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PRELIMINARY JURISDICTIONAL DELINEATION OF WETLANDS AND WATERS OF THE UNITED STATES COPELAND CREEK DETENTION BASIN AND TRAIL PROJECT SONOMA COUNTY, CALIFORNIA

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ACRONYMS AND ABBREVIATIONS

Acronym/Abbreviation	Definition
ACOE	U.S. Army Corps of Engineers
CDFW	California Department of Fish and Wildlife
CWA	Clean Water Act
ED	ephemeral drainage
ID	intermittent drainage
OHWM	ordinary high water mark
RWQCB	Regional Water Quality Control Board
SW	seasonal wetlands
SWANCC	*Solid Waste Agency of Northern Cook County v. United States Corps of Engineers*
SWS	seasonal wetland swale
TNW	traditional navigable waters
VS	vegetated swale

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1 INTRODUCTION

This report documents the results of a preliminary jurisdictional delineation of wetlands and other waters of the United States conducted for the approximately 128-acre City of Rohnert Park's Copeland Creek Detention Basin and Trail Project (project) located east of the City of Rohnert Park, Sonoma County, California. The results of this delineation are preliminary until verified by the San Francisco District of the U.S. Army Corps of Engineers (ACOE).

1.1 Project Location

The project consists of the 128-acre Anderson Property (Study Area) located just west of the City of Rohnert Park, in Sonoma County (County) (see Figure 1, Project Location). The Study Area is located on the east side of Petaluma Hill Road and Sonoma State University. The region was historically used for ranch and farmland. The Study Area is situated in Township 6 North, Range 7 West, and Sections 20, 21, 28, 29 and 30 in the 7.5-minute U.S. Geological Survey (USGS) Cotati quadrangle. The center of the site location corresponds to 38°20'37" north latitude and 122°39'33" west longitude.

1.2 Directions to the Study Area

From San Francisco, travel north on U.S. Highway 101. Take exit 476 for Old Redwood Highway toward Penngrove. In approximately 1.5 miles, take a right onto Main Street / Petaluma Hill Road. Travel 3.3 miles and the site is on the right, just after crossing over Copeland Creek.

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2 PROJECT DESCRIPTION

The project involves construction of an off-channel detention basin and future recreational trail on undeveloped pastureland east of Petaluma Hill Road with a physical address of 6626 Petaluma Hill Road (Figure 2, Site and Vicinity; APN 047-132-038). The detention basin would be designed for 10-year storm event detention and construction would include associated maintenance and access structures adjacent to Copeland Creek on the western portion of the property. A recreational trail is proposed for the western portion of the property and would extend from the basin to Crane Creek Regional Park to the west.

The multi-benefit project, developed with collaboration from the Sonoma County Water Agency (SCWA), Sonoma County Agricultural Preservation and Open Space District, Sonoma County Regional Parks, County of Sonoma, and City of Rohnert Park would improve flood protection for area residents, reduce sediment deposits downstream in Copeland Creek, assist groundwater recharge, improve salmonid habitat, provide salmonid refugia, conserve energy resulting from reduced pumping and importation of potable surface water, and create a site for public access and education about the hydrology, water cycle, fish habitat, and geomorphic processes in the upper Copeland Creek Watershed.

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3 REGULATORY BACKGROUND

3.1 Federal Statutes and Regulations – U.S. Army Corps of Engineers

Any person or public agency proposing to discharge dredged or fill material into waters of the United States, including jurisdictional wetlands, must obtain a permit from the ACOE.

As defined in Title 33 of the Code of Federal Regulations, Section 328.3, waters of the United States include all waters subject to interstate or foreign commerce, including tidal waters, interstate waters and wetlands, many intrastate waters, impoundments, tributaries, the territorial seas, and adjacent wetlands. Specifically, Section 328.3 of Title 33 of the Code of Federal Regulations defines waters of the United States as follows:

1. For purposes of the Clean Water Act, 33 U.S.C. 1251 et seq. and its implementing regulations, subject to the exclusions in paragraph (b) of this section, the term "waters of the United States" means:
    1. All waters which are currently used, were used in the past, or may be susceptible to use in interstate or foreign commerce, including all waters which are subject to the ebb and flow of the tide;
    2. All interstate waters, including interstate wetlands;
    3. The territorial seas;
    4. All impoundments of waters otherwise identified as waters of the United States under this section;
    5. All tributaries, as defined in paragraph (c)(3) of this section, of waters identified in paragraphs (a)(1) through (3) of this section;
    6. All waters adjacent to a water identified in paragraphs (a)(1) through (5) of this section, including wetlands, ponds, lakes, oxbows, impoundments, and similar waters.
2. The following are not "waters of the United States" even where they otherwise meet the terms of paragraphs (a)(4) through (8) of this section.
    1. Waste treatment systems, including treatment ponds or lagoons designed to meet the requirements of the Clean Water Act.
    2. Prior converted cropland. Notwithstanding the determination of an area's status as prior converted cropland by any other Federal agency, for the purposes of the Clean Water Act, the final authority regarding Clean Water Act jurisdiction remains with EPA.

For non-tidal waters of the United States, the lateral limits of ACOE jurisdiction extend to the ordinary high water mark (OHWM) when no adjacent wetlands are present. As defined in the Code of Federal Regulations, Title 33, Section 328.3(e), the OHWM is "that line on the shore established by the fluctuations of water and indicated by physical characteristics such as a clear, natural line impressed on the bank, shelving, changes in the character of soil, destruction of terrestrial vegetation, the presence of litter and debris, or other appropriate means that consider the characteristics of the surrounding areas." If adjacent wetlands are present, the jurisdiction extends to the limit of wetlands.

Wetlands are "those areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions" (33 CFR 328.3). Wetlands are jurisdictional if they meet this definition and the definition of waters of the United States. The ACOE predominantly uses *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region* (ACOE 2008) methodology to determine the presence of wetlands. According to the manual (ACOE 2008), three criteria must be satisfied to classify an area as a wetland: (1) a predominance of plant life that is adapted to life in wet conditions (hydrophytic vegetation); (2) soils that saturate, flood, or pond long enough during the growing season to develop anaerobic conditions in the upper part (hydric soils); and (3) permanent or periodic inundation or soils saturation, at least seasonally (wetland hydrology). Further guidance for determining jurisdictional limits in ephemeral riverine systems in the Arid West is detailed in *A Field Guide to the Identification of the Ordinary High Water Mark (OHWM) in the Arid West Region of the Western United States* (ACOE 2010).

In the last two decades, two major court cases have affected the jurisdictional reach of Section 404 of the Clean Water Act (CWA): (1) *Solid Waste Agency of Northern Cook County v. United States Corps of Engineers* (*SWANCC*), and (2) *Rapanos v. United States* and *Carabell v. United States Army Corps of Engineers* (*Rapanos*).

Solid Waste Agency of Northern Cook County v. United States Corps of Engineers

In 1986, in an attempt to clarify the reach of its jurisdiction, ACOE stated that Section 404(a) of the CWA extends to intrastate waters (51 FR 41217):

a. Which are or would be used as habitat by birds protected by Migratory Bird Treaties; or

b. Which are or would be used as habitat by other migratory birds which cross state lines; or

c. Which are or would be used as habitat for endangered species; or

d. Used to irrigate crops sold in interstate commerce.

In 2001, the U.S. Supreme Court, in its judgment on the *SWANCC* case, held that the Code of Federal Regulations, Title 33, Section 328.3(a)(3), as clarified and applied to the *SWANCC* site pursuant to the Migratory Bird Rule (51 FR 41217), exceeded the authority granted to ACOE under Section 404(a) of the CWA. Therefore, ACOE may not rely on the Migratory Bird Rule to establish a "significant nexus" to interstate or foreign commerce. In additional language, the U.S. Supreme Court majority opinion reasoned that these types of waters required some nexus to navigable waters. Although no formal guidance was issued by ACOE interpreting the extent to which the *SWANCC* decision would limit jurisdictional determinations, in practice, ACOE considers intrastate waters as waters of the United States where there is an appropriate connection to navigable water or other clear interstate commerce connection (*Solid Waste Agency of Northern Cook County v. United States Corps of Engineers* 2001).

Rapanos v. United States and Carabell v. United States Army Corps of Engineers

In 2006, the U.S. Supreme Court again issued an opinion on the extent ACOE had jurisdiction over certain waters under Section 404 of the CWA. The *Rapanos/Carabell* consolidated decisions addressed the question of jurisdiction over attenuated tributaries to waters of the United States, as well as wetlands adjacent to those tributaries (*Rapanos v. United States* 2006).

ACOE and the U.S. Environmental Protection Agency issued guidance related to the *Rapanos* decision on June 5, 2007. The guidance identifies the waters the agencies (i.e., ACOE and the U.S. Environmental Protection Agency) will assert jurisdiction over categorically and on a case-by-case basis based on the reasoning of the *Rapanos* opinions. In summary, ACOE will continue to assert jurisdiction over the following:

- Traditional navigable waters (TNWs) and their adjacent wetlands.
- Non-navigable tributaries of TNWs that are relatively permanent (e.g., tributaries that typically flow year-round or have a continuous flow at least seasonally) and wetlands that directly abut such tributaries (e.g., not separated by uplands, berm, dike, or similar feature).

  Note: Relatively permanent waters do not include ephemeral tributaries, which flow only in response to precipitation, and intermittent streams, which do not typically flow year-round or have continuous flow at least seasonally (e.g., typically 3 months).
- Non-relatively permanent waters, if determined (on a fact-specific analysis) to have a significant nexus with a TNW—including non-navigable tributaries that do not typically flow year-round or have continuous flow at least seasonally, wetlands adjacent to such tributaries, and wetlands adjacent to but that do not directly abut such tributaries. Absent a significant nexus, jurisdiction is lacking.

A significant nexus exists if the tributary, in combination with all of its adjacent wetlands, has more than a speculative or an insubstantial effect on the chemical, physical, and/or biological integrity of a TNW. Principal considerations when evaluating significant nexus include volume, duration, and frequency of the flow of water in the tributary and the proximity of the tributary to a TNW, including hydrologic, ecologic, and other functions performed by the tributary and all of its adjacent wetlands. Certain ephemeral waters in the Arid West are distinguishable from the geographic features described previously, where such ephemeral waters are tributaries and have a significant nexus to downstream TNWs. For example, these ephemeral tributaries may serve as a transitional area between the upland environment and the TNW. These ephemeral tributaries may provide habitat for wildlife and aquatic organisms in downstream TNWs and support nutrient cycling, sediment retention and transport, pollutant trapping and filtration, and improvement of water quality.

Swales or erosional features (e.g., gullies and small washes characterized by low-volume, infrequent, or short-duration flow) are generally not considered waters of the United States because they are not tributaries or they do not have a significant nexus to downstream TNWs. In addition, ditches (including roadside ditches) excavated wholly in and draining only uplands, and that do not carry a relatively permanent flow of water, are generally not considered waters of the United States because they are not tributaries or they do not have a significant nexus to downstream TNWs. Even when not jurisdictional under Section 404 of the CWA, these features may still be jurisdictional at state or local levels, such as under Section 401 of the CWA, the Porter-Cologne Water Quality Control Act (Porter-Cologne Act), and Section 1602 of the California Fish and Game Code.

Prior to the *Rapanos* guidance, ACOE required its regional districts to request concurrence for only those jurisdictional determinations where the district was planning to assert jurisdiction over a non-navigable, intrastate, isolated water and/or wetland. The agencies now require that all determinations for non-navigable, intrastate, isolated waters be submitted for ACOE and U.S. Environmental Protection Agency review prior to the district making a final decision on the jurisdictional determination.

ACOE-Regulated Activities

Under Section 404 of the CWA, ACOE regulates activities that involve a discharge of dredged or fill material, including but not limited to grading, placing riprap for erosion control, pouring concrete, laying sod, and stockpiling excavated material into waters of the United States. Activities that generally do not involve a regulated discharge (if performed specifically in a manner to avoid discharges) include driving pilings, providing some drainage channel maintenance activities, and excavating without stockpiling.

3.2 State of California

California Department of Fish and Wildlife

Pursuant to Section 1602 of the California Fish and Game Code, the California Department of Fish and Wildlife (CDFW) regulates all diversions, obstructions, or changes to the natural flow or bed, channel, or bank of any river, stream, or lake that supports fish or wildlife.

In Title 14 of the California Code of Regulations, Section 1.72, CDFW defines a "stream" (including creeks and rivers) as "a body of water that flows at least periodically or intermittently through a bed or channel having banks and supports fish or other aquatic life. This includes watercourses having a surface or subsurface flow that supports or has supported riparian vegetation."

In Title 14 of the California Code of Regulations, Section 1.56, CDFW's definition of "lake" includes "natural lakes or man-made reservoirs." Diversion, obstruction, or change to the natural flow or bed, channel, or bank of any river, stream, or lake that supports fish or wildlife requires authorization from CDFW by entering into an agreement pursuant to Section 1602 of the Fish and Game Code.

California Regional Water Quality Control Board

Pursuant to Section 401 of the federal CWA, the Regional Water Quality Control Board (RWQCB) regulates discharging waste, or proposing to discharge waste, within any region that could affect a water of the state (California Water Code, Section 13260(a)), pursuant to provisions of the Porter-Cologne Act. "Waters of the state" are defined as "any surface water or groundwater, including saline waters, within the boundaries of the state" (California Water Code, Section 13050(e)). Before ACOE will issue a CWA Section 404 permit, applicants must receive a CWA Section 401 Water Quality Certification from the RWQCB. If a CWA Section 404 permit is not required for the project, the RWQCB may still require a permit (i.e., Waste Discharge Requirement) for impacts to waters of the state under the Porter-Cologne Act.

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4 METHODOLOGY

4.1 Literature Review

Prior to conducting fieldwork at the Study Area, Dudek biologists reviewed the following available resources:

- *Preliminary Advisory Assessment Waters of the United States, Anderson 53 Site, Petaluma Hill Road (East Side), Sonoma County, CA* (Winfield 2016)
- 1:200-scale aerial photograph (Bing Maps 2017; Google Earth 2017)
- Historic aerial photographs (Historicaerials.com 2017)
- U.S. Geological Survey 7.5-minute topographic quadrangle (USGS 2017)
- U.S. Department of Agriculture Natural Resources Conservation Services Web Soil Survey (USDA 2017a)
- National Wetland Inventory (USFWS 2017)

4.2 Jurisdictional Delineation

Potential wetland waters of the United States were delineated based on methodology described in the 1987 Corps of Engineers Wetlands Delineation Manual (ACOE 1987) and the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region* (ACOE 2008). Non-wetland waters of the United States are delineated based on the presence of an OHWM, as determined using the methodology in *A Field Guide to the Identification of the Ordinary High Water Mark (OHWM) in the Arid West Region of the Western United States* (ACOE 2010). Dudek biologists collected photographic records that represent the on-site habitats and wetlands (Appendix A).

4.3 Flora

To the extent feasible due to the timing of the survey and the phenology of the plants, Dudek biologists identified all plant species encountered to the lowest taxonomic level needed to determine wetland plant indicator status. Those species that could not be immediately identified were brought into the laboratory for further investigation. Latin names follow the Jepson Interchange List of Currently Accepted Names of Native and Naturalized Plants of California (Jepson Flora Project 2017), and common names follow the U.S. Department of Agriculture Natural Resources Conservation Service PLANTS Database (USDA 2017b). Wetland plant indicator status for each plant was determined using the Arid West regional list of the National

Wetland Plant List: 2016 (ACOE 2016). Appendix A shows representative site photographs, and Appendix B contains a complete list of plant species observed during the field surveys.

4.4 Field Visit

Dudek biologists Laura Burris conducted a survey of the Study Area on November 9, 2017 to document current site conditions and assess potential wetlands and other waters of the United States. Dudek biologists reviewed previous wetland delineation mapping efforts presented in the *Preliminary Advisory Assessment Waters of the United States, Anderson 53 Site, Petaluma Hill Road (East Side), Sonoma County, CA* (Winfield 2016) prepared for the lower 53 acres of the Study Area. Dudek biologists took sample points in representative locations and, when necessary to assess the potential for hydric soils, hydrophytic vegetation and hydrology. Sample point data sheets are included in this report as Appendix C. In addition to the sample point data stations to assess wetlands, data at four stream transects were collected to assess stream hydrology and geomorphology. Evidence of an OHWM was present in the form of shelving, undercut banks, wracking, and changes in sediment and vegetation. Data sheets for stream transects are included in Appendix C. Results of the sample points and OHWM analyses are presented in Section 6, Results of the Jurisdictional Delineation.

5 PHYSICAL CHARACTERISTICS

5.1 Land Uses

The Study Area is currently undeveloped land that appears to have been used for grazing in the past.

Surrounding land use includes rural residential to the north that are dominated by annual grassland habitat, Crane Creek Regional Park to the east, Sonoma State University and residential development to the west, and a nursery to the south of the Copeland Creek corridor. No structures exist on the project site.

5.2 Topography and Soils

Elevation throughout the Study Area varies from approximately 175 feet above mean sea level (AMSL) in the southwestern flatlands to 400 feet AMSL in the hills of the western portion of the site. Nine soil types occur in the Study Area (Figure 3, Soils; USDA 2017a). These soil types consist of Alluvial land, sandy; Clear Lake clay loam, 0% to 2% slopes; Clear Lake clay loam, 2% to 5% slopes; Clear Lake clay, sandy substratum, drained, 0% to 2% slopes; Clear Lake clay, ponded, 0% to 2% slopes; Goulding cobbly clay loam, 5% to 15% slopes; Goulding5-Toomes complex, 9% to 50% slopes; Riverwash; and Toomes rocky loam, 2% to 30% slopes.

Alluvial land and riverwash are derived from alluvium and are primarily associated with Copeland Creek. Clear Lake clay loams consist of alluvium derived from sedimentary rock. Goulding cobbly clay loam and the Goulding-Toomes complex are residuum weathered from metavolcanics. Toomes rocky loam is residuum weathered from igneous rock.

The Clear Lake clay loams and riverwash are hydric soils as defined by the U.S. Department of Agriculture (USDA 2017a).

5.3 Watershed and Hydrology

The Study Area is within the Upper Laguna de Santa Rosa subwatershed (Hydrologic Unit Code 180101100701). This subwatershed is part of the greater Laguna de Santa Rosa watershed, which drains approximately 254 square miles through approximately 435 miles of stream to the Russian River (SRCD 2017). The Russian River eventually drains to the Pacific Ocean west of the Study Area.

Two streams shape the local hydrology of the Study Area: Copeland Creek at the southern extent, and an unnamed tributary to Hinebaugh Creek in the northern extent. Both channels

transport water from east to west through the Study Area and appear to be fed primarily by rainwater runoff from surrounding hills.

The National Wetlands Inventory (NWI) identifies Copeland Creek as permanently flooded, unconsolidated bottom, lower perennial riverine habitat (R2UBH; USFWS 2017). Additionally, the NWI shows an ephemeral drainage in the northeastern portion of the Study Area as seasonally flooded, streambed, intermittent riverine (R4SBC).

6 RESULTS OF THE JURISDICTIONAL DELINEATION

The land cover within the project area consists of a combination of terrestrial non-vegetative land covers and natural vegetation communities, as well as aquatic land cover types. The vegetation communities and land covers have been adapted from *A Manual of California Vegetation*, second edition (Sawyer et.al 2009), and the California Wildlife Habitat Relationships System (CDFW 2017, originally published by Mayer and Laudenslayer in 1988). The following vegetation communities and land cover types were documented on site and are described in further detail in the following sections: California annual grassland, arroyo willow thickets, coast live oak woodland, intermittent drainage, ephemeral drainage, vegetated swale, seasonal wetland, and seasonal wetland swale.

6.1 Terrestrial Habitat Types

California Annual Grassland. California annual grassland is the dominant land cover within the Study Area. This vegetation community is dominated by non-native grasses such as slender wild oats (*Avena barbata*), soft chess (*Bromus hordeaceus*), and hedgehog dog tail grass (*Cynosurus echinatus*). Also present in this vegetation community are non-native forbs such as bristly ox-tongue (*Helminthotheca echioides*), Italian plumeless thistle (*Carduus pycnocephalus*), woolly distaff thistle (*Carthamus lanatus*), and rose clover (*Trifolium hirtum*). Native forbs such as rosinweed (*Calycadenia truncata*) are present in low density.

Arroyo Willow Thickets (*Salix lasiolepis* Shrubland Alliance). Arroyo willow (*Salix lasiolepis*) is the dominant tree in this vegetation community. This vegetation community occurs along the Copeland Creek in the southern portion of the Study Area. Other species observed with the arroyo willow thickets along Copeland Creek include non-native fennel (*Foeniculum vulgare*), blue gum (*Eucalyptus globulus*), and Himalayan blackberry (*Rubus armeniacus*).

Coast Live Oak Woodland (*Quercus agrifolia* Woodland Alliance). One stand of coast live oak woodland occurs within the central portion of the Study Area and coast live oak is dominant in the canopy. This is a mature stand and co-occurs with other hardwood species such as Oregon white oak (*Quercus garryana*) and California buckeye (*Aesculus californica*). Annual grasses similar to those found in the California annual grassland dominate the understory of this habitat type.

6.2 Aquatic Habitat Types

Other Waters of the United States

There are four types of drainages within the Study Area: creek, intermittent drainage, ephemeral drainage, and vegetated swale (refer to Figures 4-1 through 4-4, Delineation of Wetlands and Waters of the United States).

Creek. Copeland Creek (Creek-01) flows from southeast to west through the lower portion of the Study Area. This drainage flows intermittently, fed primarily by rainwater runoff from surrounding hills and tributaries east of the Study Area. Copeland Creek contains a defined bed and bank, with large cobbles to boulders in the channel. Vegetation is sparse to absent in the bed of the creek, and the banks are dominated by arroyo willow thickets for most of its length in the Study Area. Other evidence of an OHWM includes undercut banks, debris wracking, and change in sediment texture and vegetation cover. The NWI defines this channel as unconsolidated bottom, lower perennial riverine, permanently flooded; however, this system does not maintain water on an annual basis and should be classified as intermittent (USFWS 2017).

Intermittent Drainage (ID). One intermittent drainages (ID-01) occurs in the northeastern portion of the Study Area. This drainage flows when rainwater runoff from surrounding hills channels into this drainage, flowing from southeast to northwest through the Study Area. The channel contains a defined bed and bank, and evidence of an OHWM is present in the cut banks, change in vegetation, and change in sediment. Vegetation along the margins of ID-01 is consistent with the surrounding California annual grassland. There were several pockets of water remaining in the channel at the time of the survey. Water from this channel eventually connects with Hinebaugh Creek, thence the Laguna de Santa Rosa to the west of the Study Area. The NWI defines this features as seasonally flooded, intermittent streambed riverine (USFWS 2017).

Ephemeral Drainage (ED). There are two ephemeral drainages (ED-01 and ED-02) within the Study Area. Ephemeral drainages on site are typically located in topographic declinations between hills and contain marginal bed and bank; they appear to channel water only during storm events, remaining dry for much of the year. The dominant vegetation community associated with ephemeral drainages in the Study Area is California annual grassland. Both ED-01 and ED-02 channel rainwater runoff from surrounding hills to ID-01.

Vegetated Swale (VS). Three vegetated swales (VS-01 through VS-03) occur in the Study Area. VS-01 and VS-02 appear to be topographic features that have formed from rainwater runoff and only exist for a short length and do not have connectivity to other water features. They do not contain a bed or bank and no evidence of an OHWM is present. Vegetation is consistent with the

surrounding California annual grassland. VS-03 appears to be a roadside swale formed because of construction of the access road. This swale does not have a defined bed or bank, and no evidence of an OHWM is present. VS-03 drains into seasonal wetland swales on site.

Wetlands

Two types of wetlands occur within the Study Area: seasonal wetland and seasonal wetland swale (refer to Figures 4-1 through 4-4).

Seasonal Wetlands (SW). Two seasonal wetlands occur in topographic depressions in the northern portion of the Study Area. SW-01 and SW-02 occur along a low area at the base of a north-aspect slope where water runoff from the hillside collects long enough to create wetland hydrology, soils, and vegetation. These features were delineated based on the three parameters for wetlands (refer to Appendix C for data sheets). The dominance of Italian rye grass (*Festuca perennis*) and curly dock (*Rumex crispus*) shows the presence of hydrophytic vegetation. Hydric soils are present as indicated by redoximorphic features in a depleted soil matrix (Depleted Matrix – Hydric Soil Indicator F3). The presence of oxidized rhizospheres along living roots (Wetland Hydrology Indicator C3) provides evidence of wetland hydrology.

Seasonal Wetland Swale (SWS). Seasonal wetland swales (SWS-01 through SWS-04) occur primarily in the southern portion of the Study Area. These features are similar to seasonal wetlands except that they take on linear shapes based on topography and hydrology. Vegetation in these features is similar to seasonal wetlands and the surrounding California annual grassland.

6.3 Results of Data Points

Results from three representative data points document potentially jurisdictional wetland features within the Study Area based on observable field indicators (Table 1). The data collected at each data station are included in Appendix C, on the ACOE's Wetland Determination Data Forms for the Arid West Region.

Table 1
Data Point Summary

Data Point	Wetland Determination Field Indicators			Determination	Jurisdiction
	Vegetation	*Hydric Soils*	*Hydrology*		
1	None	None	None	Upland	None
2	None	None	None	Upland	None
3	✓	✓	✓	Seasonal Wetland	ACOE, RWQCB

ACOE = U.S. Army Corps of Engineers; CDFW = California Department of Fish and Wildlife; RWQCB = Regional Water Quality Control Board.

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7 CONCLUSIONS

The Study Area supports 0.734 acres of wetlands and 6,962.856 linear feet of other waters that are anticipated to meet the criteria for jurisdictional waters of the United States, including wetlands, based on an analysis of the three parameters for wetlands (soils, hydrology, and vegetation) and connectivity/proximity to known waters of the United States.

The study area does not support TNWs, interstate waters, or waters that support interstate commerce (33 CFR 328.3(a)(1–4)); therefore, potential ACOE jurisdiction was determined based on connectivity or adjacency to off-site waters of the United States (33 CFR 328.3(a)(5)).

Figures 4-1 through 4-4 depict the geographic extent of wetland features within the Study Area, and Table 2 includes the total acreage of wetland features and other waters of the United States. An aquatic resources table in accordance with the ACOE format is provided in Appendix D.

Table 2
Wetlands and Waters in the Study Area

Feature	Cowardin Code	Potential Jurisdiction	Acres	Linear Feet
Wetlands				
SW-01	PEM2	ACOE/RWQCB	0.086	N/A
SW-02	PEM2	ACOE/RWQCB	0.055	N/A
SWS-01	PEM2	ACOE/RWQCB	0.336	N/A
SWS-02	PEM2	ACOE/RWQCB	0.244	N/A
SWS-03	PEM2	ACOE/RWQCB	0.010	N/A
SWS-04	PEM2	ACOE/RWQCB	0.003	N/A
		Total	**0.734**	**N/A**
Other Waters				
Creek-01	R4	ACOE/RWQCB/CDFW	3.648	3,076.730
ID-01	R4	ACOE/RWQCB/CDFW	0.103	2,244.954
ED-01	R6	ACOE/RWQCB/CDFW	0.005	471.541
ED-02	R6	ACOE/RWQCB/CDFW	0.006	488.209
VS-01	U	None	0.001	121.840
VS-02	U	None	0.001	19.755
VS-03	U	None	0.012	539.827
		Total	**3.776**	**6,962.856**

ACOE = Army Corps of Engineers; CDFW = California Department of Fish and Wildlife; ED = Ephemeral Drainage; ID = Intermittent Drainage; N/A = not applicable; PEM2 = Palustrine, emergent, nonpersistent; R4 = Riverine, intermittent; R6 = Riverine, ephemeral; RWQCB; Regional Water Quality Control Board; SW = Seasonal Wetland; SWS = Seasonal Wetland Swale; U = Upland; VS = Vegetated Swale.

All features identified as potentially under ACOE jurisdiction are potentially jurisdictional wetlands or waters of the United States. These findings are preliminary until verified by the San Francisco District of the ACOE.

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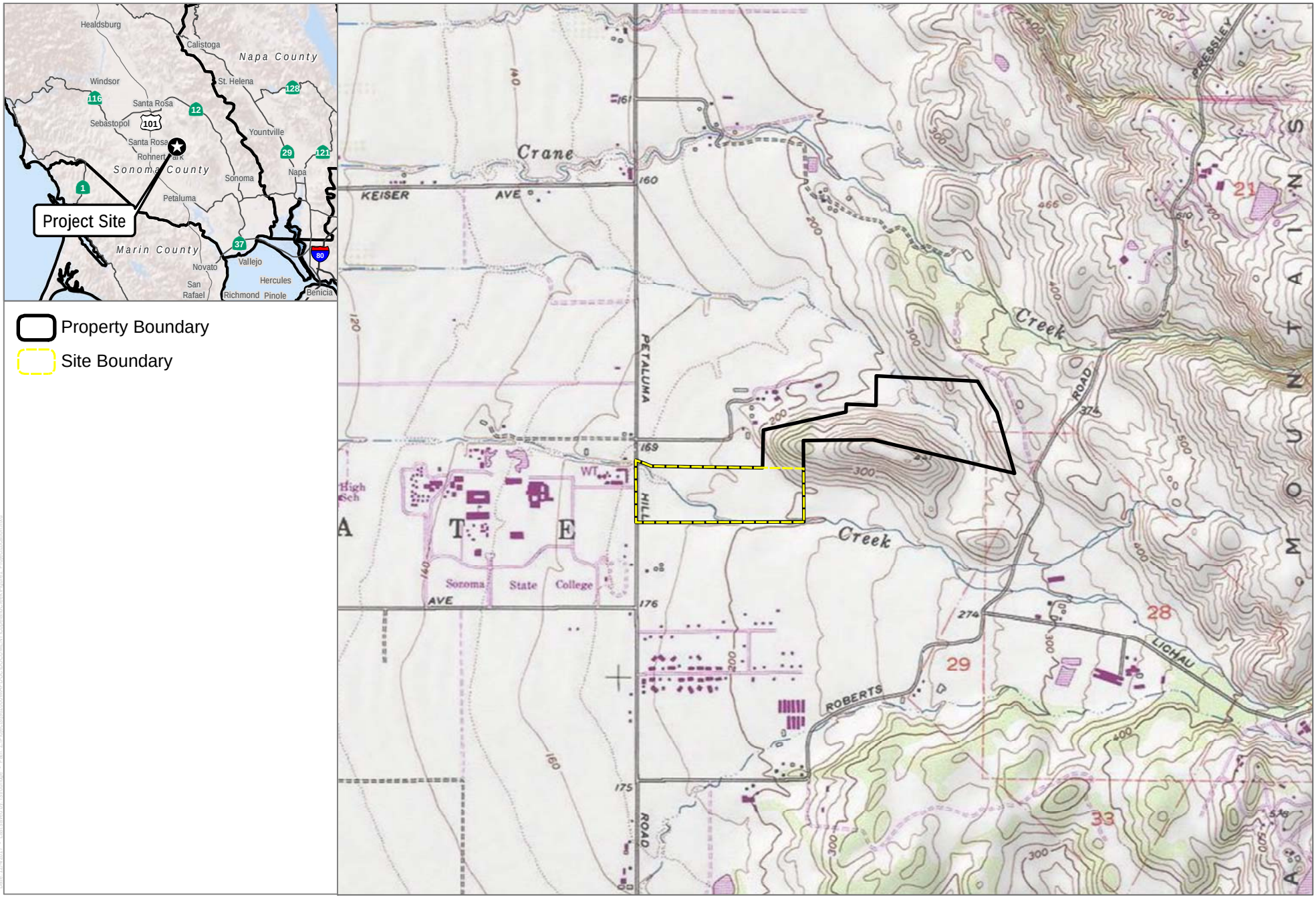

SOURCE: USGS 7.5-Minute Cotati Quadrangle
Township 6N; Range 7W; Sections 20, 21, 28, 29, 30

DUDEK

0 1,000 2,000 Feet

FIGURE 1

Project Location

Copeland Creek Regional Detention Basin and Trail Project

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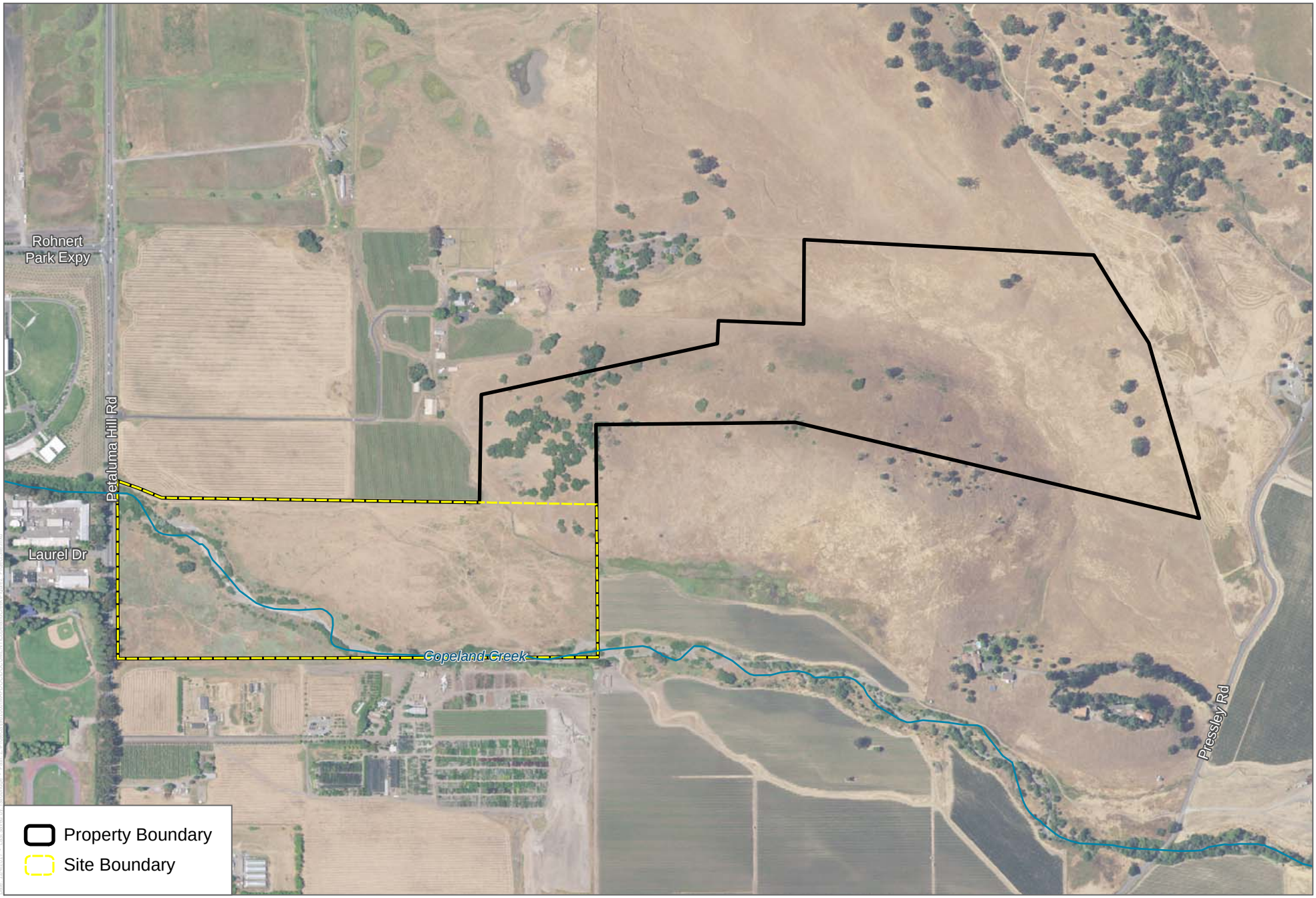

SOURCE: USDA NAIP Imagery (2016); Sonoma County GIS

DUDEK

0 350 700 Feet

FIGURE 2

Site and Vicinity

Copeland Creek Regional Detention Basin and Trail Project

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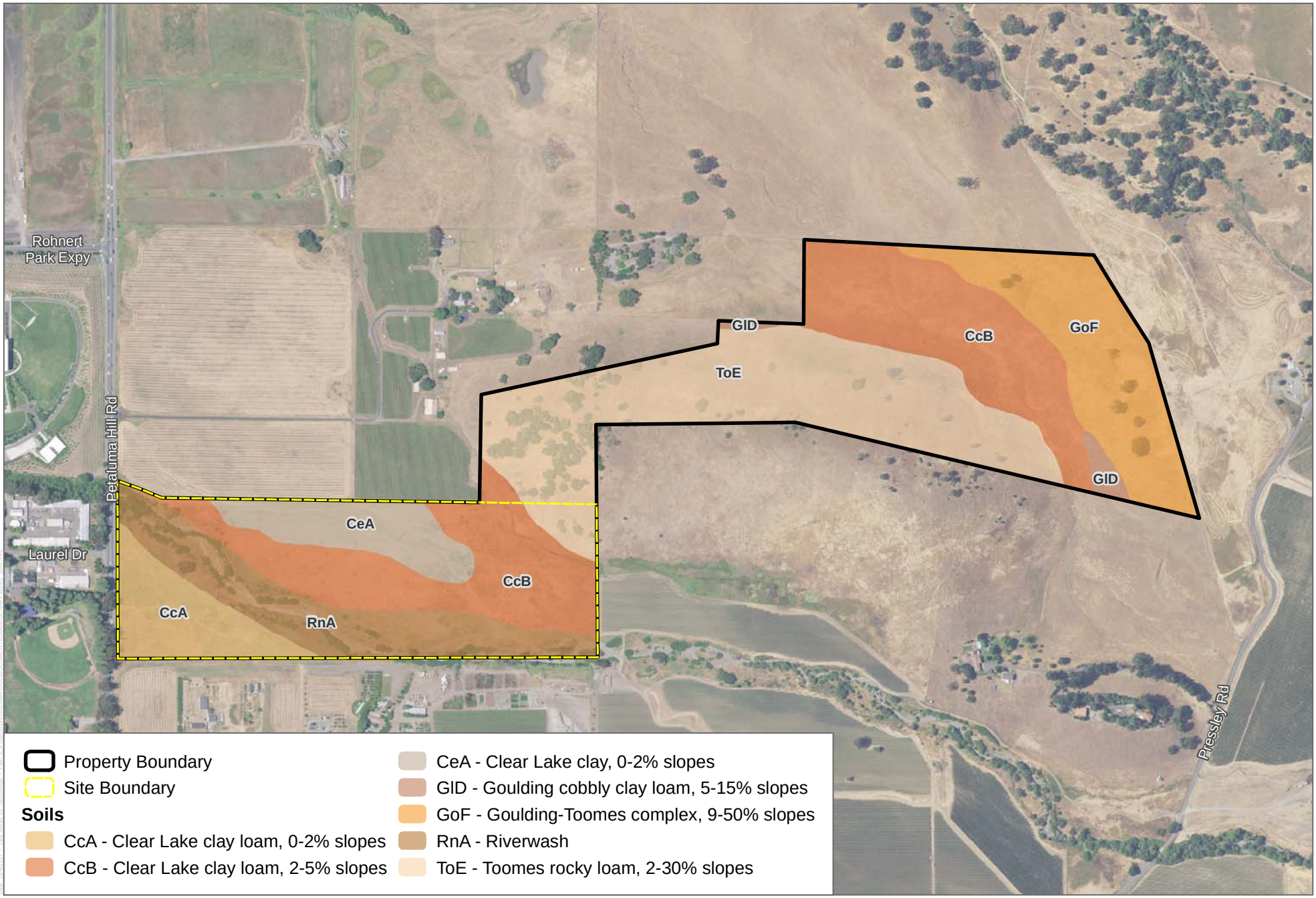

SOURCE: USDA NAIP Imagery (2016); USDA NRCS SSURGO Soils Data; Sonoma County GIS

DUDEK

0 350 700 Feet

FIGURE 3

Soils

Copeland Creek Regional Detention Basin and Trail Project

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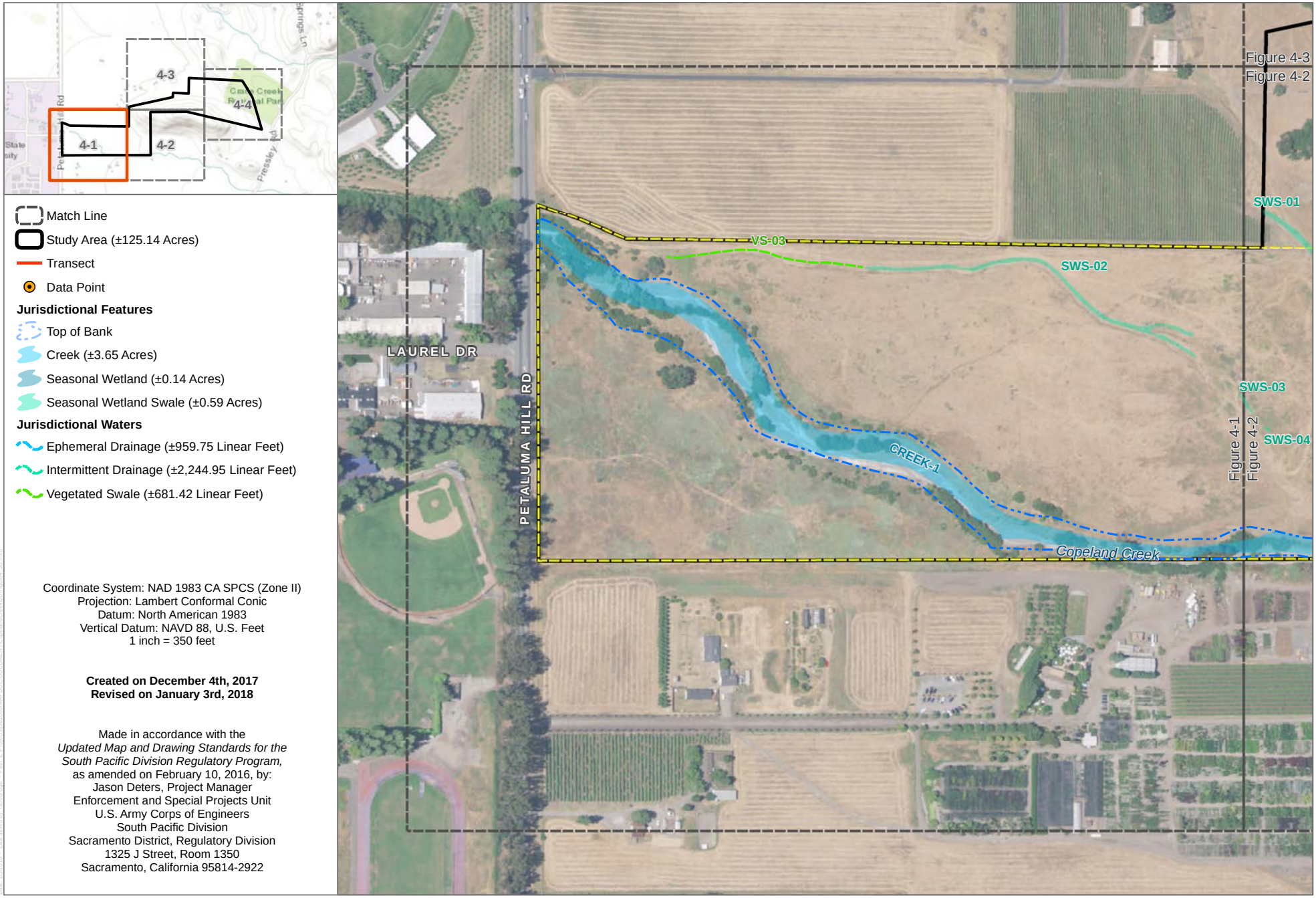

SOURCE: USDA NAIP Imagery (2016); Sonoma County GIS

DUDEK

FIGURE 4-1

Delineation of Wetlands and Waters of the United States

Copeland Creek Regional Detention Basin and Trail Project

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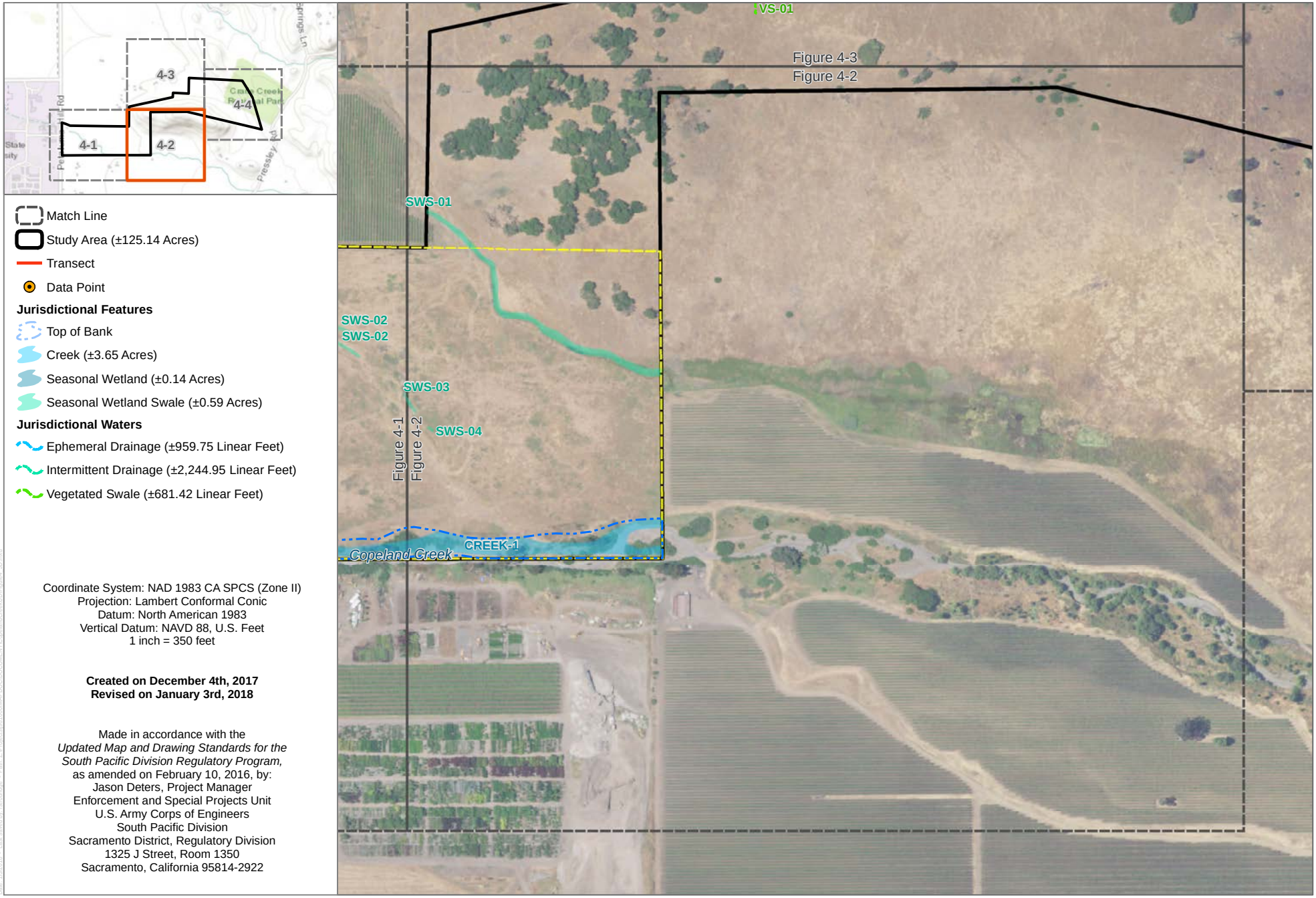

SOURCE: USDA NAIP Imagery (2016); Sonoma County GIS

DUDEK

0 175 350 Feet

FIGURE 4-2

Delineation of Wetlands and Waters of the United States

Copeland Creek Regional Detention Basin and Trail Project

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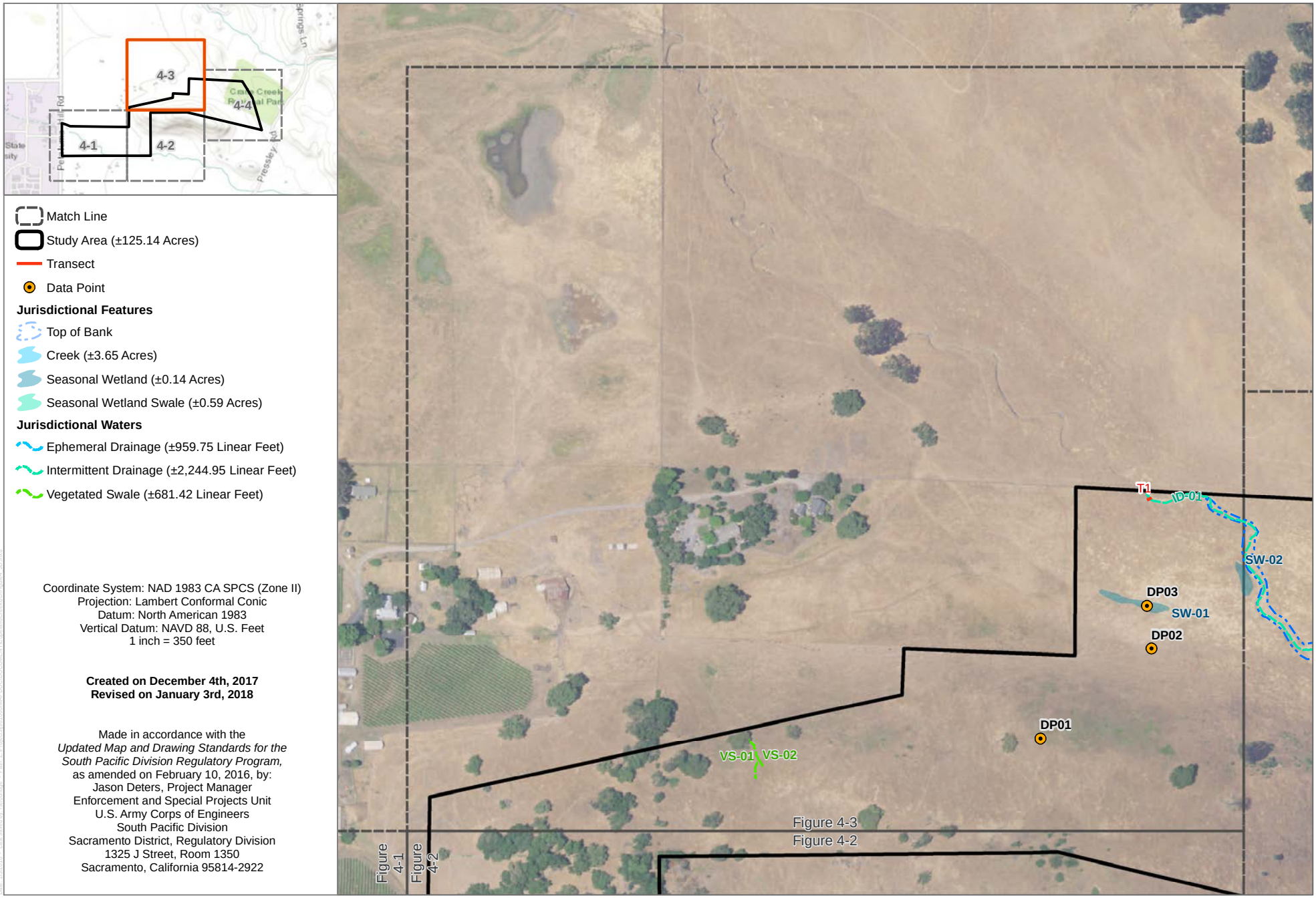

Coordinate System: NAD 1983 CA SPCS (Zone II)
Projection: Lambert Conformal Conic
Datum: North American 1983
Vertical Datum: NAVD 88, U.S. Feet
1 inch = 350 feet

Created on December 4th, 2017
Revised on January 3rd, 2018

Made in accordance with the
Updated Map and Drawing Standards for the South Pacific Division Regulatory Program,
as amended on February 10, 2016, by:
Jason Deters, Project Manager
Enforcement and Special Projects Unit
U.S. Army Corps of Engineers
South Pacific Division
Sacramento District, Regulatory Division
1325 J Street, Room 1350
Sacramento, California 95814-2922

SOURCE: USDA NAIP Imagery (2016); Sonoma County GIS

DUDEK

0 175 350 Feet

FIGURE 4-3

Delineation of Wetlands and Waters of the United States

Copeland Creek Regional Detention Basin and Trail Project

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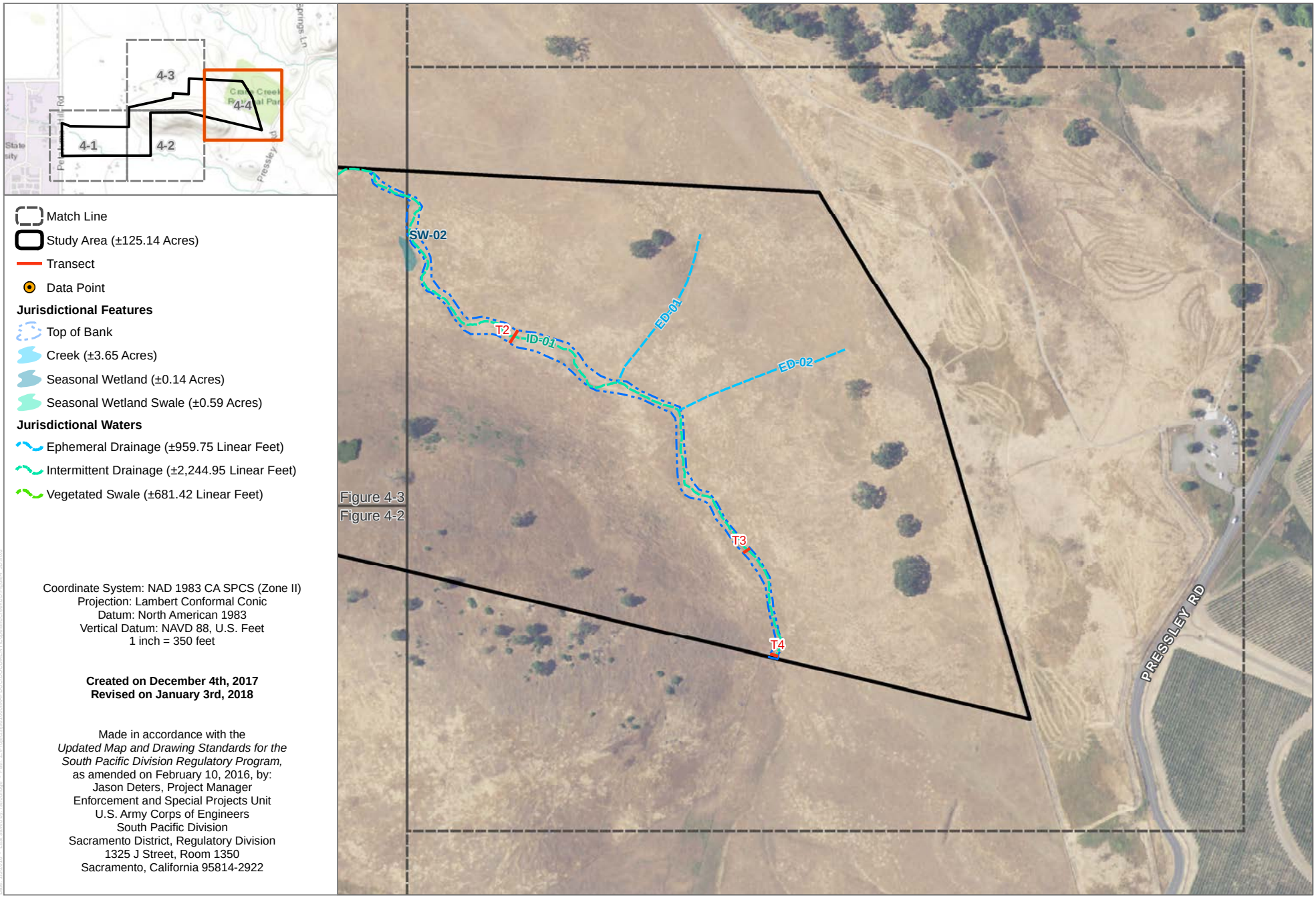

SOURCE: USDA NAIP Imagery (2016); Sonoma County GIS

DUDEK

0 175 350 Feet

FIGURE 4-4

Delineation of Wetlands and Waters of the United States

Copeland Creek Regional Detention Basin and Trail Project

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APPENDIX A

Representative Site Photographs

APPENDIX A
Representative Site Photographs

Photo 1: View of California annual grassland upslope of DP-01, facing south. November 9, 2017.

Photo 2: View of DP-01, facing southeast. November 9, 2017.

Photo 3: View of SP-03 and SW-01, facing southeast. November 9, 2017.

Photo 4: View of ID-01 at T-1, facing south. November 9, 2017.

Photo 5: View of ID-01 at T-4, facing south. November 9, 2017.

Photo 6: View of SWS-0XX, facing north. November 9, 2017.

Photo 7: View of Copeland Creek, facing northwest. November 9, 2017.

Photo 8: View of SWS-0XX and California annual grassland, facing southwest. November 9, 2017.

APPENDIX B

Plant Species Observed

APPENDIX B
Plant Species Observed

VASCULAR SPECIES

FERNS AND FERN ALLIES

PTERIDACEAE—BRAKE FAMILY

Pentagramma triangularis—goldback fern

MONOCOTS

POACEAE—GRASS FAMILY

* *Avena fatua*—wild oat

* *Bromus hordeaceus*—soft brome

* *Cynosurus echinatus*—annual dogtails

* *Festuca perennis*—perennial rye grass

EUDICOTS

ANACARDIACEAE—SUMAC OR CASHEW FAMILY

Toxicodendron diversilobum—poison oak

APIACEAE—CARROT FAMILY

* *Foeniculum vulgare*—fennel

ASTERACEAE—SUNFLOWER FAMILY

* *Carduus pycnocephalus*—Italian plumeless thistle

* *Lactuca serriola*—prickly lettuce

Artemisia californica—California sagebrush

Baccharis pilularis—coyote brush

BRASSICACEAE—MUSTARD FAMILY

* *Brassica nigra*—black mustard

EUPHORBIACEAE—SPURGE FAMILY

Croton setiger—dove weed

FABACEAE—LEGUME FAMILY

* *Trifolium hirtum*—rose clover

FAGACEAE—OAK FAMILY

Quercus garryana—Oregon white oak

Quercus agrifolia—coast live oak

GENTIANACEAE—GENTIAN FAMILY

* *Centaurium tenuiflorum*—slender centaury

GERANIACEAE—GERANIUM FAMILY

* *Erodium botrys*—longbeak stork's bill

LYTHRACEAE—LOOSESTRIFE FAMILY

* *Lythrum hyssopifolia*—hyssop loosestrife

MYRTACEAE—MYRTLE FAMILY

* *Eucalyptus globulus*—Tasmanian bluegum

POLYGONACEAE—BUCKWHEAT FAMILY

* *Rumex crispus*—curly dock

ROSACEAE—ROSE FAMILY

* *Rubus armeniacus*—Himalayan black berry

SALICACEAE—WILLOW FAMILY

Salix lasiolepis—arroyo willow

Salix exigua—sandbar willow

SAPINDACEAE—SOAPBERRY FAMILY

Aesculus californica—California buckeye

* signifies introduced (non-native) species

APPENDIX C

Data Sheets

WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: Copeland Creek Detention Basin and Trail Project City/County: Rohnert Park/Sonoma Sampling Date: 11/9/2017

Applicant/Owner: City of Rohnert Park State: CA Sampling Point: SP-01

Investigator(s): L. Burris Section, Township, Range: Sec. 20, T6N, R7W

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

Subregion (LRR): C - Mediterranean California Lat: 38.344570 Long: -122.652866 Datum: UTM Zone 10

Soil Map Unit Name: Toomes rocky loam, 2-30% slopes 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: Sample point taken towards base of slope. Slight change in vegetation and topography warranted investigation.

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
Total Cover:	%		
Sapling/Shrub Stratum			
1.			
2.			
3.			
4.			
5.			
Total Cover:	%		
Herb Stratum			
1. *Pteridium aquilinum*	65	Yes	FACU
2. *Bromus hordeaceus*	20	Yes	FACU
3. *Avena fatua*	10	No	Not Listed
4.			
5.			
6.			
7.			
8.			
Total Cover:	95 %		
Woody Vine Stratum			
1.			
2.			
Total Cover:	%		

% Bare Ground in Herb Stratum 5 % % Cover of Biotic Crust %

Dominance Test worksheet:

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

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 0.0 % (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species		x 1 =	0
FACW species		x 2 =	0
FAC species		x 3 =	0
FACU species	85	x 4 =	340
UPL species	10	x 5 =	50
Column Totals:	95 (A)		390 (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.

Hydrophytic Vegetation Present? Yes ( ) No (•)

Remarks:

SOIL

Sampling Point: SP-01

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture[3]	Remarks
0-12	7.5YR 3/4	100					clay 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: None

Depth (inches):

Hydric Soil Present? Yes ○ No ◉

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1) (**Nonriverine**)
- ☐ Sediment Deposits (B2) (**Nonriverine**)
- ☐ Drift Deposits (B3) (**Nonriverine**)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Salt Crust (B11)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in 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: Copeland Creek Detention Basin and Trail Project City/County: Rohnert Park/Sonoma Sampling Date: 11/9/2017

Applicant/Owner: City of Rohnert Park State: CA Sampling Point: DP-02

Investigator(s): L. Burris Section, Township, Range: Sec. 20, T6N, R7W

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

Subregion (LRR): C - Mediterranean California Lat: 38.345156 Long: -122.652604 Datum: UTM Zone 10

Soil Map Unit Name: Clear Lake clay loam, 2 to 5% slopes 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: Base of hillslope.

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
Total Cover:	%		
Sapling/Shrub Stratum			
1.			
2.			
3.			
4.			
5.			
Total Cover:	%		
Herb Stratum			
1. *Avena fatua*	60	Yes	Not Listed
2. *Rumex crispus*	10	No	FAC
3. *Croton setiger*	10	No	Not Listed
4.			
5.			
6.			
7.			
8.			
Total Cover:	80 %		
Woody Vine Stratum			
1.			
2.			
Total Cover:	%		

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

Dominance Test worksheet:

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

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 0.0 % (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species		x 1 =	0
FACW species		x 2 =	0
FAC species	10	x 3 =	30
FACU species		x 4 =	0
UPL species	70	x 5 =	350
Column Totals:	80 (A)		380 (B)

Prevalence Index = B/A = 4.75

Hydrophytic Vegetation Indicators:

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

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

Hydrophytic Vegetation Present? Yes ( ) No (•)

Remarks: Thick thatch layer - 20% cover.

SOIL

Sampling Point: DP-02

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture[3]	Remarks
0-14	10YR 3/2	100					clay 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: None

Depth (inches):

Hydric Soil Present? Yes ○ No ◉

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1) (**Nonriverine**)
- ☐ Sediment Deposits (B2) (**Nonriverine**)
- ☐ Drift Deposits (B3) (**Nonriverine**)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Salt Crust (B11)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in 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: Copeland Creek Detention Basin and Trail Project City/County: Rohnert Park/Sonoma Sampling Date: 11/9/2017

Applicant/Owner: City of Rohnert Park State: CA Sampling Point: DP-03

Investigator(s): L. Burris Section, Township, Range: Sec. 20, T6N, R7W

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

Subregion (LRR): C - Mediterranean California Lat: 38.345156 Long: -122.652604 Datum: UTM Zone 10

Soil Map Unit Name: Clear Lake clay loam, 2 to 5% slopes 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: Sample point taken in depression - change in vegetation from surrounding upland areas.

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
Total Cover:	%		
Sapling/Shrub Stratum			
1.			
2.			
3.			
4.			
5.			
Total Cover:	%		
Herb Stratum			
1. *Rumex crispus*	25	Yes	FAC
2. *Festuca perennis*	45	Yes	FAC
3. *Croton setiger*	10	No	Not Listed
4.			
5.			
6.			
7.			
8.			
Total Cover:	80 %		
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: 2 (B)

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

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species		x 1 =	0
FACW species		x 2 =	0
FAC species	70	x 3 =	210
FACU species		x 4 =	0
UPL species	10	x 5 =	50
Column Totals:	80 (A)		260 (B)

Prevalence Index = B/A = 3.25

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: DP-03

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture[3]	Remarks
0-14	10YR 3/1	94	7.5YR 4/6	6	C	M	clay 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: None

Depth (inches):

Hydric Soil Present? Yes ◉ No ○

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

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

APPENDIX D

Aquatic Resources Spreadsheet

Waters_Name	State	Cowardin_Code	HGM_Code	Meas_Type	Amount	Units	Waters_Type	Latitude	Longitude	Local_Waterway
SW-01	CALIFORNIA	PEM		Area	0.0859	ACRE	NRPWW	38.34531397	-122.65314370	
SW-02	CALIFORNIA	PEM		Area	0.0553	ACRE	NRPWW	38.34549044	-122.65211140	
SWS-01	CALIFORNIA	PEM		Area	0.3359	ACRE	NRPWW	38.34171999	-122.65874840	
SWS-02	CALIFORNIA	PEM		Area	0.244	ACRE	NRPWW	38.34183466	-122.66180950	
SWS-03	CALIFORNIA	PEM		Area	0.0102	ACRE	NRPWW	38.34103450	-122.66000200	
SWS-04	CALIFORNIA	PEM		Area	0.0034	ACRE	NRPWW	38.34084477	-122.65980150	
Creek-01	CALIFORNIA	R4		Linear	3,076.73	FOOT	NRPW	38.34079266	-122.66297970	
ID-01	CALIFORNIA	R4		Linear	2,244.95	FOOT	NRPW	38.34458907	-122.65057530	
ED-01	CALIFORNIA	R6		Linear	471.541	FOOT	NRPW	38.34508119	-122.64966920	
ED-02	CALIFORNIA	R6		Linear	488.209	FOOT	NRPW	38.34458916	-122.64874550	
VS-01	CALIFORNIA	U		Linear	121.841	FOOT	UPLAND	38.34412703	-122.65671850	
VS-02	CALIFORNIA	U		Linear	19.755	FOOT	UPLAND	38.34408973	-122.65669010	
VS-03	CALIFORNIA	U		Linear	539.827	FOOT	UPLAND	38.34214456	-122.66457910	