 JN M:\Data\130360\Deliveation 2017\GIS\MXD\Carnegie_2017_CORPS_MapBook2.mxd

Michael Baker INTERNATIONAL

CARNEGIE SVRA EXPANSION AREA

Corps Jurisdictional Map

Figure 4x

DRAINAGE 4

37.613146
-121.592947

SP1

P1-165°

CORRAL HOLLOW CREEK

P2-165°

P6-210°

DRAINAGE 3

DRAINAGE 2

P5-75°

37.6069
-121.604204

Legend

- Project Boundary
- Corps Non Wetland WoUS
- No OHWM
- Upland Soil Pit
- Flow Direction
- Reference Point
- Photo Point and Direction

January 29, 2018

0 150 300
Feet

Source: ArcGIS Online

2/1/2018 JN M:\Mdata1\30366\Defineation 2017\GIS\MXD\Carnegie_2017_CORPS_MapBook2.mxd

Michael Baker INTERNATIONAL

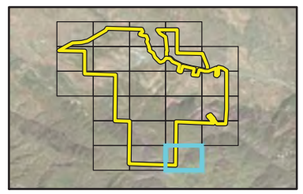
CARNEGIE SVRA EXPANSION AREA

Corps Jurisdictional Map

Figure 4y

Legend

- Project Boundary
- Corps Non Wetland WoUS
- No OHWM
- Reference Point
- Photo Point and Direction



January 29, 2018

0 150 300 Feet

Source: ArcGIS Online

2/1/2018 JN M:\Mdata\130366\Delineation 2017\GIS\MXD\Carnegie_2017_CORPS_MapBook2.mxd

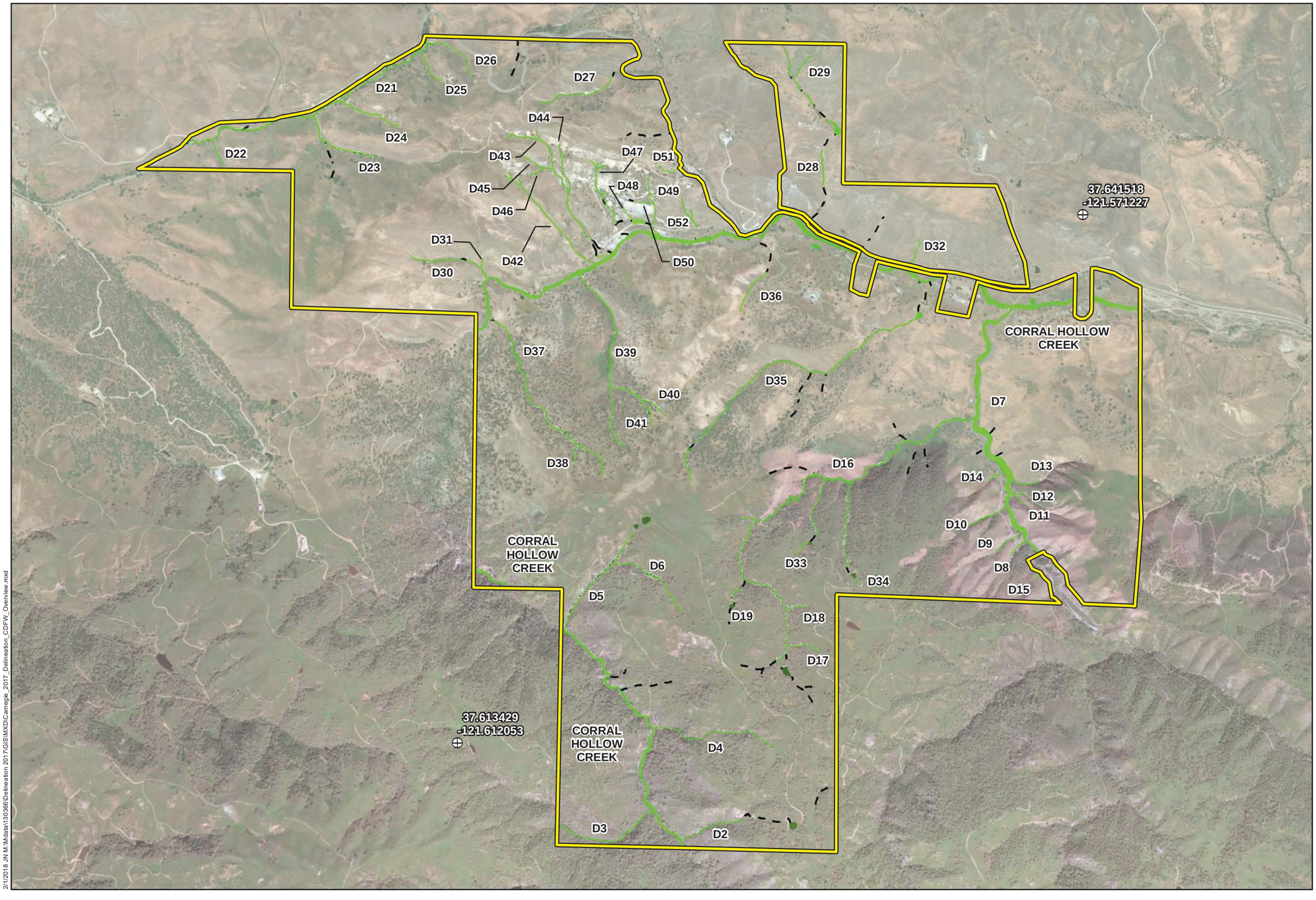
Michael Baker INTERNATIONAL

CARNEGIE SVRA EXPANSION AREA

Corps Jurisdictional Map

Figure 4z

Appendix E *CDFW Jurisdictional Maps*



Legend

- 3,448 ac. — Project Boundary
- 34.34 ac. — CDFW Vegetated Streambed
- 1.37 ac. — CDFW Unvegetated Streambed
- 10.79 ac. — CDFW Associated Vegetation
- No CDFW Streambed Present
- Reference Point

January 29, 2018

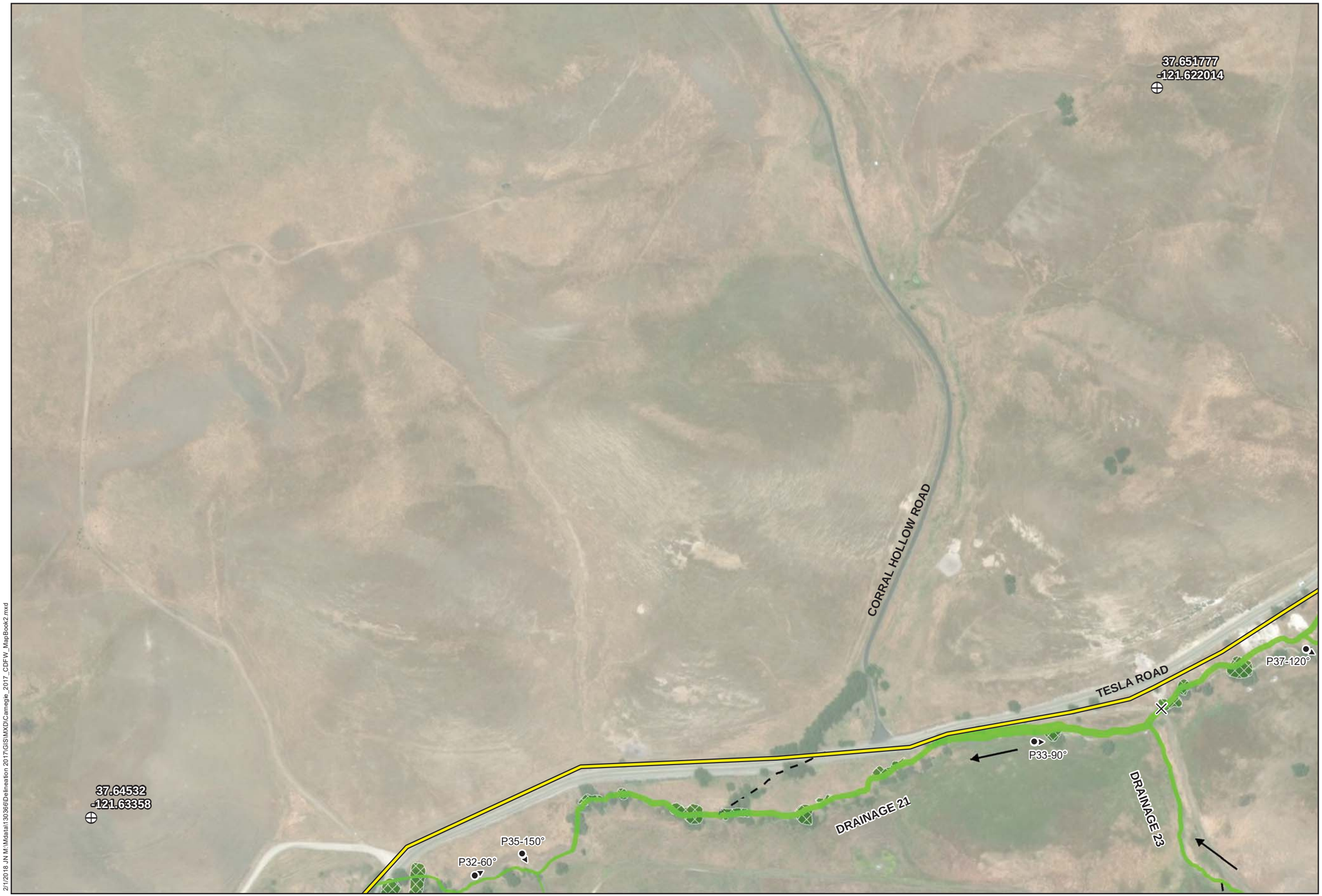
0 900 1800 Feet

Source: ArcGIS Online

2/1/2018, JN M:\Mdata\130366\Delineation 2017\GIS\MXD\Carnegie_2017_Delineation_CDFW_Overview.mxd

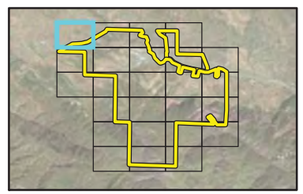
Michael Baker INTERNATIONAL

CARNEGIE SVRA EXPANSION AREA
CDFW JURISDICTIONAL MAP
Figure 5A



Legend

- Project Boundary
- CDFW Vegetated Streambed
- CDFW Associated Vegetation
- No CDFW Streambed Present
- Culvert
- Flow Direction
- Reference Point
- Photo Point and Direction



January 29, 2018

0 150 300 Feet

Source: ArcGIS Online

2/1/2018 JN M:\Mdata\130366\Delineation 2017\GIS\MXD\Carnegie_2017_CDFW_MapBook2.mxd

Michael Baker INTERNATIONAL

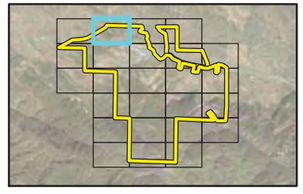
CARNEGIE SVRA EXPANSION AREA

CDFW Jurisdictional Map

Figure 5b

Legend

- Project Boundary
- CDFW Vegetated Streambed
- CDFW Associated Vegetation
- No CDFW Streambed Present
- Flow Direction
- Reference Point
- Photo Point and Direction



January 29, 2018

0 150 300 Feet

Source: ArcGIS Online

2/1/2018, JN M:\data\130366\Delineation 2017\GIS\MXD\Carnegie_2017_CDFW_MapBook2.mxd

Michael Baker INTERNATIONAL

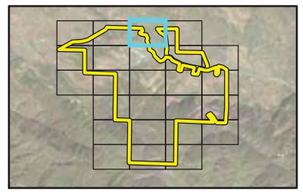
CARNEGIE SVRA EXPANSION AREA

CDFW Jurisdictional Map

Figure 5c

Legend

- Project Boundary
- CDFW Vegetated Streambed
- CDFW Associated Vegetation
- No CDFW Streambed Present
- Flow Direction
- Reference Point
- Photo Point and Direction



January 29, 2018

0 150 300 Feet

Source: ArcGIS Online

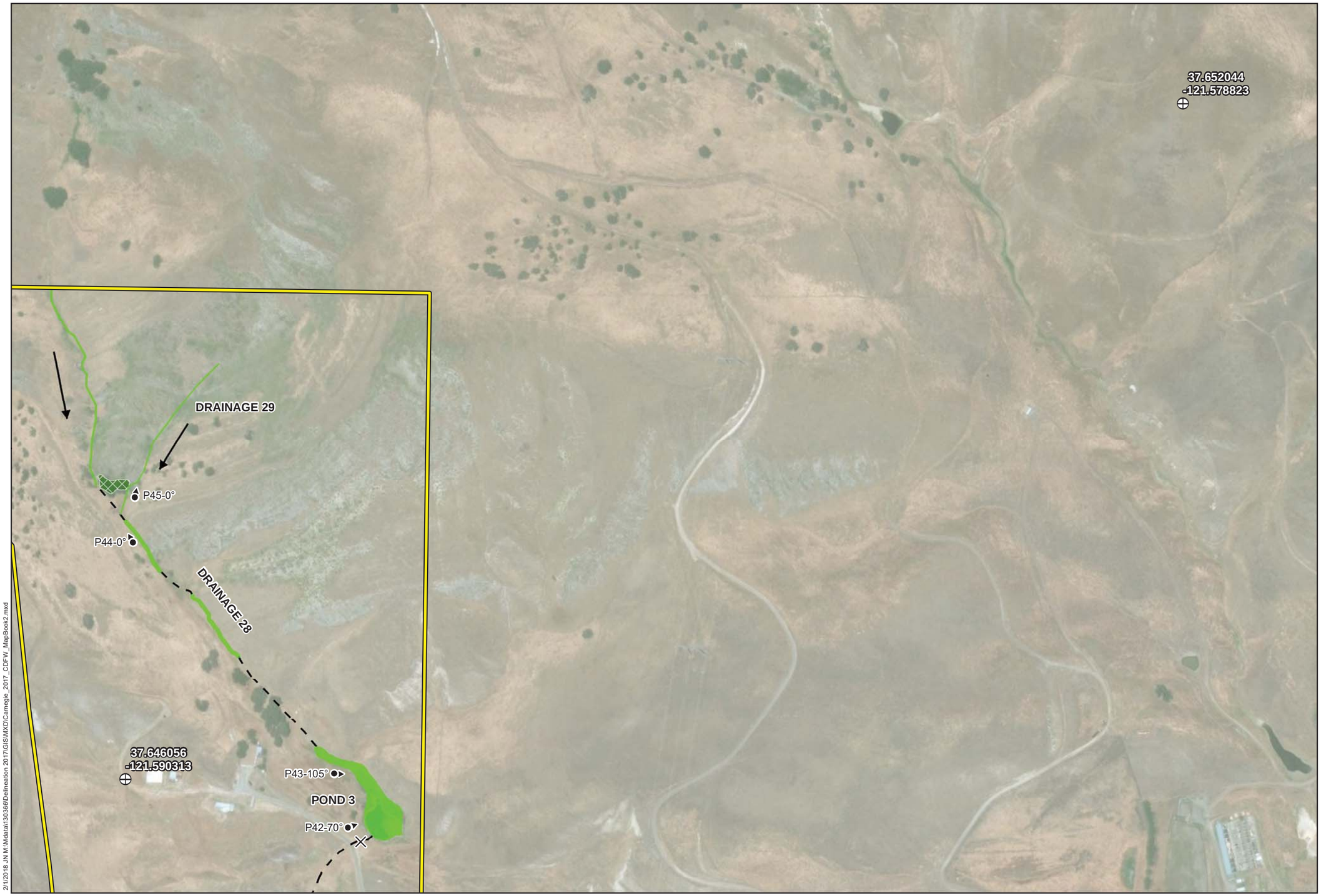
2/1/2018 JN M:\Data\130366\Deliverables 2017\GIS\MXD\Carnegie_2017_CDFW_MapBook2.mxd

Michael Baker INTERNATIONAL

CARNEGIE SVRA EXPANSION AREA

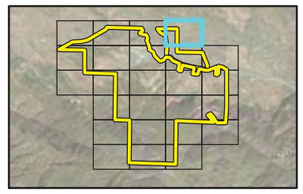
CDFW Jurisdictional Map

Figure 5d



Legend

- Project Boundary
- CDFW Vegetated Streambed
- CDFW Associated Vegetation
- No CDFW Streambed Present
- Culvert
- Flow Direction
- Reference Point
- Photo Point and Direction



January 29, 2018

0 150 300 Feet

Source: ArcGIS Online

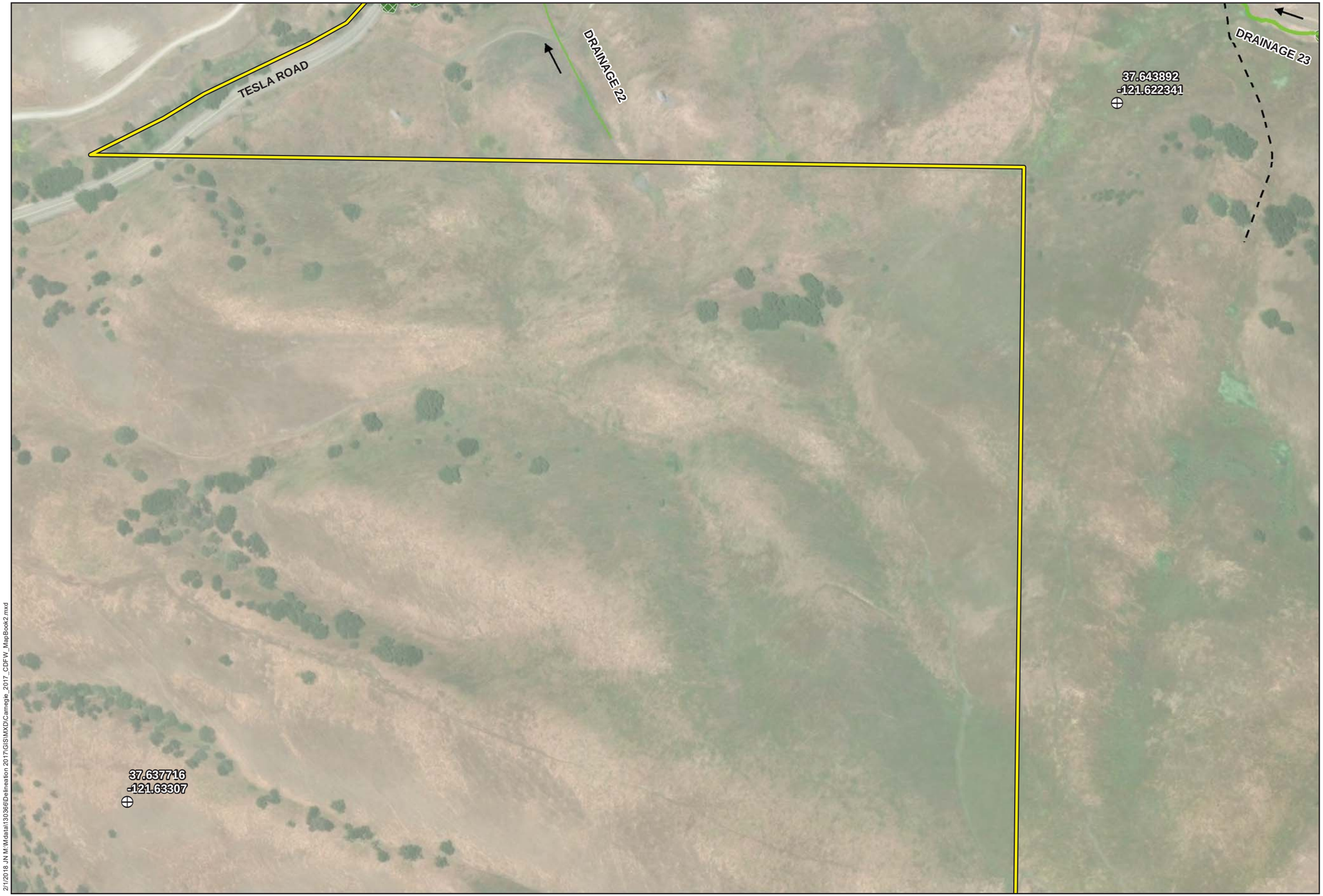
2/1/2018 JN M:\Mdata\130366\Delineation 2017\GIS\MXD\Carnegie_2017_CDFW_MapBook2.mxd

Michael Baker INTERNATIONAL

CARNEGIE SVRA EXPANSION AREA

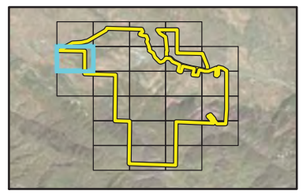
CDFW Jurisdictional Map

Figure 5e



Legend

- Project Boundary
- CDFW Vegetated Streambed
- CDFW Associated Vegetation
- No CDFW Streambed Present
- Flow Direction
- Reference Point



January 29, 2018

0 150 300 Feet

Source: ArcGIS Online

2/1/2018 JN M:\data\130366\Defineation 2017\GIS\MXD\Carnegie_2017_CDFW_MapBook2.mxd

Michael Baker INTERNATIONAL

CARNEGIE SVRA EXPANSION AREA

CDFW Jurisdictional Map

Figure 5f

DRAINAGE 23

P36-95°

37.644206
-121.610803

DRAINAGE 43

DRAINAGE 45

P66-270°

DRAINAGE 46

DRAINAGE 42

P46-105°

DRAINAGE 30

DRAINAGE 31

P47-0°

37.637893
-121.618825

CORRAL HOLLOW CREEK

Legend

- Project Boundary
- CDFW Vegetated Streambed
- CDFW Associated Vegetation
- No CDFW Streambed Present
- Flow Direction
- Reference Point
- Photo Point and Direction

January 29, 2018

0 150 300 Feet

Source: ArcGIS Online

2/1/2018, JN M:\data\130366\Delineation 2017\GIS\MXD\Carnegie_2017_CDFW_MapBook2.mxd

Michael Baker INTERNATIONAL

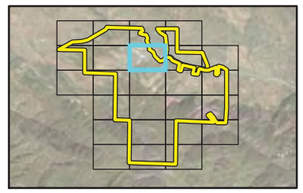
CARNEGIE SVRA EXPANSION AREA

CDFW Jurisdictional Map

Figure 5g

Legend

- Project Boundary
- CDFW Vegetated Streambed
- CDFW Associated Vegetation
- No CDFW Streambed Present
- Flow Direction
- Reference Point
- Photo Point and Direction



January 29, 2018

0 150 300 Feet

Source: ArcGIS Online

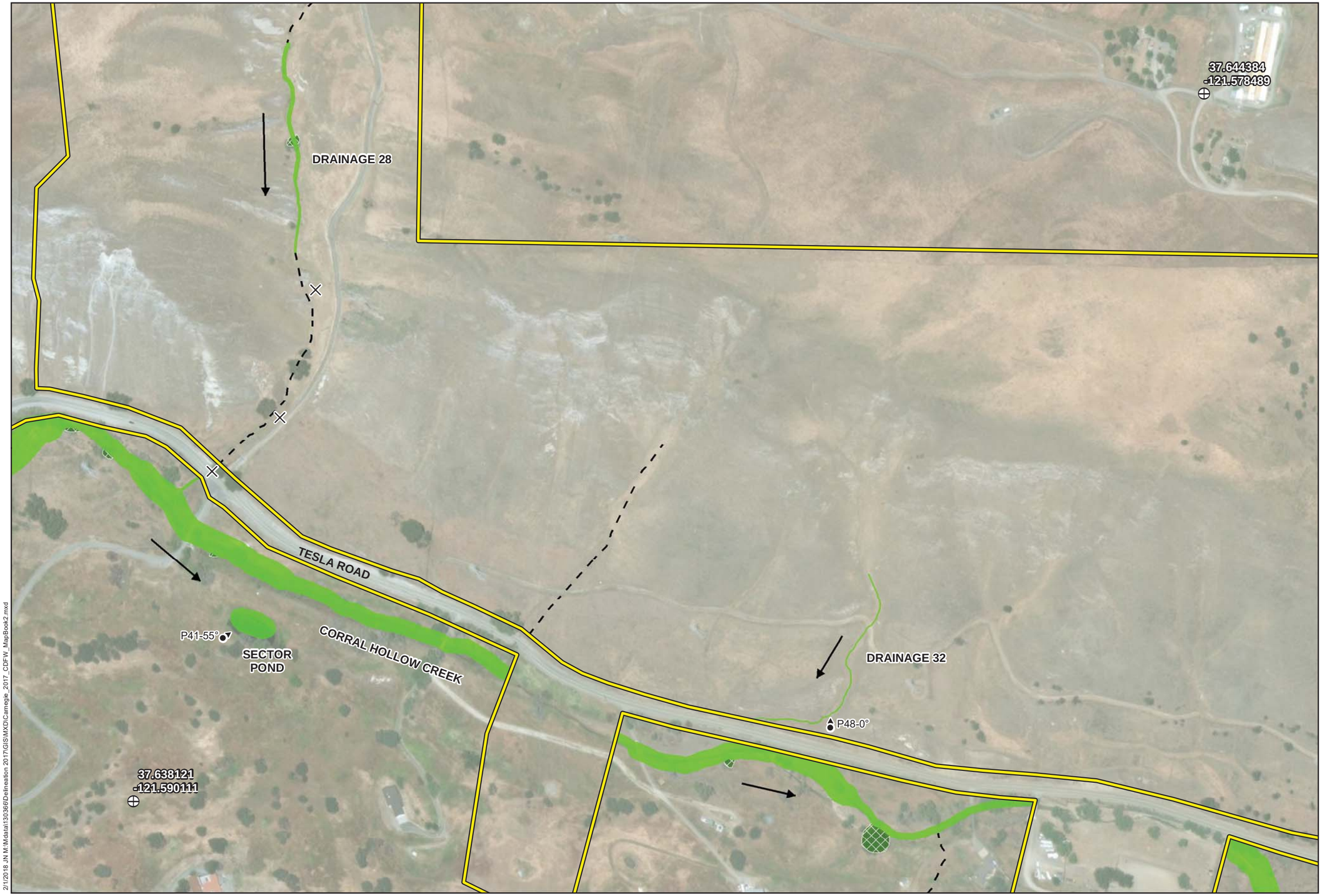
2/1/2018 JN M:\Mdata\130366\Delineation 2017\GIS\MXD\Carnegie_2017_CDFW_MapBook2.mxd

Michael Baker INTERNATIONAL

CARNEGIE SVRA EXPANSION AREA

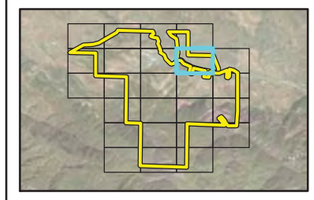
CDFW Jurisdictional Map

Figure 5h



Legend

- Project Boundary
- CDFW Vegetated Streambed
- CDFW Associated Vegetation
- No CDFW Streambed Present
- Culvert
- Flow Direction
- Reference Point
- Photo Point and Direction



January 29, 2018

0 150 300 Feet

Source: ArcGIS Online

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Michael Baker INTERNATIONAL

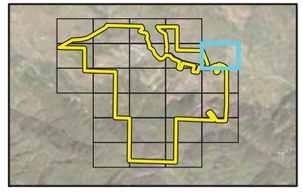
CARNEGIE SVRA EXPANSION AREA

CDFW Jurisdictional Map

Figure 5i

Legend

- Project Boundary
- Reference Point



January 29, 2018

0 150 300
Feet

Source: ArcGIS Online

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Michael Baker INTERNATIONAL

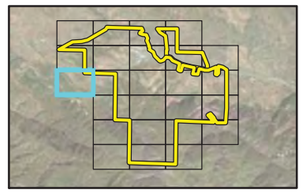
CARNEGIE SVRA EXPANSION AREA

CDFW Jurisdictional Map

Figure 5j

Legend

- Project Boundary
- Reference Point



January 29, 2018

0 150 300
Feet

Source: ArcGIS Online

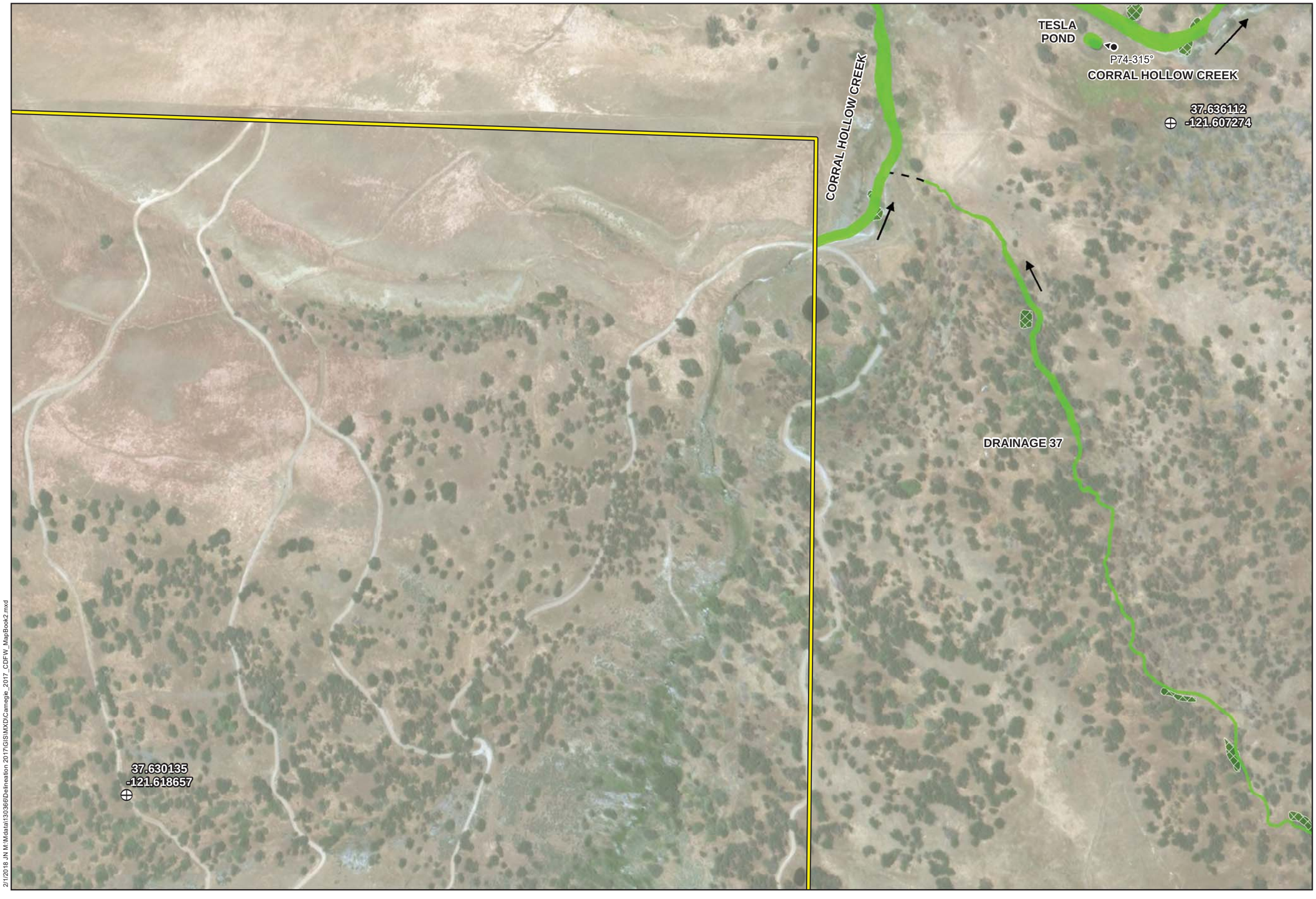
2/1/2018 JN M:\data\130386\Delineation 2017\GIS\MXD\Carnegie_2017_CDFW_MapBook2.mxd

Michael Baker INTERNATIONAL

CARNEGIE SVRA EXPANSION AREA

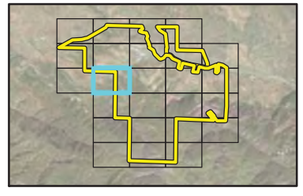
CDFW Jurisdictional Map

Figure 5k



Legend

- Project Boundary
- CDFW Vegetated Streambed
- CDFW Associated Vegetation
- No CDFW Streambed Present
- Flow Direction
- Reference Point
- Photo Point and Direction



January 29, 2018

0 150 300 Feet

Source: ArcGIS Online

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Michael Baker INTERNATIONAL

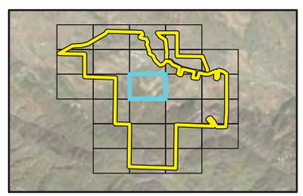
CARNEGIE SVRA EXPANSION AREA

CDFW Jurisdictional Map

Figure 5l

Legend

- Project Boundary
- CDFW Vegetated Streambed
- CDFW Unvegetated Streambed
- CDFW Associated Vegetation
- Flow Direction
- Reference Point
- Photo Point and Direction



January 29, 2018

0 150 300 Feet

Source: ArcGIS Online

2/1/2018 JN M:\Mdata\130366\Delineation 2017\GIS\MXD\Carnegie_2017_CDFW_MapBook2.mxd

Michael Baker INTERNATIONAL

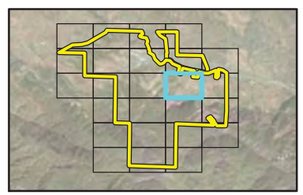
CARNEGIE SVRA EXPANSION AREA

CDFW Jurisdictional Map

Figure 5m

Legend

- Project Boundary
- CDFW Vegetated Streambed
- CDFW Associated Vegetation
- No CDFW Streambed Present
- Culvert
- Flow Direction
- Reference Point
- Photo Point and Direction



January 29, 2018

0 150 300 Feet

Source: ArcGIS Online

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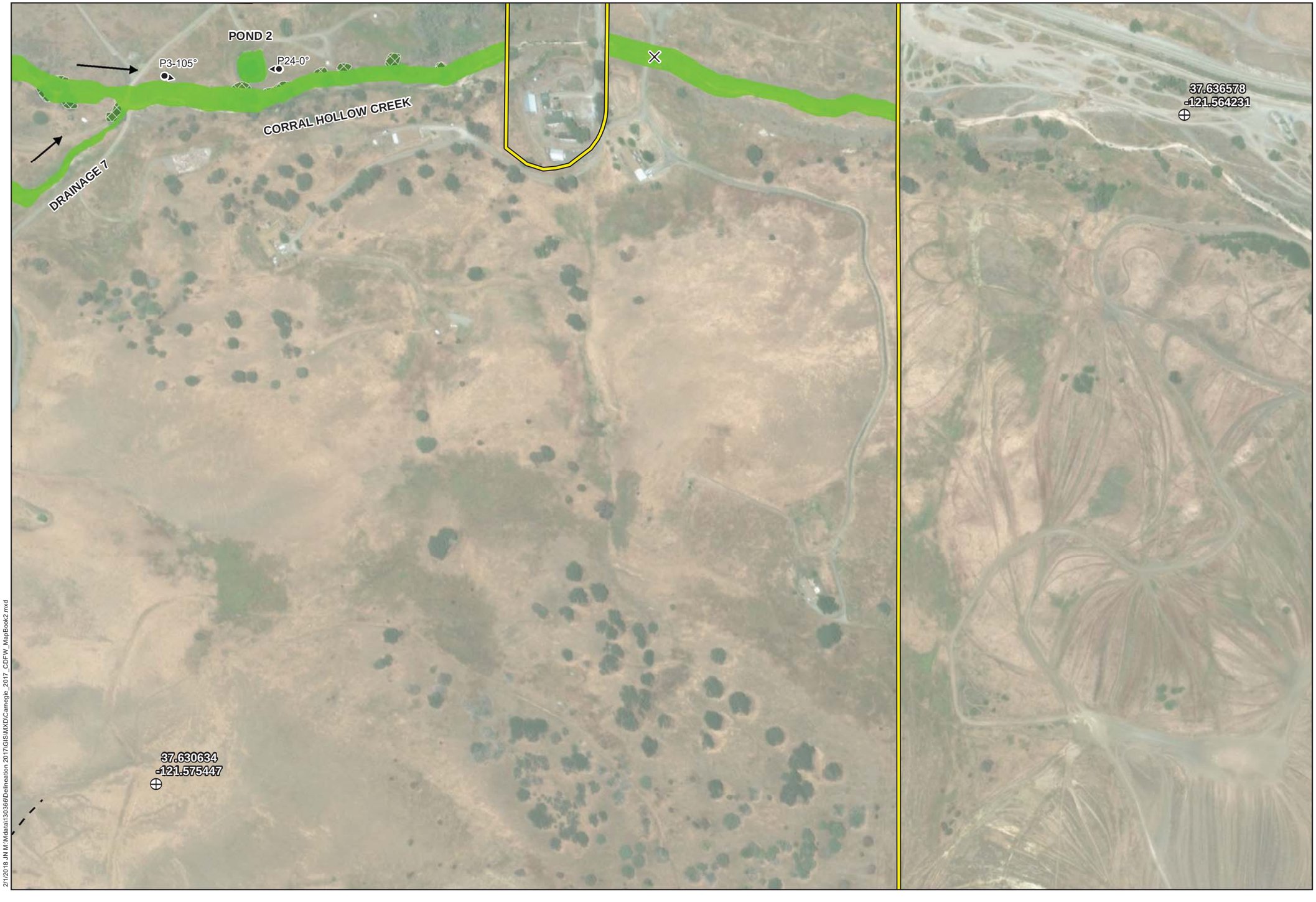
Michael Baker INTERNATIONAL

CARNEGIE SVRA EXPANSION AREA

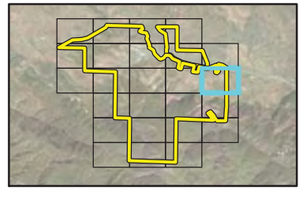
CDFW Jurisdictional Map

Figure 5n



Legend

- Project Boundary
- CDFW Vegetated Streambed
- CDFW Associated Vegetation
- No CDFW Streambed Present
- Culvert
- Flow Direction
- Reference Point
- Photo Point and Direction



January 29, 2018

0 150 300 Feet

Source: ArcGIS Online

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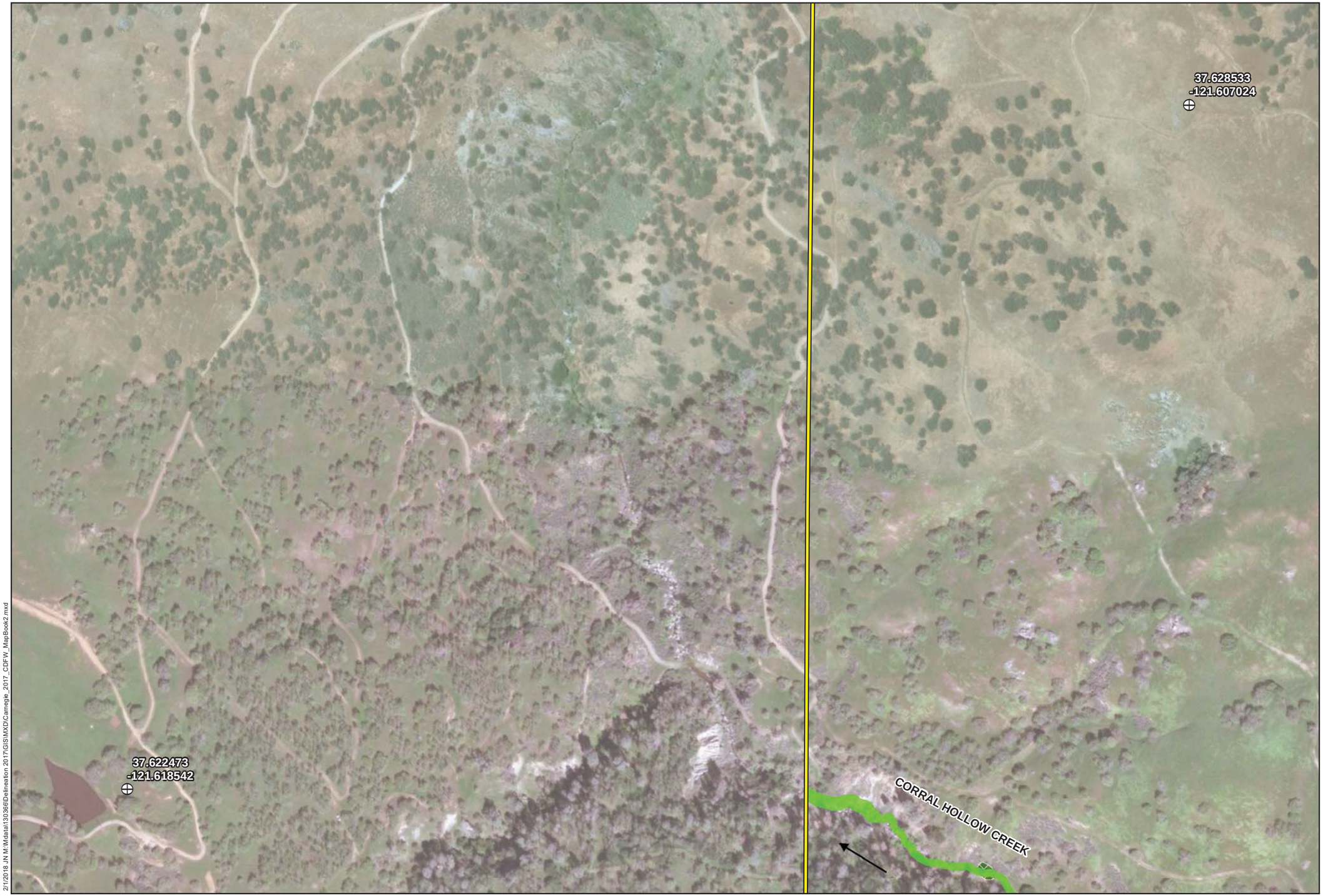
Michael Baker INTERNATIONAL

CARNEGIE SVRA EXPANSION AREA

CDFW Jurisdictional Map

Figure 5o



Legend

- Project Boundary
- CDFW Vegetated Streambed
- CDFW Associated Vegetation
- Flow Direction
- Reference Point

January 29, 2018

0 150 300 Feet

Source: ArcGIS Online

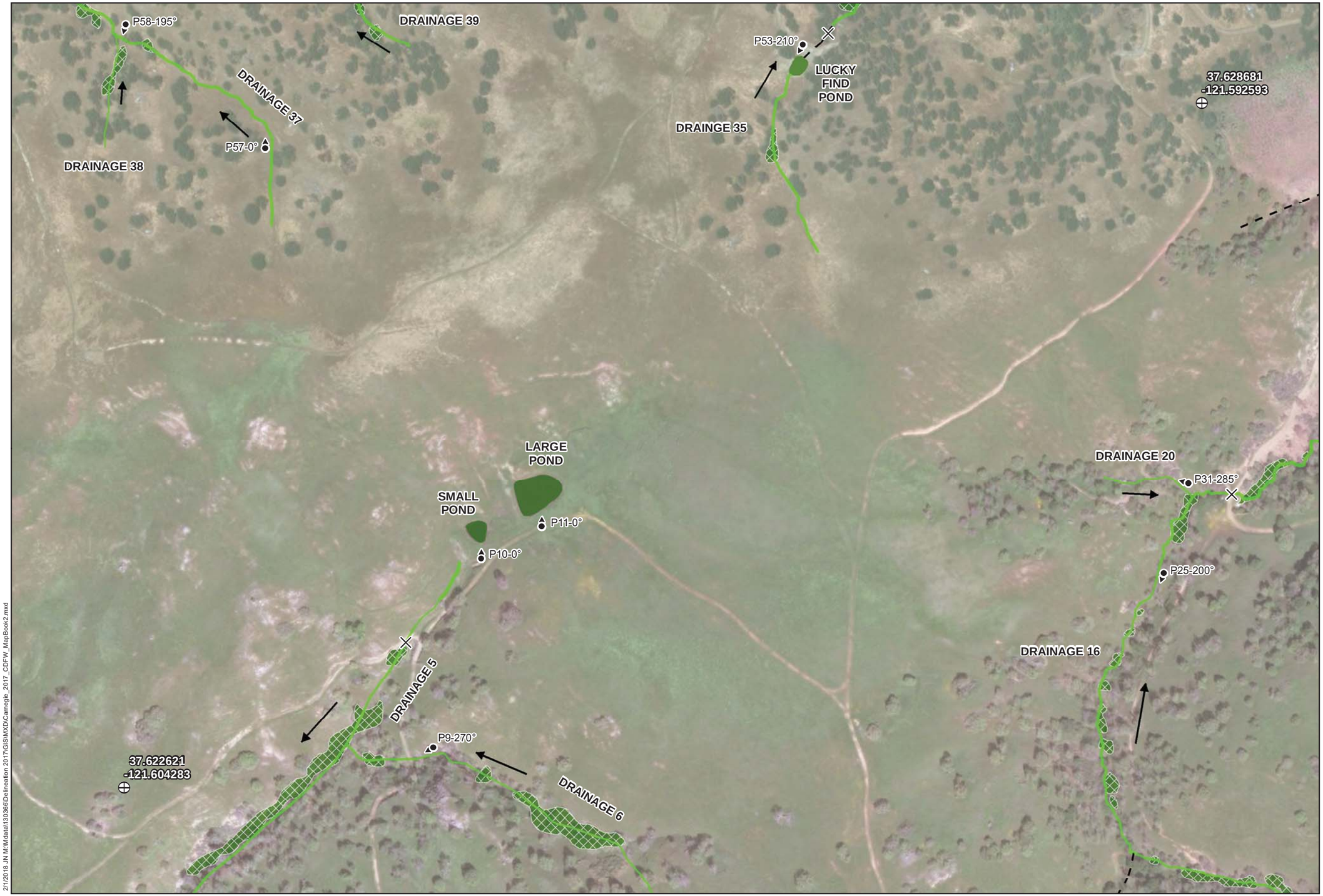
2/1/2018 JN M:\data\130386\Delineation 2017\GIS\MXD\Carnegie_2017_CDFW_MapBook2.mxd

Michael Baker INTERNATIONAL

CARNEGIE SVRA EXPANSION AREA

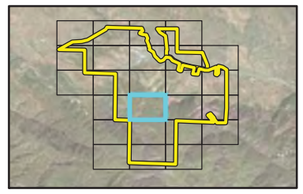
CDFW Jurisdictional Map

Figure 5p



Legend

- Project Boundary
- CDFW Vegetated Streambed
- CDFW Unvegetated Streambed
- CDFW Associated Vegetation
- No CDFW Streambed Present
- Culvert
- Flow Direction
- Reference Point
- Photo Point and Direction



January 29, 2018

0 150 300 Feet

Source: ArcGIS Online

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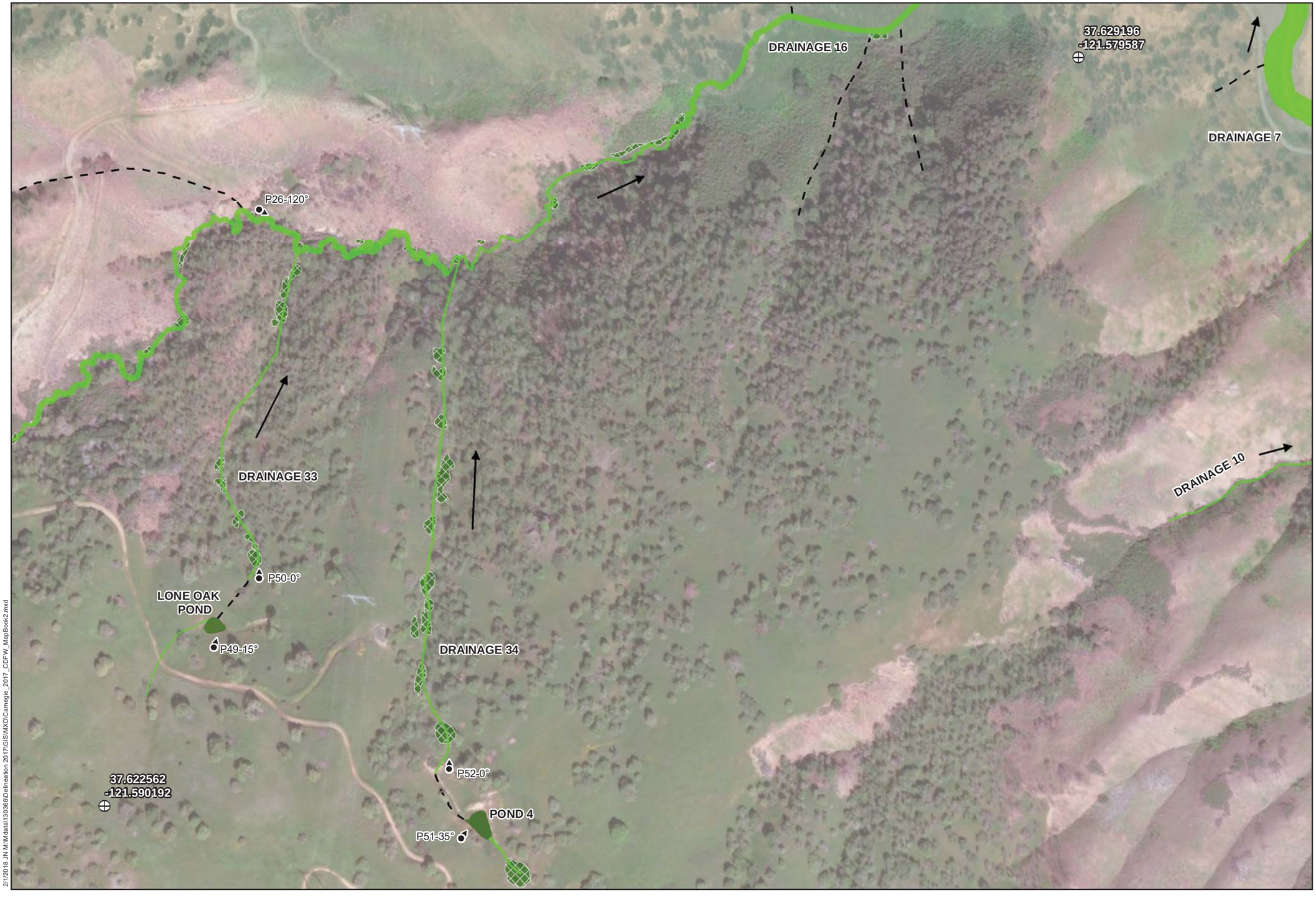
Michael Baker INTERNATIONAL

CARNEGIE SVRA EXPANSION AREA

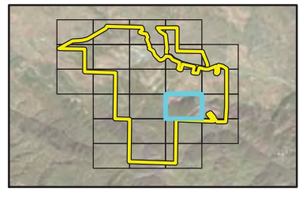
CDFW Jurisdictional Map

Figure 5q



Legend

- Project Boundary
- CDFW Vegetated Streambed
- CDFW Unvegetated Streambed
- CDFW Associated Vegetation
- No CDFW Streambed Present
- Flow Direction
- Reference Point
- Photo Point and Direction



January 29, 2018

0 150 300 Feet

Source: ArcGIS Online

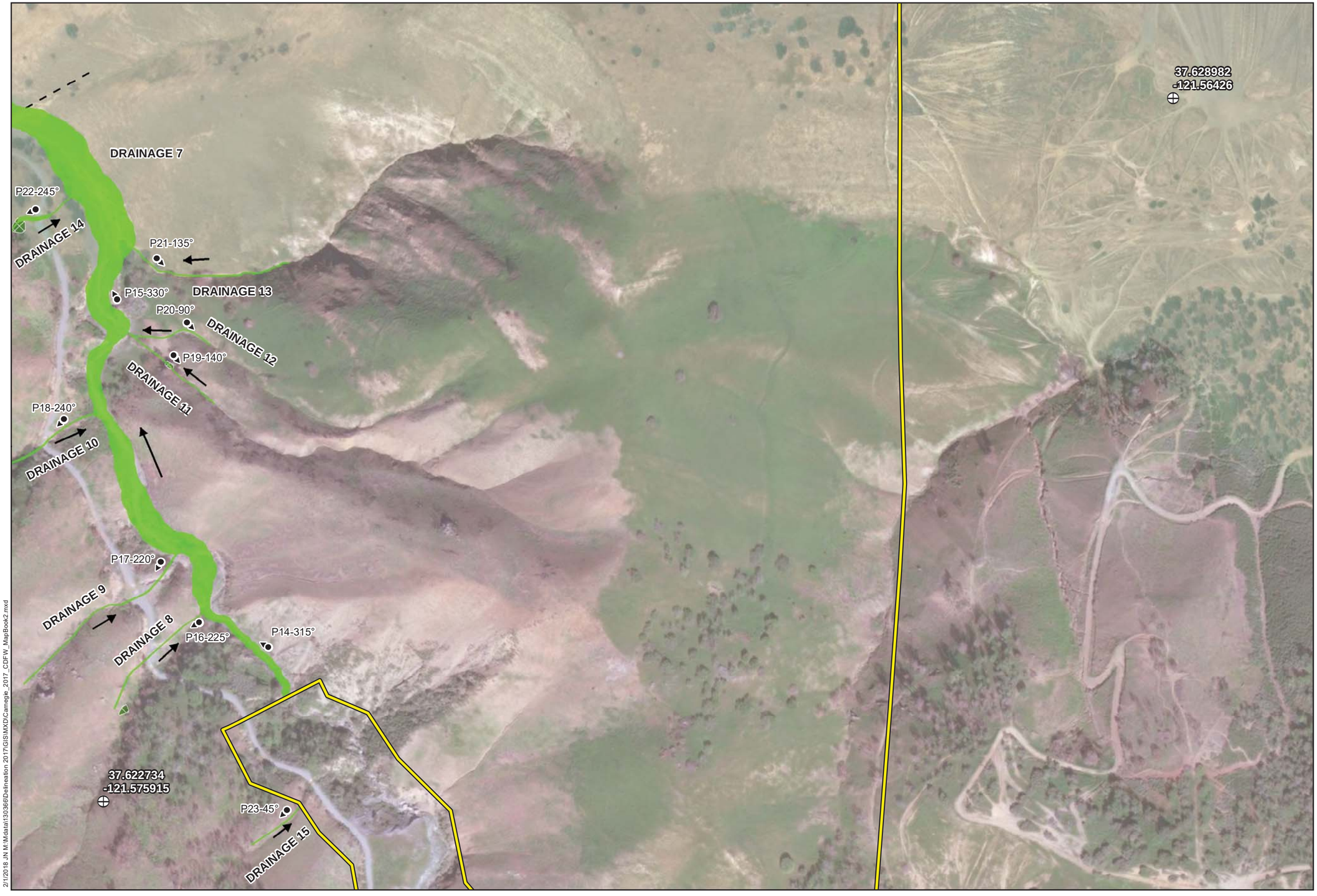
2/1/2018 JN M:\Mdata\130366\Definition 2017\GIS\MXD\Carnegie_2017_CDFW_MapBook2.mxd

Michael Baker INTERNATIONAL

CARNEGIE SVRA EXPANSION AREA

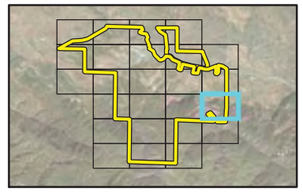
CDFW Jurisdictional Map

Figure 5r



Legend

- Project Boundary
- CDFW Vegetated Streambed
- CDFW Associated Vegetation
- No CDFW Streambed Present
- Flow Direction
- Reference Point
- Photo Point and Direction



January 29, 2018

0 150 300 Feet

Source: ArcGIS Online

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Michael Baker INTERNATIONAL

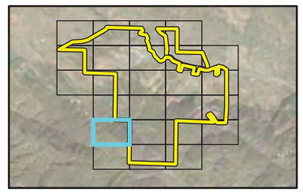
CARNEGIE SVRA EXPANSION AREA

CDFW Jurisdictional Map

Figure 5s

Legend

- Project Boundary
- CDFW Vegetated Streambed
- Reference Point



January 29, 2018

0 150 300
Feet

Source: ArcGIS Online

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Michael Baker INTERNATIONAL

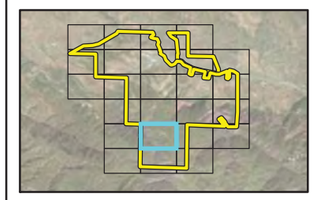
CARNEGIE SVRA EXPANSION AREA

CDFW Jurisdictional Map

Figure 5t

Legend

- Project Boundary
- CDFW Vegetated Streambed
- CDFW Unvegetated Streambed
- CDFW Associated Vegetation
- No CDFW Streambed Present
- Culvert
- Flow Direction
- Reference Point
- Photo Point and Direction



January 29, 2018

0 150 300 Feet

Source: ArcGIS Online

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Michael Baker INTERNATIONAL

CARNEGIE SVRA EXPANSION AREA

CDFW Jurisdictional Map

Figure 5u

DRAINAGE 18

P28-65°

DRAINAGE 16

P27-93°

DRAINAGE 17

P13-150°

HIDDEN POND

37.620984
-121.578544

37.615065
-121.589791

Legend

- Project Boundary
- CDFW Vegetated Streambed
- CDFW Unvegetated Streambed
- CDFW Associated Vegetation
- No CDFW Streambed Present
- Flow Direction
- Reference Point
- Photo Point and Direction

January 29, 2018

0 150 300 Feet

Source: ArcGIS Online

2/1/2018 JN M:\Mdata\130366\Definition 2017\GIS\MXD\Carnegie_2017_CDFW_MapBook2.mxd

Michael Baker INTERNATIONAL

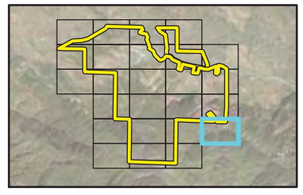
CARNEGIE SVRA EXPANSION AREA

CDFW Jurisdictional Map

Figure 5v

Legend

- Project Boundary
- Reference Point



January 29, 2018

0 150 300
Feet

Source: ArcGIS Online

2/1/2018 JN M:\data\130366\Delineation 2017\GIS\MXD\Carnegie_2017_CDFW_MapBook2.mxd

Michael Baker INTERNATIONAL

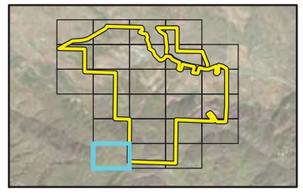
CARNEGIE SVRA EXPANSION AREA

CDFW Jurisdictional Map

Figure 5w

Legend

- Project Boundary
- CDFW Vegetated Streambed
- Reference Point



January 29, 2018

0 150 300
Feet

Source: ArcGIS Online

2/1/2018 JN M:\Data\130366\Deineation 2017\GIS\MXD\Carnegie_2017_CDFW_MapBook2.mxd

Michael Baker INTERNATIONAL

CARNEGIE SVRA EXPANSION AREA

CDFW Jurisdictional Map

Figure 5x

DRAINAGE 4

37.613146
-121.592947

P1-165°

CORRAL HOLLOW CREEK

P6-225°

P2-150°

DRAINAGE 3

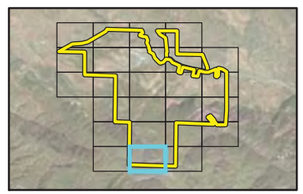
P5-75°

DRAINAGE 2

37.6069
-121.604204

Legend

- Project Boundary
- CDFW Vegetated Streambed
- CDFW Associated Vegetation
- No CDFW Streambed Present
- Flow Direction
- Reference Point
- Photo Point and Direction



January 29, 2018

0 150 300
Feet

Source: ArcGIS Online

2/1/2018 JN M:\Mdata\130366\Delineation 2017\GIS\MXD\Carnegie_2017_CDFW_MapBook2.mxd

Michael Baker INTERNATIONAL

CARNEGIE SVRA EXPANSION AREA

CDFW Jurisdictional Map

Figure 5y

37.613393
-121.57804

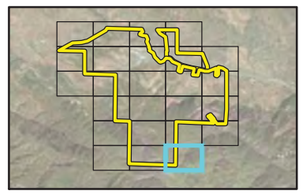
P12-240°

REFRIGERATOR POND

37.607155
-121.589915

Legend

- Project Boundary
- CDFW Unvegetated Streambed
- No CDFW Streambed Present
- Reference Point
- Photo Point and Direction



January 29, 2018

0 150 300
Feet

Source: ArcGIS Online

2/1/2018 JN M:\data\130366\Delineation 2017\GIS\MXD\Carnegie_2017_CDFW_MapBook2.mxd

Michael Baker INTERNATIONAL

CARNEGIE SVRA EXPANSION AREA

CDFW Jurisdictional Map

Figure 5z