

DRAFT

**BIOLOGICAL RESOURCES ASSESSMENT
COPELAND CREEK DETENTION BASIN AND TRAIL
PROJECT
SONOMA COUNTY, CALIFORNIA**

Prepared for:

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City of Rohnert Park
130 Avram Avenue
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***Subject: Biological Resources Assessment for the Copeland Creek Detention Basin
and Trail Project, Sonoma County, California***

Dear Ms. Pawson:

In November of 2017, Dudek biologist Lisa Achter conducted a reconnaissance level general biological field survey at the Copeland Creek Detention Basin and Trail project site in Sonoma County, California (Figure 1). The focus of the survey was to characterize existing site conditions, document biological resources, and to summarize potential biological constraints associated with the proposed development and associated improvements to the site. A description of the methods and results of the biological survey and related recommendations is provided below.

1 SITE LOCATION AND PROJECT DESCRIPTION

The 128-acre project site is located just east of the City of Rohnert Park, at 6626 Petaluma Hill Road (Figure 2). The project site is characterized by relatively flat terrain in the western portion of the site where the proposed detention basin will be located, and rolling hills in the eastern portion of the site where the trail will be located (Figure 2). Copeland Creek flows from east to west along the southern boundary and through the southwestern corner of the site. Elevation within the project site varies from approximately 175 feet above mean sea level (AMSL) in the southwestern flatlands to 400 feet AMSL in the hills of the eastern portion of the site. The site is situated immediately east of Petaluma Hill Road (APN 047-132-038) 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. Annual grassland is the dominant vegetation community within the site; however, a small patch of coast live oak (*Quercus agrifolia*) woodland occurs in the center of the site on a hill that divides the western and eastern portions of the site, and oaks occur sporadically throughout the eastern portion of the site (Figure 3). Surrounding land use includes rural residential lots 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.

The proposed project involves construction of an off-channel detention basin in the western portion of the site and a future recreational trail on undeveloped pastureland in the eastern portion of the site. The detention basin would be designed for a 10-year storm event and construction would include associated maintenance and access structures north of Copeland Creek. A recreational trail is proposed on the eastern portion of the property and would extend from the basin to Crane Creek Regional Park to the east.

This 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.

2 SITE EVALUATION METHODS

2.1 Preliminary Review

Special-status plant and wildlife species present or potentially present on the site were identified through a desktop literature search using the following sources: U.S. Fish and Wildlife Service (USFWS) Information, Planning, and Conservation (IPaC) Trust Resource Report; California Department of Fish and Wildlife (CDFW) California Natural Diversity Database (CNDDB); and the California Native Plant Society (CNPS) online Inventory of Rare and Endangered Vascular Plants. Additionally, the Natural Resources Conservation Service (NRCS), Web Soil Survey (WSS) was queried to determine soil types present within the project boundary (USDA 2017). The database searches for the CNDDB and CNPS reports included the 7.5' USGS Cotati quadrangle and surrounding eight quadrangles. The IPaC search included the project site and a five-mile buffer surrounding the site. Special-status species include those that are listed as threatened, endangered, or a candidate species, or species of special concern by the CDFW, USFWS or CNPS. Only California Rare Plant Rank (CRPR) 1 and 2 plant species were included in the CNPS search. Following a review of these resources, Dudek also reviewed relevant life

history information on those species documented as occurring in the region, including habitat type, soils, and elevation preferences.

2.2 Field Assessment

The biological reconnaissance survey was performed by Dudek biologist Lisa Achter on November 9, 2017, and consisted of walking throughout the site and along the periphery of the site to characterize and map existing vegetation communities, evaluate the relative quality and potential of on-site habitats to support the special-status species identified during the preliminary database and resources review (discussed above), and to identify any other sensitive biological resources present or potentially present within the site. An aerial photograph (Google Earth 2017) and georeferenced mobile map with an overlay of the property boundary, and surrounding buffer was utilized to map vegetation communities and record any special-status or sensitive biological resources while in the field. Incidental observations of wildlife or wildlife sign and dominant plant species were also recorded. Since the field assessment was conducted outside the breeding/blooming season of special-status plant and wildlife species known to occur in the region and potentially occurring on the site, focused or protocol-level surveys for these species were not conducted. However, any incidental observations of such species were documented.

Concurrent with the biological reconnaissance survey described above, Dudek botanist Laura Burris conducted a wetland delineation on the project site to identify and map wetlands and other aquatic features likely to be under the jurisdiction of the U.S. Army Corps of Engineers pursuant to Section 404 of the federal Clean Water Act. Potentially jurisdictional features were initially identified based on aerial signatures and field observations according to the *Federal Manual for Identifying and Delineating Jurisdictional Wetlands, Interim Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region*, and the *U.S. Army Corps of Engineers Jurisdictional Determination Form Instructional Guidebook*, as well as criteria developed under CDFW Section 1602, Lake and Streambed Alteration Agreements.

3 RESULTS

3.1 Soils

Six soil types, as mapped by the NRCS (USDA 2017) occur within the project site (Figure 4). These include: Clear Lake clay loam (0–2% slopes, 2–5% slopes), Clear Lake clay, 0–2% slopes, Goulding cobbly clay loam, 5–15% slopes, Goulding-Toomes complex, 9–50% slopes, Riverwash, and Toomes rocky loam, 2–30% slopes.

Clear Lake clay and loam soils are very deep, poorly drained soils that formed in fine textured alluvium derived from sandstone and shale. Clear Lake soils are present in basins and swales of drainageways. Goulding soils consist of shallow, somewhat excessively drained soils formed in material weathered from metavolcanic or metasedimentary rocks. Goulding soils are located on mountains with slopes from 5% to 75%. Toomes series consist of very shallow and shallow, well to somewhat excessively drained soils formed in material weathered from tuff breccia, basalt and andesite. These soils occur on ridges and plateaus with slopes from 2% to 75%. Riverwash lands are excessively drained and consist of highly stratified, water- and wind-deposited, stony, cobbly, and gravelly sand, loamy sand, and sandy loam and contain only a small amount of silt and clay. Additionally, they are subject to flooding, scouring, and deposition during and immediately following storms (USDA 2017).

3.2 Vegetation Communities and Land Cover Types

Four vegetation communities or land cover types were identified and mapped during the field assessment using the classifications described in A Manual of California Vegetation (MCV) by Sawyer and Keeler-Wolf (2009). Generic descriptions from the MCV are presented for each of the four communities below, as well as site specific characteristics observed within each community during the survey (Figure 3).

A total of 25 species of native or naturalized plants, 10 native (40%) and 15 non-native (60%), was recorded on the site (see Appendix A).

California Annual Grassland

California annual grassland is the dominant land cover type within the project site (Figure 5). 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 echinoides*), 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.

Coast Live Oak Woodland (*Quercus agrifolia* Woodland Alliance)

One stand (approximately 5.84 acres) of coast live oak woodland occurs within the project site 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 described above for California annual grassland, are the dominant understory of this habitat type.

Arroyo Willow Thickets (*Salix lasiolepis* Shrubland Alliance)

Arroyo willow thicket typically occurs along drainages and is present along Copeland Creek within the project site. It is dominant or co-dominant in the shrub or tree canopy and comprises >50% relative cover. 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*).

Aquatic Habitat Types

There are four types of drainages (creek, intermittent drainage, ephemeral drainage, and vegetated swale) and two types of wetlands (seasonal wetland and seasonal wetland swale) within the project site (refer to Appendix B, Figure 4).

3.3 Special-Status Species Potentially Occurring on the Project Site

Special-status plant and wildlife species determined to have potential to occur on the site, based on the preliminary review (discussed above) and the results of the field assessment, are discussed below. Tables summarizing the potential for occurrence of special-status plant and wildlife species are included in Appendices C and D. Species were described as ‘not expected to occur’ when the site was clearly outside the known geographic range of the species, or if there was no suitable habitat for the species on or adjacent to the site.

Special-Status Plants

Results of the CNDDDB and CNPS searches indicated that 65 special-status plant species have some potential to occur in the vicinity of the project site. Of the 65 species, 57 were removed from consideration due to lack of suitable habitat within or adjacent to the project site, or the project site is outside of the species’ known range (refer to Appendix C). The remaining eight special-status plant species are described in more detail below (CNPS 2017).

Franciscan onion (*Allium peninsulare* var. *franciscanum*)

Franciscan onion is a CRPR 1B.2 plant, meaning it is rare or endangered in California and elsewhere, and is fairly endangered in California. This species is a perennial bulbiferous herb usually found in cismontane woodland and valley and foothill grassland. Franciscan onion

generally blooms from May through June at elevations ranging from 170 to 1,000 feet AMSL. The on-site oak woodland and grassland provide potentially suitable habitat for this species.

Sonoma alopecurus (*Alopecurus aequalis* var. *sonomensis*)

Sonoma alopecurus is a federally endangered, CRPR 1B.1 plant, meaning it is rare or endangered in California and elsewhere, and is seriously endangered in California. This species is a perennial herb found in freshwater marshes and swamps and riparian scrub habitats. Sonoma alopecurus generally blooms from May through July at elevations ranging from 15 to 1,200 feet AMSL. The riparian scrub on site provides potentially suitable habitat for this species.

Bent-flowered fiddleneck (*Amsinckia lunaris*)

Bent-flowered fiddleneck is a CRPR 1B.2 plant, meaning it is rare or endangered in California and elsewhere, and is fairly endangered in California. This species is an annual herb found in coastal bluff scrub, cismontane woodland, and valley and foothill grassland habitats. Bent-flowered fiddleneck generally blooms from March through June at elevations ranging from 5–1,640 feet AMSL. The oak woodland and grassland on site provide potentially suitable habitat for this species.

Pappose tarplant (*Centromadia parryi* ssp. *parryi*)

Pappose tarplant is a CRPR 1B.2 plant, meaning it is rare or endangered in California and elsewhere, and is fairly endangered in California. This species is an annual herb found in chaparral, coastal prairie, meadows and seeps, coastal salt marshes and swamps, and vernal mesic valley and foothill grassland habitats. Pappose tarplant generally blooms from May through November at elevations ranging from 0–1,380 feet AMSL. Seasonally mesic grassland areas on site provide potentially suitable habitat for this species, and the nearest documented occurrence is located approximately two miles south of the project site (CDFW 2017).

Fragrant fritillary (*Fritillaria liliacea*)

Fragrant fritillary is a CRPR 1B.2 plant, meaning it is rare or endangered in California and elsewhere, is a perennial bulbiferous herb found in cismontane woodland, coastal prairie, coastal scrub, and valley and foothill grassland. Fragrant fritillary generally blooms from February through April at elevations ranging from 5–1,345 feet AMSL. The oak woodland and grassland on site provide suitable habitat for this species, and the nearest documented occurrence is located approximately 3.9 miles east of the project site (CDFW 2017).

Congested-headed hayfield tarplant (*Hemizonia congesta* ssp. *congesta*)

Congested-headed hayfield tarplant is a CRPR 1B.2 plant, meaning it is rare or endangered in California and elsewhere, and is fairly endangered in California. It is an annual herb found in valley and foothill grassland habitats. This species generally blooms from April through November at elevations ranging from 65–1,835 feet AMSL. The grassland on site provides suitable habitat for this species, and the nearest documented occurrence for this species is located approximately 2.3 miles southwest of the project site (CDFW 2017).

Jepson's leptosiphon (*Leptosiphon jepsonii*)

Jepson's leptosiphon is a CRPR 1B.2 plant, meaning it is rare or endangered in California and elsewhere, and is fairly endangered in California. It is an annual herb that occurs in chaparral, cismontane woodland, and valley and foothill grassland habitats. Jepson's leptosiphon generally blooms from March through May at elevations ranging from 325–1,640 feet AMSL. The oak woodland and grassland on site provide suitable habitat for this species, and the nearest documented occurrence is located approximately 2.3 miles southeast of the project site (CDFW 2017).

Two-fork clover (*Trifolium amoenum*)

Two-fork clover is a federally endangered, CRPR 1B.1 plant, meaning it is rare or endangered in California and elsewhere, and is seriously endangered in California. It is an annual herb found in coastal bluff scrub, and valley and foothill grassland (sometimes in serpentine soils). Two-fork clover generally blooms from April through June at elevations ranging from 15–1,360 feet AMSL. The grassland on site may provide suitable habitat for this species.

Special-Status Wildlife

Results of the CNDDB and IPaC searches indicated 31 special-status wildlife species known to occur within a five-mile radius of the site; no occurrences have been historically recorded on the site (Appendix D). Of the 31 species, 26 are not expected to occur on the site due to a lack of suitable habitat, or the site is outside of the species known range and was removed from further consideration.

The five remaining special-status wildlife species have some potential to occur on the site or were observed during surveys (Appendix D). Copeland Creek provides suitable habitat for Central California Coast coho salmon DPS (*Oncorhynchus kisutch*, FE SE) and Central California Coast steelhead ESU (*O. mykiss irideus*, FT), both of which have been documented in the creek. Two western burrowing owls (*Athene cunicularia*) were observed in active burrows

located in the eastern portion of the site during the November 9, 2017 surveys (Figure 3). Foraging habitat for golden eagle (*Aquila chrysaetos*) is present on the site, and there are documented occurrences of this species in the Sonoma Mountain area approximately three miles east of the site. Pallid bat (*Antrozous pallidus*) has some potential to forage on or adjacent to the site, and there are known occurrences of this species in the vicinity of the site.

Common Wildlife Species

Twenty-one common wildlife species were observed during the on-site biological survey. Of these, 15 were birds, five were mammals, and one was an amphibian. A list of common wildlife species observed on the site is provided in Appendix E.

Common wildlife species adapted to life in proximity to human disturbance such as raccoon (*Procyon lotor*), striped skunk (*Mephitis mephitis*) and coyote (*Canis latrans*) are likely to move through the site on a regular basis in search of food and cover. A wide variety of common native and non-native bird species are expected to use the site for nesting and foraging.

3.4 Jurisdictional Aquatic Resources

A wetland delineation was performed by Dudek biologist Laura Burris during the biological field assessment. The project site 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.

Thirteen features were mapped on the site, including two ephemeral drainages (totaling 960 linear feet), one intermittent drainage (2,245 linear feet), one creek (3,077 linear feet), three vegetated swales (totaling 681 linear feet), two seasonal wetlands (totaling 0.141 acres), and four seasonal wetland swales (totaling 0.593 acres). Detailed results of the jurisdictional delineation are presented in Appendix B.

Copeland Creek (Creek-01) flows from southeast to west through the lower portion of the project site (Figure 5). This drainage flows intermittently, and is fed primarily by rainwater runoff from the surrounding hills and tributaries east of the site. One intermittent drainage (ID-01) occurs in the northeastern portion of the project site. This drainage flows from southeast to northwest through the site during and for short periods following rainfall events based on runoff from the surrounding hills. Two ephemeral drainages (ED-01 and ED-02) occur within the project site and are typically located in topographic declinations between hills. These appear to channel water only during storm events, remaining dry for the majority of the year.

Three vegetated swales (VS-01 through VS-03) occur within the project site, and consist of topographic features that have formed from rainwater runoff, and only exist for a short and do not have connectivity to other water features, or occur along a roadside and have formed as a result of construction of the access road.

Two seasonal wetlands occur in topographic depressions in the northern portion of the project site at the base of a north-aspect slope, where water runoff from the hillside pools for a sufficient period to create wetland hydrology, soils, and vegetation. Seasonal wetland swales (SWS-01 through SWS-04) occur primarily in the southern portion of the project site. These features are similar to seasonal wetlands except that they are linear in shape due to topographic and hydrologic attributes.

3.5 Sensitive Resources and Habitats

The project site contains a number of sensitive resources or habitats, including the thirteen potentially jurisdictional features described above, and the riparian and oak woodland habitats (Figure 5). The location and extent of riparian habitat on the property includes the arroyo willow thickets along Copeland Creek as depicted in Figure 3.

Riparian habitat within the site is considered sensitive by CDFW (California Fish and Game code Section 1602), which requires a Lake and Streambed Alteration Agreement (LSAA) for any activity that will substantially divert or obstruct the natural flow of any river, stream or lake; substantially change or use any material from the bed, channel or bank of any river, stream, or lake; or deposit debris, waste or other materials that could pass into any river, stream or lake. Impacts to wetlands and waters under jurisdiction of the ACOE, CDFW, or the RWQCB would be considered potentially significant under CEQA. Impacts to these features would require permitting in the form of a LSAA, 404 or 401 Clean Water Act permit, and would require mitigation in the form of preservation or creation of similar habitat.

3.6 Wildlife Corridors and Habitat Linkages

Wildlife corridors are linear features that connect large patches of natural open space and provide avenues for the migration of animals. Habitat linkages are small patches that join larger blocks of habitat and help reduce the adverse effects of habitat fragmentation; they may be continuous habitat or discrete habitat islands that function as stepping stones for wildlife dispersal.

The Sonoma Valley Wildlife Corridor stretches from Sonoma Mountain (located east of the project site) across Sonoma Creek and the valley floor, and east to the top of the Mayacama mountain range. This corridor is approximately five miles long and 0.75-mile wide at its

narrowest point. Although this corridor is recognized as an important corridor for wildlife within Sonoma County, it is located approximately five miles east of the project site.

The project site has value as a potential habitat linkage between areas of adjacent grassland and other habitats. Copeland Creek flows from east to west through the site, and this corridor is likely used by several special-status and common wildlife species as cover and foraging habitat, and to move between adjacent similar habitats.

4 POTENTIAL CONSTRAINTS TO DEVELOPMENT AND RECOMMENDATIONS

This section addresses potential constraints to proposed future development of the property based on the presence of sensitive biological resources, and potential impacts to these resources associated with the development of the site. Recommendations to address potential biological resource constraints are described below.

4.1 Vegetation Communities and Land Cover Types

Project design that avoids and/or minimizes impacts to sensitive vegetation communities and land cover types within the site, including riparian habitat and aquatic resources under jurisdiction of CDFW, ACOE or RWQCB, can avoid/minimize the need for resource agency permits and mitigation requirements under CEQA. If avoidance is not possible, impacts on riparian/aquatic resources regulated by CDFW and/or ACOE will likely require appropriate regulatory permits; and impacts to vegetation communities considered significant under CEQA may result in the need for measures to mitigate these impacts. Significant impacts would include removal or degradation of these habitats, as well as temporary disturbances due to installation of stream crossings or dewatering activities. All of the natural vegetation communities identified on site provide suitable habitat for a variety of special-status plant and animal species, as discussed below.

4.2 Special-Status Plants and Wildlife

Plants

Destruction of individual plants or populations of plants would be considered potentially significant under CEQA. To avoid impacts to special-status plants within the project site, focused rare plant surveys should be performed during the blooming season for Franciscan onion, Sonoma alopecurus, bent-flowered fiddleneck, pappose tarplant, fragrant fritillary, congested-headed hayfield tarplant, Jepson's leptosiphon, and two-fork clover within suitable habitat. If any of these plants or populations of plants are detected during focused surveys,

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avoidance is recommended. Where avoidance is not possible, consultation with CDFW would be necessary to determine if potential propagation, relocation or other mitigation options would be required for the project. If none of the species are detected during surveys, no further surveys or mitigation would be necessary; however, if more than one year lapses between protocol surveys and the initiation of construction, preconstruction surveys are recommended to identify any annual special-status plant species present within the project footprint.

Native Birds

All native birds in California are protected by the federal Migratory Bird Treaty Act (MBTA), and Section 3503.5 of the California Fish and Game Code specifically protects raptors. Ground disturbance that would result in destruction of active bird nests could potentially be a violation of the MBTA and the Fish and Game Code, as well as a significant impact under CEQA.

Dudek recommends a nesting bird survey be completed during the nesting season by a qualified biologist no earlier than two weeks prior to construction (February 1–September 1, depending on the species) to determine if any native birds are nesting on or near the site (including a 250-foot buffer for raptors). If any active nests are observed during surveys, a suitable avoidance buffer around the nests should be established by the qualified biologist based on species, location, and extent and type of planned construction activity. These nests would be avoided until the chicks have fledged and the nests are no longer active, as determined by the qualified biologist. Dudek also recommends removing any habitat (i.e., trees and vegetation) outside of the breeding bird season to avoid impacts to nesting birds.

To avoid impacts to active burrowing owl burrows on the site, a 250-foot buffer around each active burrow is recommended. The buffer should be implemented by installing Environmentally Sensitive Area (ESA) fencing (or other high visibility fencing) prior to the onset of construction. Installation of this fencing should be monitored by a qualified biologist to determine if the burrowing owls exhibit agitated behavior (distress calls, leaving the burrow, etc.). If these behaviors are observed by the qualified biologist during installation of fencing or during construction, the biologist should stop work in the vicinity of the burrows and initiate consultation with CDFW to determine appropriate next steps to avoid further disturbance to active burrows.

Mammals

Impacts to foraging bats would be considered potentially significant under CEQA. Limiting construction activities to daylight hours would avoid impacts to foraging bats on the site.

Anadromous Fish

Impacts to coho salmon, steelhead, or critical habitat in Copeland Creek potentially resulting from diversion of flow into the detention basin and subsequent discharge back into Copeland Creek, as well as pollution, sedimentation, or other impacts associated with the construction and operation of the detention basin would be considered potentially significant under CEQA and the Endangered Species Act. A National Marine Fisheries Service (NMFS) Biological Assessment (BA) will be required to evaluate the potential impacts of the construction and operation (diversion of flow into the basin and subsequent discharge back into the creek) of the detention basin on coho salmon, steelhead, and critical habitat in Copeland Creek. Additionally, any impacts to these species or their habitat would require consultation under Section 7 of the Endangered Species Act.

Avoidance of Copeland Creek is recommended to ensure that no adverse impacts to coho salmon, steelhead, or critical habitat occur as a result of project activities. However, the construction of a diversion weir and basin discharge structures may potentially adversely impact these species and critical habitat. Additionally, appropriate Best Management Practices (BMPs) including straw wattles, silt fencing, and other erosion control measures should be installed at least 25 feet from the creek prior to initiation of construction activities to avoid sedimentation of the creek.

4.3 Wildlife Corridors

The property is not recognized as an important wildlife corridor by any regional or state agency or jurisdiction and is not considered critical to the ecological functioning of adjoining open space areas. However, Copeland Creek serves as a corridor that provides cover and food resources for many different wildlife species, and is likely used by several common and special-status species when moving between similar habitats in the region. Impacts to Copeland Creek and/or associated riparian vegetation could be considered significant under CEQA and would trigger the need for regulatory authorizations.

4.4 Potentially Jurisdictional Wetlands

Impacts to wetland/aquatic jurisdictional features would potentially require authorization from the resource agencies listed in Section 3.5 in the form of regulatory permits (e.g., Clean Water Act Section 404 Nationwide Permit, Section 401 Water Quality Certification, and CDFG Code Section 1602 Streambed Alteration Agreement, respectively). These permits typically include measures to minimize and/or mitigate these impacts. Impacts to these resources would also be considered a significant impact under CEQA.

If impacts to jurisdictional features cannot be avoided, early consultation with the associated resource agencies is recommended to discuss and address the potential impacts, determine the permits that would be required prior to the impacts, and stipulations and measures required by the permits to mitigate the impacts. Appendix E provides a detailed jurisdictional delineation report and related recommendations, which include the following:

- To the maximum extent feasible, improvements shall avoid wetlands and waterways. If avoidance is not possible, consultation and appropriate authorizations will be required from the ACOE, RWQCB, CDFW, and USFWS for impacts to wetlands and federally-listed species habitat. Mitigation for all impacted wetlands will be required by purchasing credits in a conservation bank or through compensatory mitigation either on site or off site at similar wetlands. Exact mitigation ratios and methods will be determined through the permitting process.
- Appropriate avoidance buffers shall be established around any wetland or waterway adjacent to staging, parking, or roadway improvement areas. These buffers will consist of a 100-foot no-construction zone that will minimize disturbance to a wetland from adjacent development.
- Sediment and erosion control BMP's shall be utilized for all construction adjacent to wetlands. BMPs may include, but are not limited to, hydroseeding, installation of biodegradable straw wattles, covering stockpiles with tarps, and silt fencing.
- Minimize vegetation removal to the maximum extent feasible at the Copeland Creek bridge crossing. Vegetation removal and the installation of the bridge crossing will require authorization from the CDFW under Section 1602 of the Fish and Game Code. If feasible, a clear-span bridge crossing should be installed to minimize potential impacts to the creek channel or banks.

4.5 Sensitive Resources and Habitats

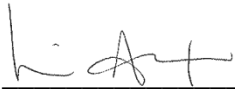
Impacts to environmentally sensitive habitats, including riparian corridors, wetlands, oak woodlands, and habitats supporting rare, threatened, or endangered species would be considered potentially significant under CEQA. Any project activities that could potentially result in impacts to these habitats or associated special-status species would require permits from CDFW; therefore, project design that avoids impacts to these resources is recommended. Similarly, the Sonoma County Tree Ordinance requires a permit for removal of any landmark or heritage trees. If avoidance is not feasible, a certified arborist should be consulted to identify any landmark or heritage trees on the project site before they are removed.

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If you have any questions about the survey or this report, please feel free to call me at 530.217.8952 or email lachter@dudek.com.

Sincerely,



Lisa Achter
Wildlife Biologist

DUDEK

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Att: *Figures 1–5*

Appendix A – Plant Species Observed

Appendix B – Jurisdictional Delineation

Appendix C – Special-Status Plant Species with Known or Potential Occurrence

Appendix D – Special-Status Wildlife Species with Known or Potential Occurrence

Appendix E – Wildlife Species Observed

REFERENCES

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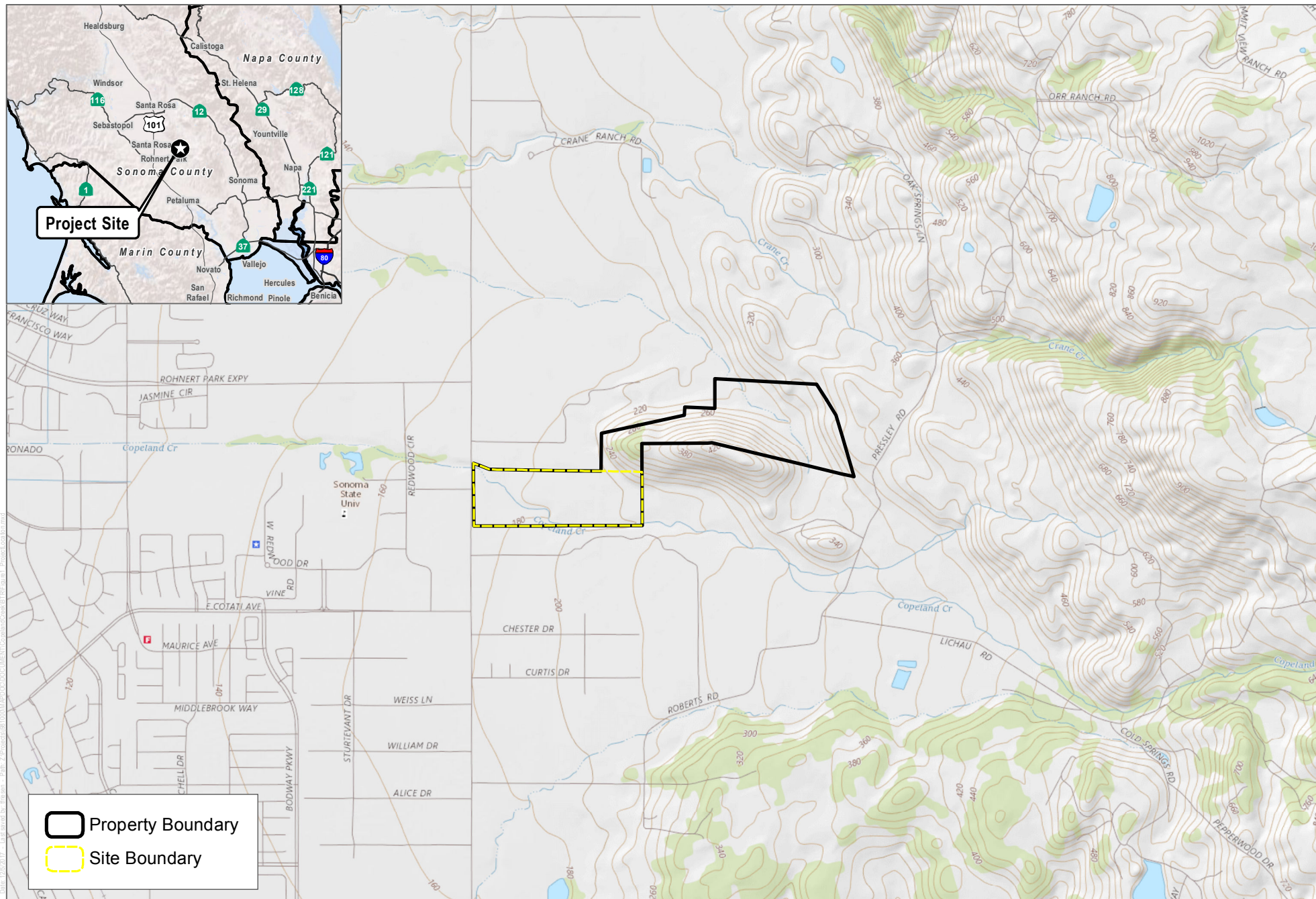
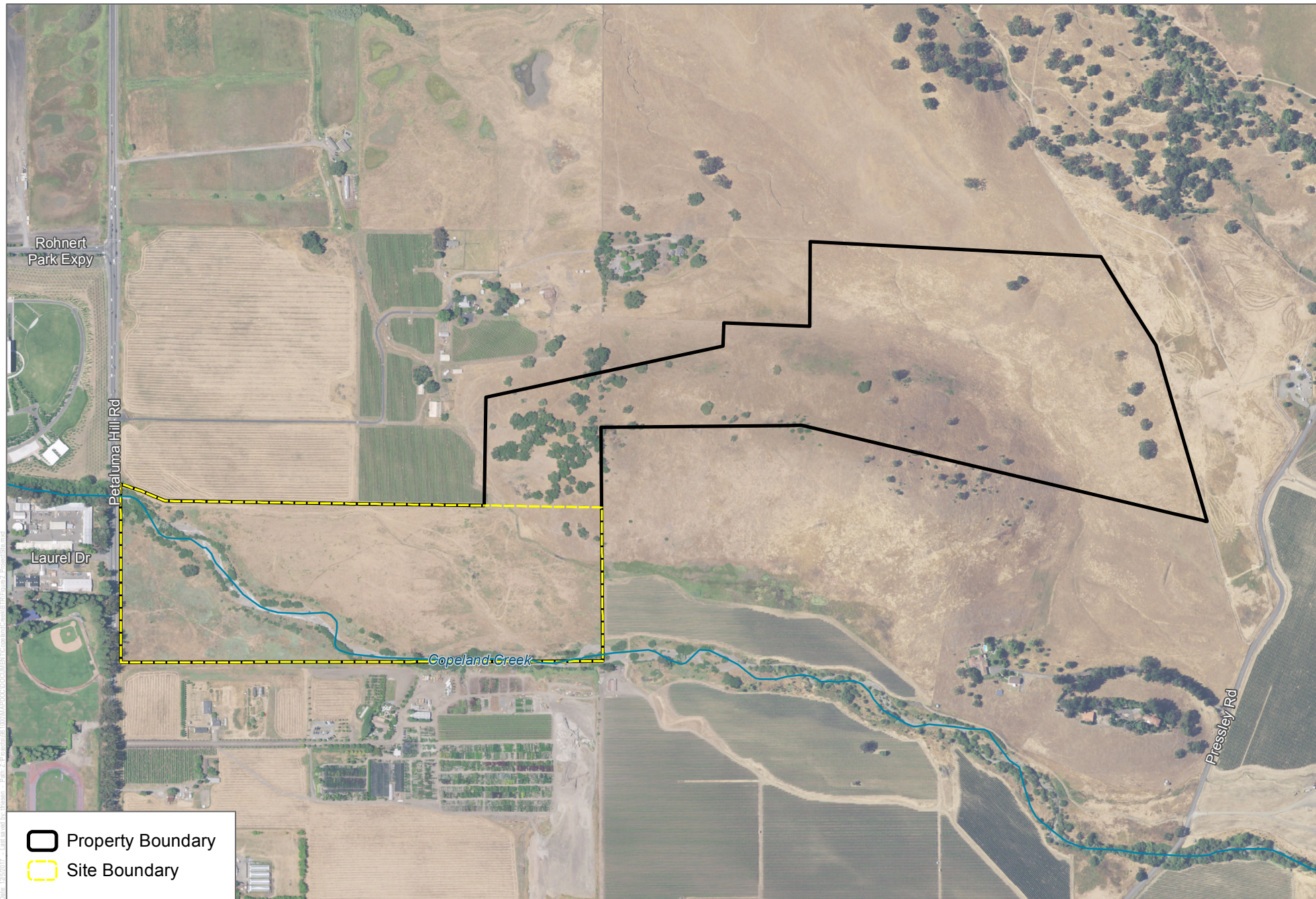


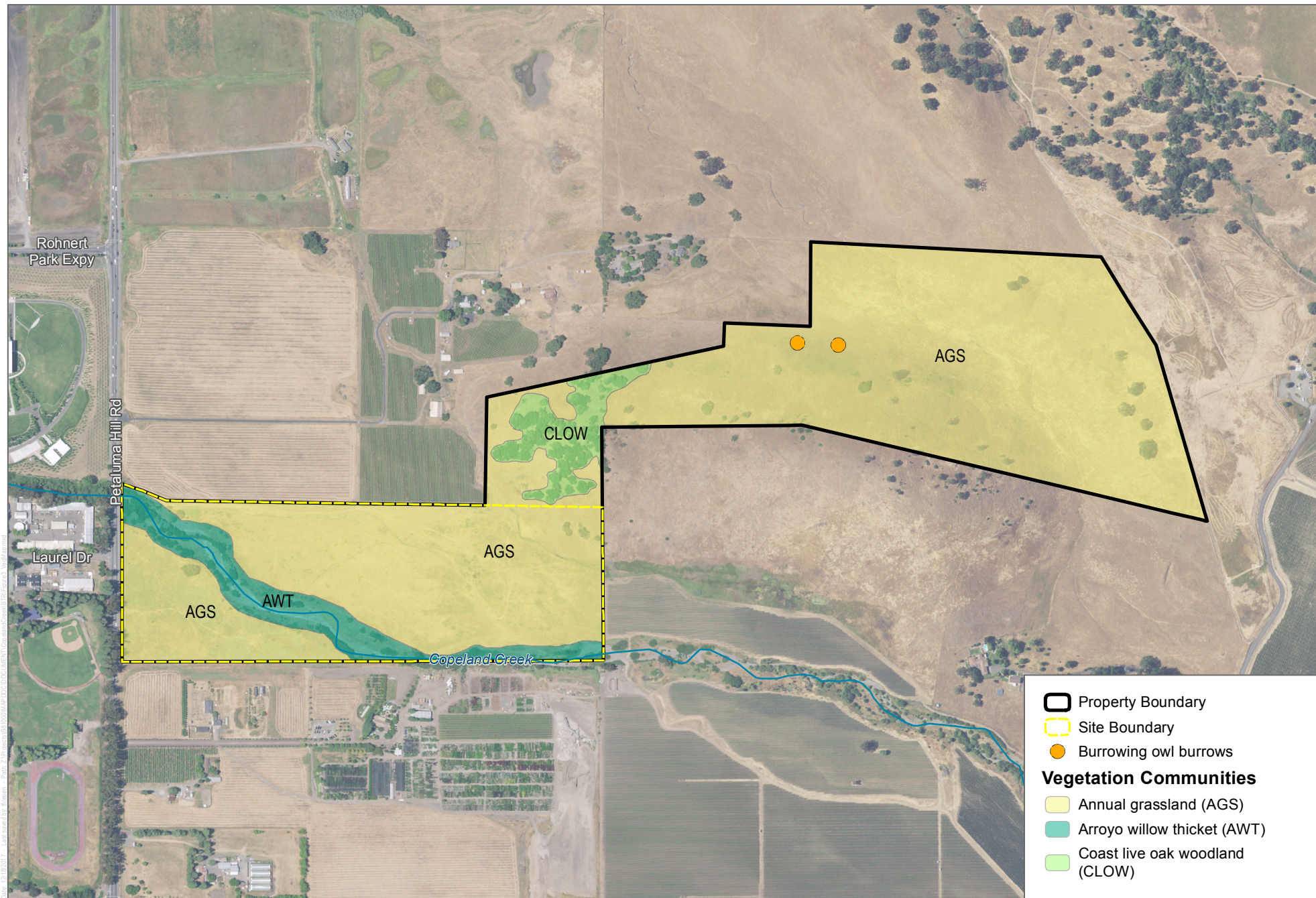
FIGURE 1
Site and Vicinity

Copeland Creek Regional Detention Basin and Trail Project

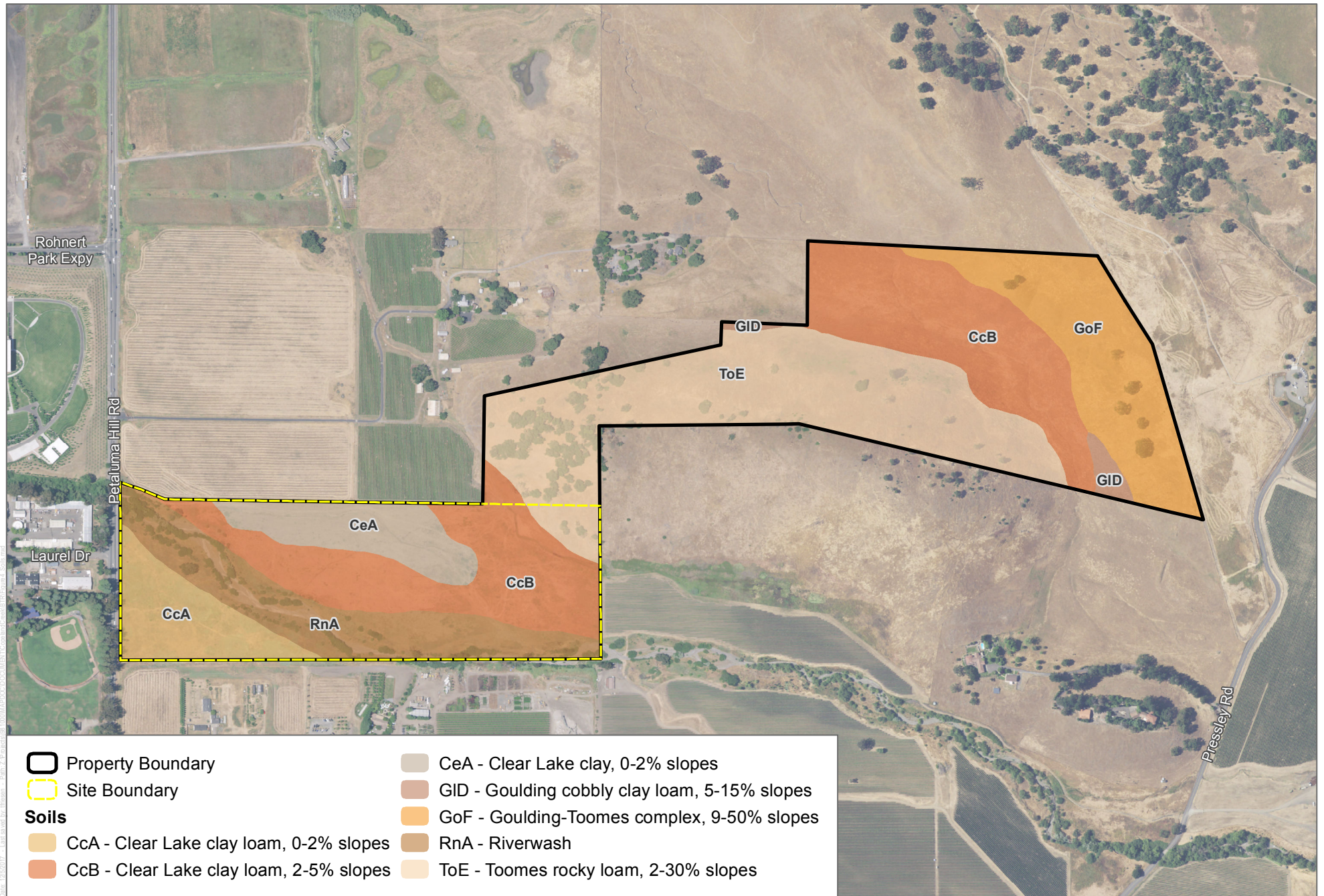


SOURCE: USDA NAIP Imagery (2016); Sonoma County GIS

FIGURE 2
 Site and Vicinity
 Copeland Creek Regional Detention Basin and Trail Project



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



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

FIGURE 4
Soils



Photo 1: Active western burrowing owl burrow



Photo 2: Coast live oak woodland



Photo 3: Copeland Creek



Photo 4: Looking east from the center of the site



Photo 5: Looking west toward Copeland Creek

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SOURCE: DUDEK 2017

DUDEK

FIGURE 5
Photos/Views of Project Site

Copeland Creek Regional Detention Basin and Trail Project

APPENDIX A

Plant Species Observed

APPENDIX A
Plant Species Observed on the Copeland Creek Detention Basin and
Trail Project Site in Sonoma County, California

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

APPENDIX A (Continued)

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 blackberry

SALICACEAE—WILLOW FAMILY

Salix lasiolepis—arroyo willow

Salix exigua—sandbar willow

SAPINDACEAE—SOAPBERRY FAMILY

Aesculus californica—California buckeye

* signifies introduced (non-native) species

APPENDIX B

Jurisdictional Delineation

DRAFT

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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JANUARY 2018

Preliminary Jurisdictional Delineation of Wetlands and Waters of the United States Copeland Creek Detention Basin and Trail Project

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Preliminary Jurisdictional Delineation of Wetlands and Waters of the United States Copeland Creek Detention Basin and Trail Project

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	<i>Solid Waste Agency of Northern Cook County v. United States Corps of Engineers</i>
SWS	seasonal wetland swale
TNW	traditional navigable waters
VS	vegetated swale

Preliminary Jurisdictional Delineation of Wetlands and Waters of the United States Copeland Creek Detention Basin and Trail Project

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Preliminary Jurisdictional Delineation of Wetlands and Waters of the United States Copeland Creek Detention Basin and Trail Project

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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Preliminary Jurisdictional Delineation of Wetlands and Waters of the United States Copeland Creek Detention Basin and Trail Project

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.

Preliminary Jurisdictional Delineation of Wetlands and Waters of the United States Copeland Creek Detention Basin and Trail Project

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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.

Preliminary Jurisdictional Delineation of Wetlands and Waters of the United States Copeland Creek Detention Basin and Trail Project

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.

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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.

Preliminary Jurisdictional Delineation of Wetlands and Waters of the United States Copeland Creek Detention Basin and Trail Project

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.

Preliminary Jurisdictional Delineation of Wetlands and Waters of the United States Copeland Creek Detention Basin and Trail Project

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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Preliminary Jurisdictional Delineation of Wetlands and Waters of the United States Copeland Creek Detention Basin and Trail Project

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

Preliminary Jurisdictional Delineation of Wetlands and Waters of the United States Copeland Creek Detention Basin and Trail Project

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.

Preliminary Jurisdictional Delineation of Wetlands and Waters of the United States Copeland Creek Detention Basin and Trail Project

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

Preliminary Jurisdictional Delineation of Wetlands and Waters of the United States Copeland Creek Detention Basin and Trail Project

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).

Preliminary Jurisdictional Delineation of Wetlands and Waters of the United States Copeland Creek Detention Basin and Trail Project

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.

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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

Preliminary Jurisdictional Delineation of Wetlands and Waters of the United States Copeland Creek Detention Basin and Trail Project

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
<i>Wetlands</i>				
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
<i>Other Waters</i>				
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.

Preliminary Jurisdictional Delineation of Wetlands and Waters of the United States Copeland Creek Detention Basin and Trail Project

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.

Preliminary Jurisdictional Delineation of Wetlands and Waters of the United States Copeland Creek Detention Basin and Trail Project

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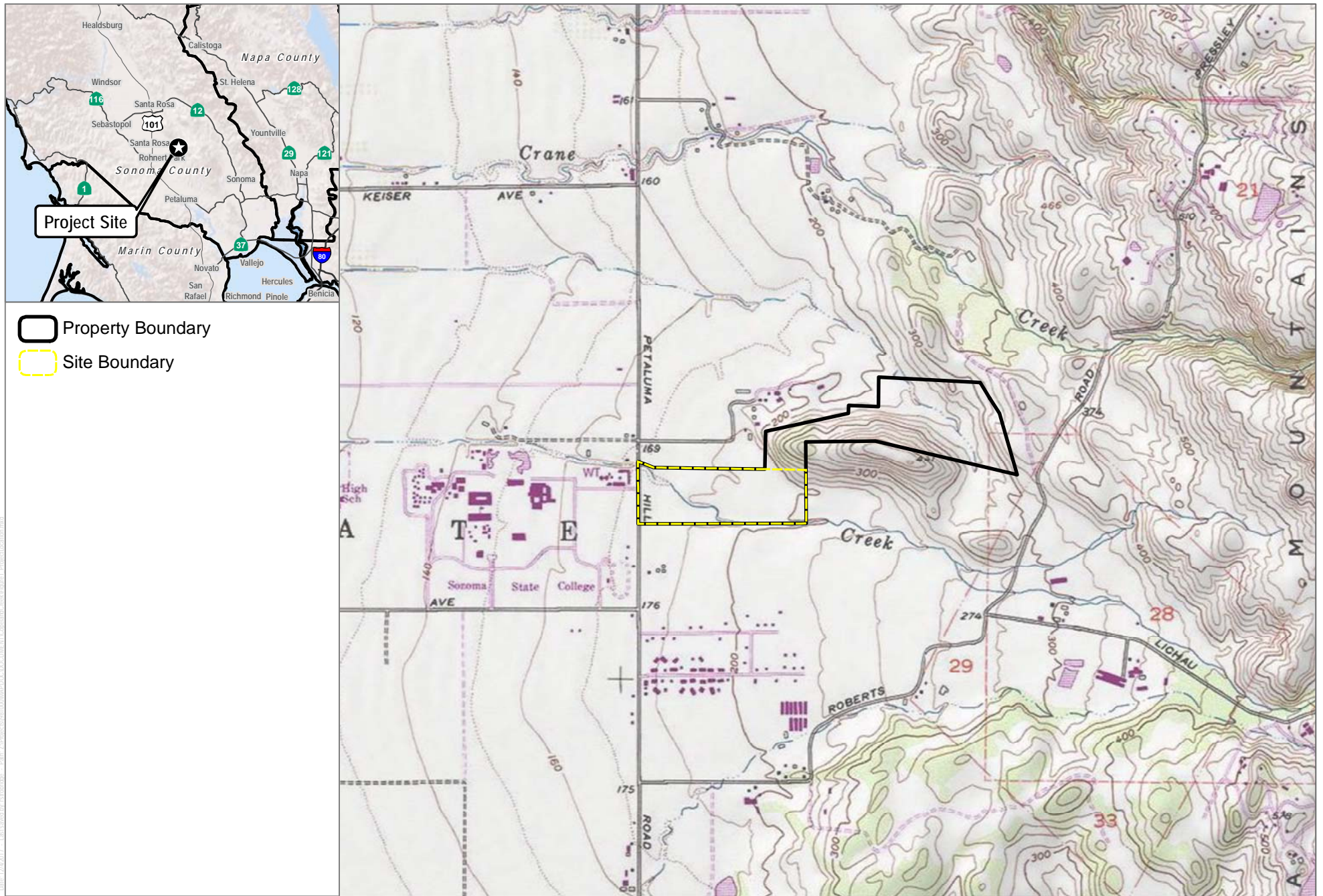
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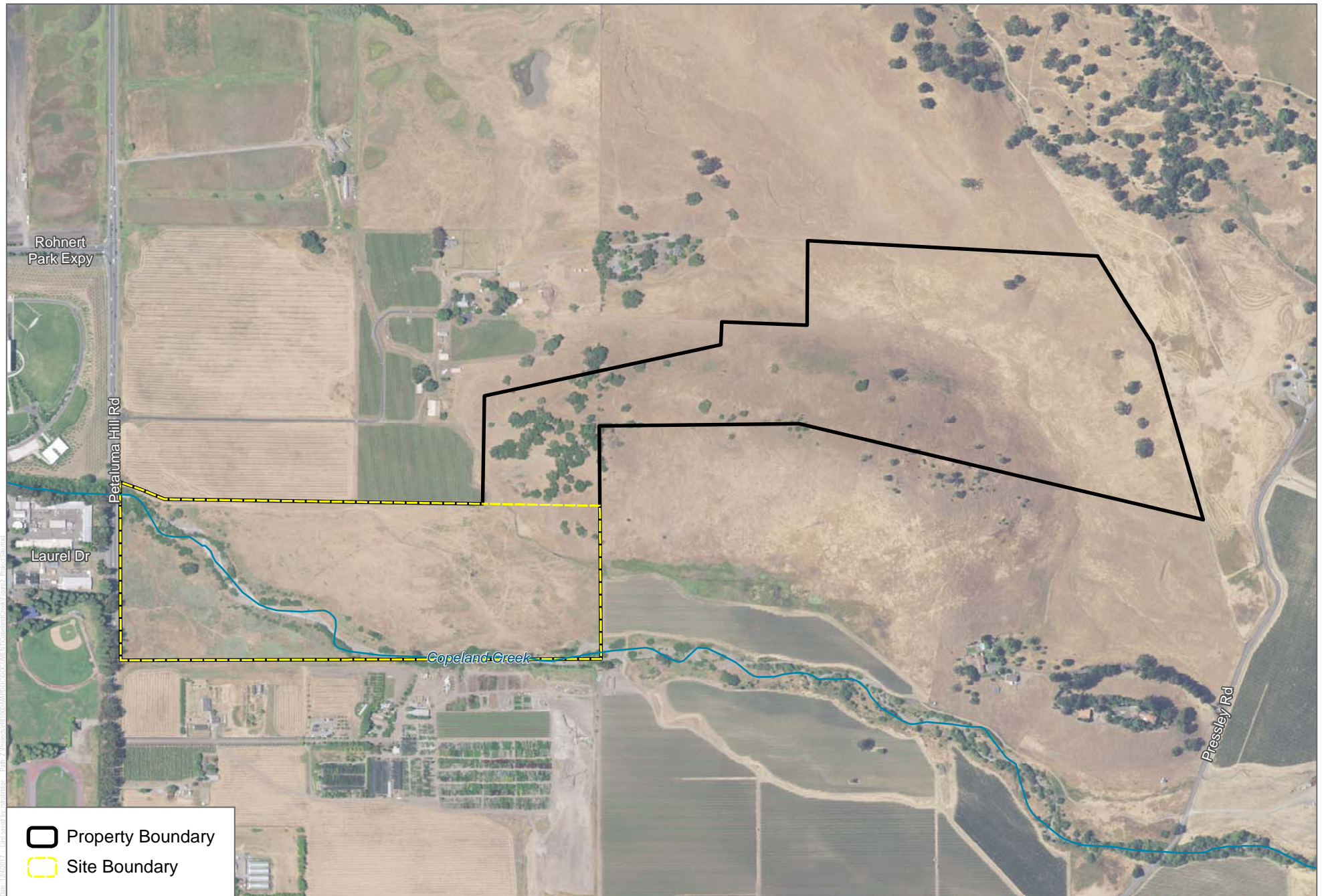


SOURCE: USGS 7.5-Minute Cotati Quadrangle
Township 6N; Range 7W; Sections 20, 21, 28, 29, 30

FIGURE 1
Project Location

Preliminary Jurisdictional Delineation of Wetlands and Waters of the United States Copeland Creek Detention Basin and Trail Project

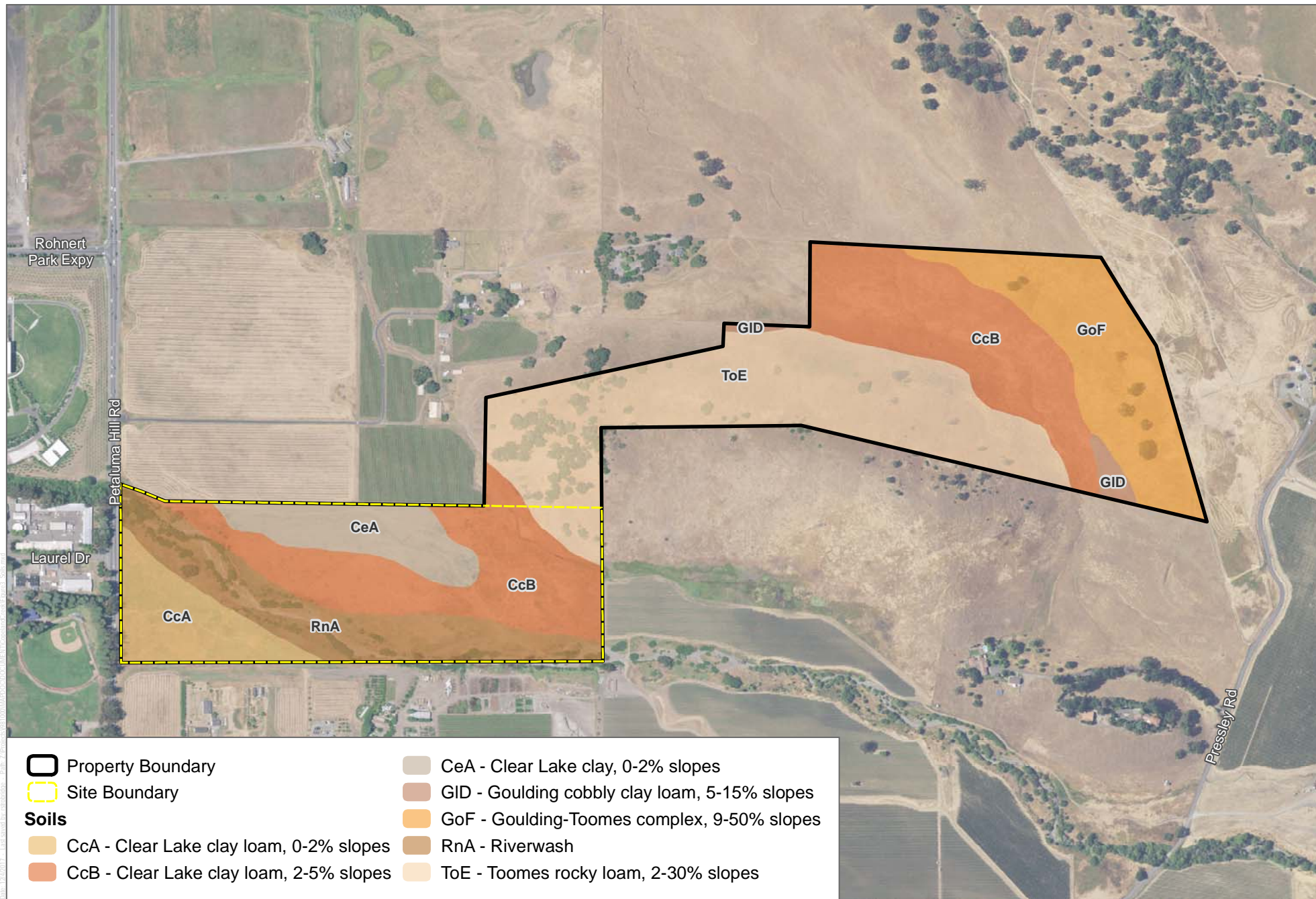
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SOURCE: USDA NAIP Imagery (2016); Sonoma County GIS

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

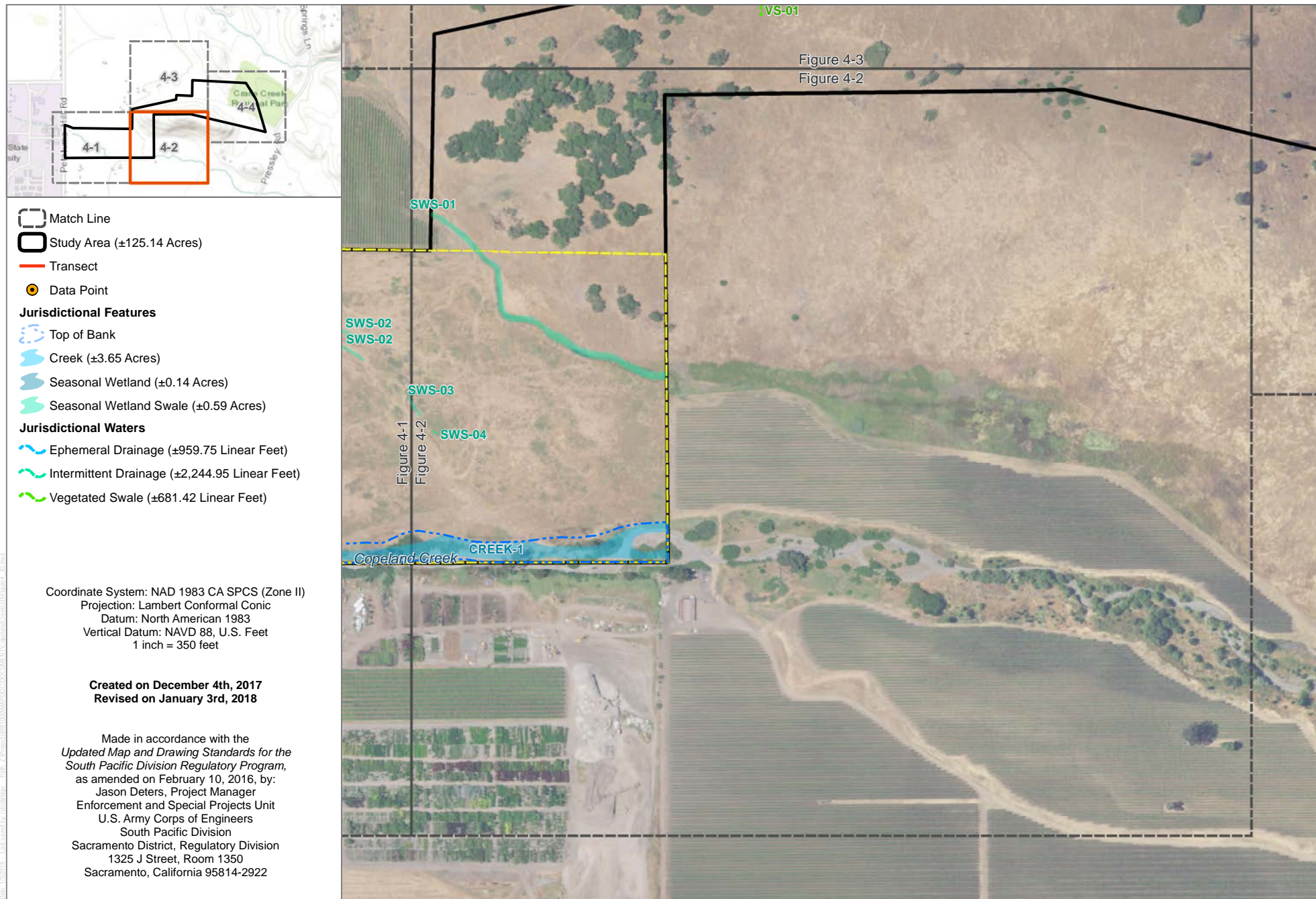
FIGURE 3
Soils

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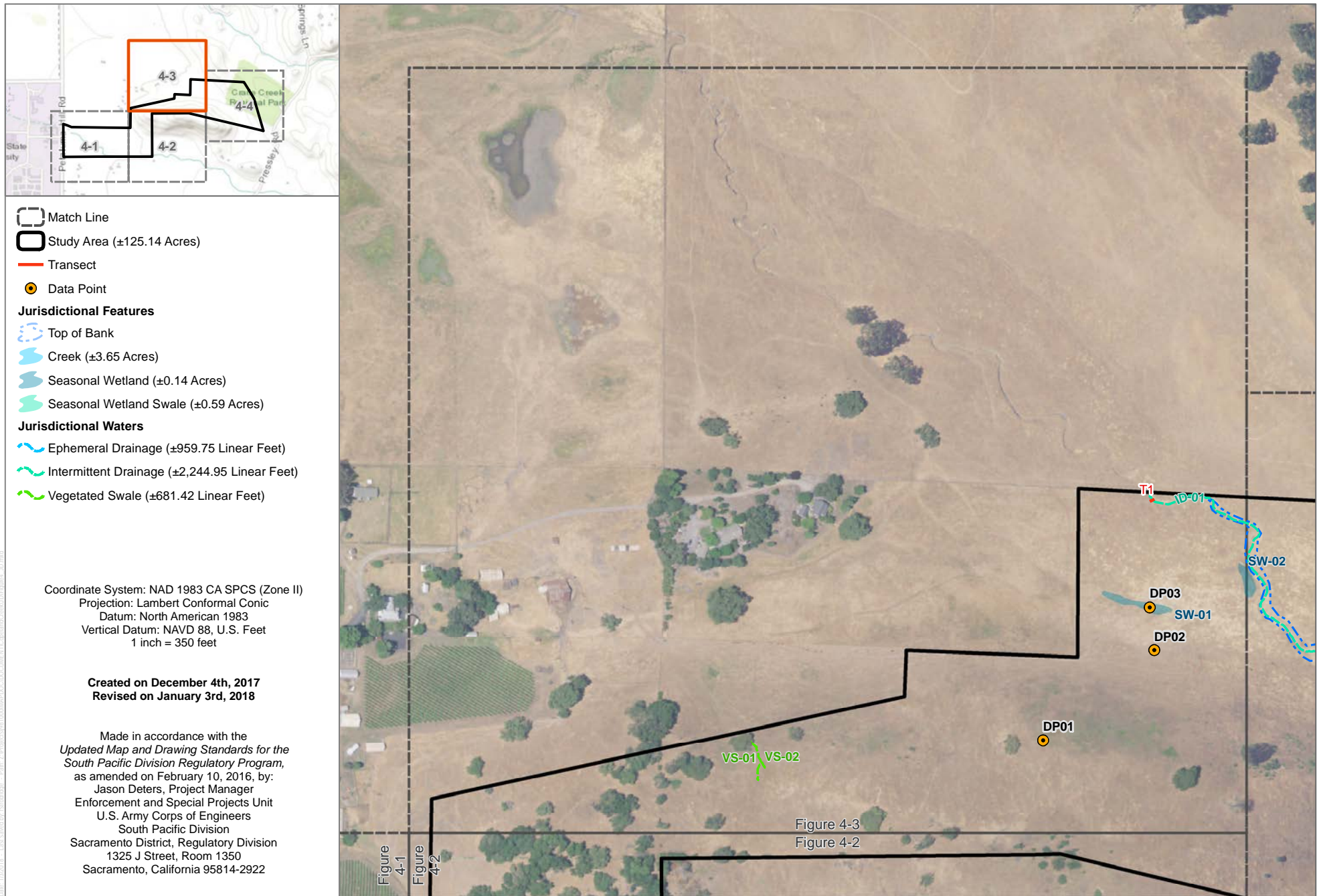
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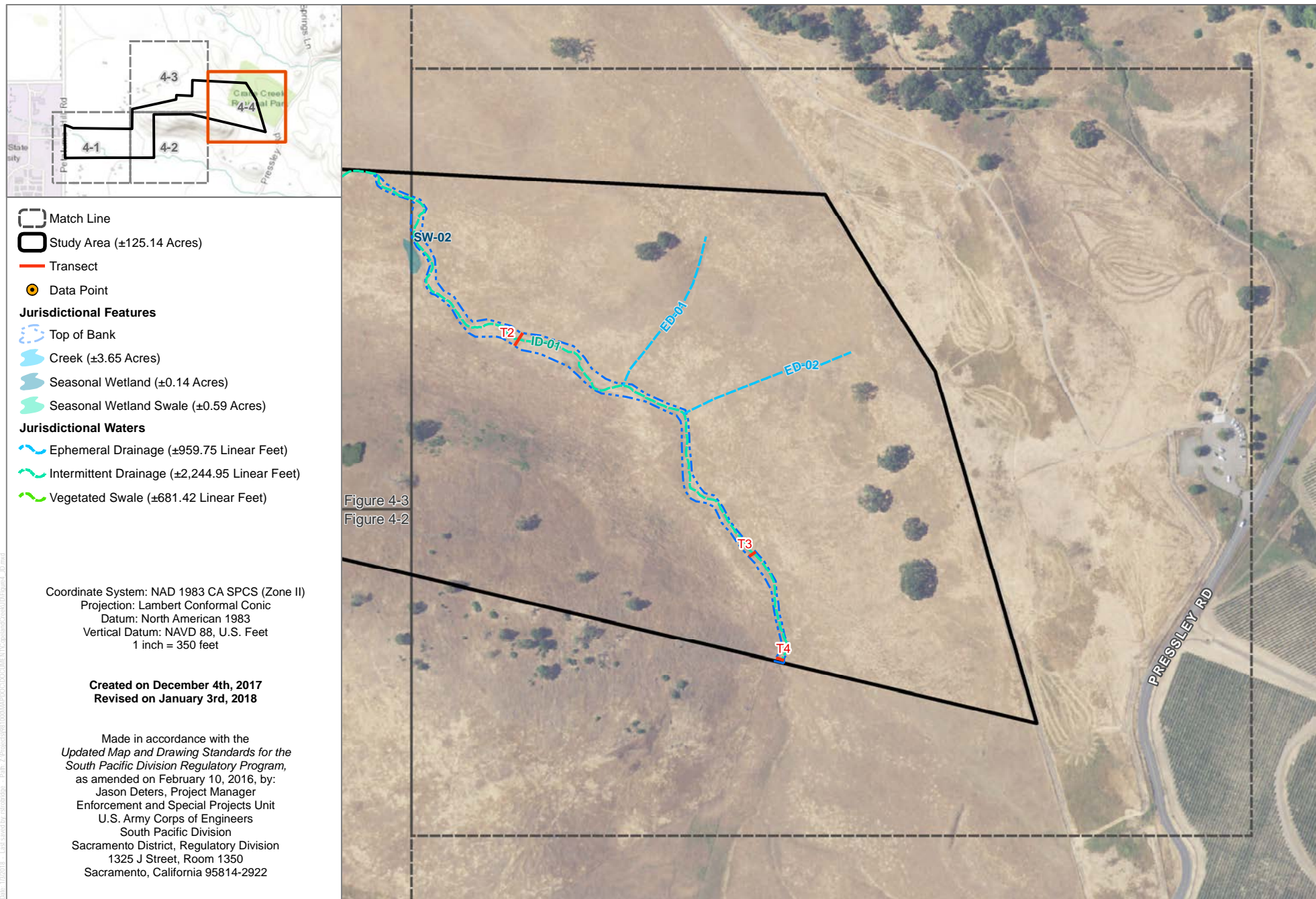
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APPENDIX A

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.

APPENDIX A (Continued)



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.

APPENDIX A (Continued)



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.

APPENDIX A (Continued)



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



Photo 8: View of SWS-OXX 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

APPENDIX B (Continued)

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 16
 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 <input type="radio"/>	No <input checked="" type="radio"/>	Is the Sampled Area within a Wetland? Yes <input type="radio"/> No <input checked="" type="radio"/>
Hydric Soil Present?	Yes <input type="radio"/>	No <input checked="" type="radio"/>	
Wetland Hydrology Present?	Yes <input type="radio"/>	No <input checked="" type="radio"/>	
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	Dominance Test worksheet:	
1.				Number of Dominant Species That Are OBL, FACW, or FAC:	0 (A)
2.				Total Number of Dominant Species Across All Strata:	2 (B)
3.				Percent of Dominant Species That Are OBL, FACW, or FAC:	0.0 % (A/B)
4.					
Total Cover:			%		
Sapling/Shrub Stratum				Prevalence Index worksheet:	
1.				Total % Cover of:	Multiply by:
2.				OBL species	x 1 = 0
3.				FACW species	x 2 = 0
4.				FAC species	x 3 = 0
5.				FACU species	85 x 4 = 340
Total Cover:			%	UPL species	10 x 5 = 50
				Column Totals:	95 (A) 390 (B)
				Prevalence Index = B/A = 4.11	
Herb Stratum				Hydrophytic Vegetation Indicators:	
1. <i>Pteridium aquilinum</i>	65	Yes	FACU	<input checked="" type="checkbox"/> Dominance Test is >50%	
2. <i>Bromus hordeaceus</i>	20	Yes	FACU	<input checked="" type="checkbox"/> Prevalence Index is ≤3.0 ¹	
3. <i>Avena fatua</i>	10	No	Not Listed	<input type="checkbox"/> Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet)	
4.				<input type="checkbox"/> Problematic Hydrophytic Vegetation ¹ (Explain)	
5.					
6.					
7.					
8.					
Total Cover:			95 %	¹ Indicators of hydric soil and wetland hydrology must be present.	
Woody Vine Stratum				Hydrophytic Vegetation Present? Yes <input type="radio"/> No <input checked="" type="radio"/>	
1.					
2.					
Total Cover:			%		
% Bare Ground in Herb Stratum		5 %	% Cover of Biotic Crust		%

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		Redox Features			Loc ²	Texture ³	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹			
0-12	7.5YR 3/4	100					clay loam	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix. ²Location: PL=Pore Lining, RC=Root Channel, M=Matrix.³Soil 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.)

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

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)

⁴Indicators 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)

- | | |
|--|--|
| <input type="checkbox"/> Surface Water (A1) | <input type="checkbox"/> Salt Crust (B11) |
| <input type="checkbox"/> High Water Table (A2) | <input type="checkbox"/> Biotic Crust (B12) |
| <input type="checkbox"/> Saturation (A3) | <input type="checkbox"/> Aquatic Invertebrates (B13) |
| <input type="checkbox"/> Water Marks (B1) (Nonriverine) | <input type="checkbox"/> Hydrogen Sulfide Odor (C1) |
| <input type="checkbox"/> Sediment Deposits (B2) (Nonriverine) | <input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3) |
| <input type="checkbox"/> Drift Deposits (B3) (Nonriverine) | <input type="checkbox"/> Presence of Reduced Iron (C4) |
| <input type="checkbox"/> Surface Soil Cracks (B6) | <input type="checkbox"/> Recent Iron Reduction in Plowed Soils (C6) |
| <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) | <input type="checkbox"/> Other (Explain in Remarks) |
| <input type="checkbox"/> Water-Stained Leaves (B9) | |

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? Yes ☐ No ☒
(includes capillary fringe)

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 <input type="radio"/>	No <input checked="" type="radio"/>	Is the Sampled Area within a Wetland?	Yes <input type="radio"/>	No <input checked="" type="radio"/>
Hydric Soil Present?	Yes <input type="radio"/>	No <input checked="" type="radio"/>			
Wetland Hydrology Present?	Yes <input type="radio"/>	No <input checked="" type="radio"/>			
Remarks: Base of hillslope.					

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:			
1.				Number of Dominant Species That Are OBL, FACW, or FAC: <u>0</u> (A)			
2.				Total Number of Dominant Species Across All Strata: <u>1</u> (B)			
3.				Percent of Dominant Species That Are OBL, FACW, or FAC: <u>0.0 %</u> (A/B)			
4.				Prevalence Index worksheet:			
Total Cover: <u> </u> %				Total % Cover of:			
Sapling/Shrub Stratum				Multiply by:			
1.				OBL species	x 1 =	<u>0</u>	
2.				FACW species	x 2 =	<u>0</u>	
3.				FAC species	x 3 =	<u>30</u>	
4.				FACU species	x 4 =	<u>0</u>	
5.				UPL species	x 5 =	<u>350</u>	
Total Cover: <u> </u> %				Column Totals:	<u>80</u> (A)	<u>380</u> (B)	
Herb Stratum				Prevalence Index = B/A = <u>4.75</u>			
1. <i>Avena fatua</i>	60	Yes	Not Listed	Hydrophytic Vegetation Indicators:			
2. <i>Rumex crispus</i>	10	No	FAC	<input checked="" type="checkbox"/> Dominance Test is >50%			
3. <i>Croton setiger</i>	10	No	Not Listed	<input checked="" type="checkbox"/> Prevalence Index is ≤3.0 ¹			
4.				<input type="checkbox"/> Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet)			
5.				<input type="checkbox"/> Problematic Hydrophytic Vegetation ¹ (Explain)			
6.				¹ Indicators of hydric soil and wetland hydrology must be present.			
7.				Hydrophytic Vegetation Present?			
8.				Yes <input type="radio"/> No <input checked="" type="radio"/>			
Total Cover: <u>80 %</u>							
Woody Vine Stratum							
1.							
2.							
Total Cover: <u> </u> %							
% Bare Ground in Herb Stratum <u>0 %</u> % Cover of Biotic Crust <u> </u> %							

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		Redox Features			Loc ²	Texture ³	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹			
0-14	10YR 3/2	100					clay loam	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix. ²Location: PL=Pore Lining, RC=Root Channel, M=Matrix.³Soil 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.)

- | | |
|--|---|
| <input type="checkbox"/> Histic Epipedon (A2) | <input type="checkbox"/> Sandy Redox (S5) |
| <input type="checkbox"/> Black Histic (A3) | <input type="checkbox"/> Stripped Matrix (S6) |
| <input type="checkbox"/> Hydrogen Sulfide (A4) | <input type="checkbox"/> Loamy Mucky Mineral (F1) |
| <input type="checkbox"/> Stratified Layers (A5) (LRR C) | <input type="checkbox"/> Loamy Gleyed Matrix (F2) |
| <input type="checkbox"/> 1 cm Muck (A9) (LRR D) | <input type="checkbox"/> Depleted Matrix (F3) |
| <input type="checkbox"/> Depleted Below Dark Surface (A11) | <input type="checkbox"/> Redox Dark Surface (F6) |
| <input type="checkbox"/> Thick Dark Surface (A12) | <input type="checkbox"/> Depleted Dark Surface (F7) |
| <input type="checkbox"/> Sandy Mucky Mineral (S1) | <input type="checkbox"/> Redox Depressions (F8) |
| <input type="checkbox"/> Sandy Gleyed Matrix (S4) | <input type="checkbox"/> 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)

⁴Indicators 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)

- | | |
|--|--|
| <input type="checkbox"/> Surface Water (A1) | <input type="checkbox"/> Salt Crust (B11) |
| <input type="checkbox"/> High Water Table (A2) | <input type="checkbox"/> Biotic Crust (B12) |
| <input type="checkbox"/> Saturation (A3) | <input type="checkbox"/> Aquatic Invertebrates (B13) |
| <input type="checkbox"/> Water Marks (B1) (Nonriverine) | <input type="checkbox"/> Hydrogen Sulfide Odor (C1) |
| <input type="checkbox"/> Sediment Deposits (B2) (Nonriverine) | <input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3) |
| <input type="checkbox"/> Drift Deposits (B3) (Nonriverine) | <input type="checkbox"/> Presence of Reduced Iron (C4) |
| <input type="checkbox"/> Surface Soil Cracks (B6) | <input type="checkbox"/> Recent Iron Reduction in Plowed Soils (C6) |
| <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) | <input type="checkbox"/> Other (Explain in Remarks) |
| <input type="checkbox"/> Water-Stained Leaves (B9) | |

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 <input checked="" type="radio"/>	No <input type="radio"/>	Is the Sampled Area within a Wetland?	Yes <input checked="" type="radio"/> No <input type="radio"/>
Hydric Soil Present?	Yes <input checked="" type="radio"/>	No <input type="radio"/>		
Wetland Hydrology Present?	Yes <input checked="" type="radio"/>	No <input type="radio"/>		
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	Dominance Test worksheet:			
1.				Number of Dominant Species That Are OBL, FACW, or FAC: <u>2</u> (A)			
2.				Total Number of Dominant Species Across All Strata: <u>2</u> (B)			
3.				Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100.0 %</u> (A/B)			
4.							
Total Cover: <u> </u> %							
Sapling/Shrub Stratum				Prevalence Index worksheet:			
1.				Total % Cover of: <u> </u> Multiply by:			
2.				OBL species	<u> </u>	x 1 =	<u>0</u>
3.				FACW species	<u> </u>	x 2 =	<u>0</u>
4.				FAC species	<u>70</u>	x 3 =	<u>210</u>
5.				FACU species	<u> </u>	x 4 =	<u>0</u>
Total Cover: <u> </u> %				UPL species	<u>10</u>	x 5 =	<u>50</u>
				Column Totals:	<u>80</u>	(A)	<u>260</u> (B)
				Prevalence Index = B/A = <u>3.25</u>			
Herb Stratum				Hydrophytic Vegetation Indicators:			
1. <i>Rumex crispus</i>	<u>25</u>	<u>Yes</u>	<u>FAC</u>	<input checked="" type="checkbox"/> Dominance Test is >50%			
2. <i>Festuca perennis</i>	<u>45</u>	<u>Yes</u>	<u>FAC</u>	<input checked="" type="checkbox"/> Prevalence Index is ≤3.0 ¹			
3. <i>Croton setiger</i>	<u>10</u>	<u>No</u>	<u>Not Listed</u>	<input type="checkbox"/> Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet)			
4.				<input type="checkbox"/> Problematic Hydrophytic Vegetation ¹ (Explain)			
5.							
6.							
7.							
8.							
Total Cover: <u>80 %</u>							
Woody Vine Stratum				¹ Indicators of hydric soil and wetland hydrology must be present.			
1.				Hydrophytic Vegetation Present? Yes <input checked="" type="radio"/> No <input type="radio"/>			
2.							
Total Cover: <u> </u> %							
% Bare Ground in Herb Stratum <u>20 %</u>			% Cover of Biotic Crust <u> </u> %				

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		Redox Features			Loc ²	Texture ³	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹			
0-14	10YR 3/1	94	7.5YR 4/6	6	C	M	clay loam	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix. ²Location: PL=Pore Lining, RC=Root Channel, M=Matrix.³Soil 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.)

- ☐ 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)

⁴Indicators 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	

APPENDIX C

*Special-Status Plant Species with Known or
Potential Occurrence*

APPENDIX C

Special-Status Plant Species with Known or Potential Occurrence in the Vicinity of the Copeland Creek Detention Basin and Trail Project in Sonoma County, California

Scientific Name	Common Name	Status (Federal/State, CRPR)	Primary Habitat Associations/ Life Form/ Blooming Period/ Elevation Range (feet)	Potential to Occur
<i>Allium peninsulare</i> var. <i>franciscanum</i>	Franciscan onion	None/None, 1B.2	Perennial bulbiferous herb. Cismontane woodland, valley and foothill grassland. Elevation 170–1,000 feet. Blooms May–Jun.	Moderate potential to occur. The oak woodland and grassland onsite provide potentially suitable habitat for this species. The nearest documented occurrence is located approximately 5.5 miles north of the project site (CDFW 2017).
<i>Alopecurus aequalis</i> var. <i>sonomensis</i>	Sonoma alopecurus	Endangered/None, 1B.1	Perennial herb. Marshes and swamps (freshwater), riparian scrub. Elevation 15–1,200 feet. Blooms May–Jul.	Moderate potential to occur. The riparian scrub onsite provides potentially suitable habitat for this species. The nearest documented occurrence is located approximately 4.7 miles west of the project site (CDFW 2017).
<i>Amorpha californica</i> var. <i>napensis</i>	Napa false indigo	None/None, 1B.2	Perennial deciduous shrub. Broadleaved upland forest (openings), chaparral, cismontane woodland. Elevation 390–6,560 feet. Blooms Apr–Jul.	Low potential to occur. The oak woodland provides marginally suitable habitat for this species. The nearest documented occurrence for this species is located approximately 8 miles northeast of the project site (CDFW 2017).
<i>Amsinckia lunaris</i>	bent-flowered fiddleneck	None/None, 1B.2	Annual herb. Coastal bluff scrub, cismontane woodland, valley and foothill grassland. Elevation 5–1,640 feet. Blooms Mar–Jun.	Moderate potential to occur. The oak woodland and grassland onsite provide potentially suitable habitat for this species. The nearest documented occurrence for this species is located approximately 5.5 miles north of the project site (CDFW 2017).
<i>Arctostaphylos densiflora</i>	Vine Hill manzanita	None/Endangered, 1B.1	Perennial evergreen shrub. Chaparral (acid marine sand). Elevation 160–395 feet. Blooms Mar–Jun.	Not expected to occur. The site lacks suitable habitat for this species.
<i>Arctostaphylos stanfordiana</i> ssp. <i>decumbens</i>	Rincon Ridge manzanita	None/None, 1B.1	Perennial evergreen shrub. Chaparral (rhyolitic), cismontane woodland. Elevation 245–1,215 feet. Blooms Feb–Apr.	Not expected to occur. The site lacks suitable habitat for this species.
<i>Astragalus claranus</i>	Clara Hunt's milk-vetch	Endangered/Threatened, 1B.1	Annual herb. Chaparral (openings), cismontane woodland, valley and foothill grassland. Elevation 245–900 feet. Blooms Mar–May.	Not expected to occur. Although the oak woodland and grassland onsite may provide suitable habitat for this species, it has not been documented within 10 miles of the project site (CDFW 2017).

APPENDIX C (Continued)

Scientific Name	Common Name	Status (Federal/State, CRPR)	Primary Habitat Associations/ Life Form/ Blooming Period/ Elevation Range (feet)	Potential to Occur
<i>Astragalus tener</i> var. <i>tener</i>	alkali milk-vetch	None/None, 1B.2	Annual herb. Playas, valley and foothill grassland (adobe clay), vernal pools. Elevation 0–195 feet. Blooms Mar–Jun.	Not expected to occur. The site lacks suitable adobe clay soils for this species. The nearest documented occurrence for this species is located approximately 6.4 miles south of the project site (CDFW 2017).
<i>Balsamorhiza macrolepis</i>	big-scale balsamroot	None/None, 1B.2	Perennial herb. Chaparral, cismontane woodland, valley and foothill grassland. Elevation 145–5,100 feet. Blooms Mar–Jun.	Low potential to occur. Although the grassland onsite may provide suitable habitat for this species, the nearest documented occurrence is located approximately 10 miles east of the project site (CDFW 2017).
<i>Blennosperma bakeri</i>	Sonoma sunshine	Endangered/Endangered, 1B.1	Annual herb. Valley and foothill grassland (mesic), vernal pools. Elevation 30–360 feet. Blooms Mar–May.	Low potential to occur. There is marginally suitable habitat for this species in mesic areas of the grassland onsite; however, the site does not contain vernal pool habitat preferred by this species. The nearest documented occurrence for this species is located approximately 2.6 miles northwest of the project site (CDFW 2017).
<i>Brodiaea leptandra</i>	narrow-anthered brodiaea	None/None, 1B.2	Perennial bulbiferous herb. Broadleaved upland forest, chaparral, cismontane woodland, lower montane coniferous forest, valley and foothill grassland. Elevation 360–3,000 feet. Blooms May–Jul.	Low potential to occur. Although the grassland on site may provide suitable habitat for this species, the nearest documented occurrence is located approximately 9.5 miles east of the project site (CDFW 2017).
<i>Calamagrostis crassiglumis</i>	Thurber's reed grass	None/None, 2B.1	Perennial rhizomatous herb. Coastal scrub (mesic), marshes and swamps (freshwater). Elevation 30–195 feet. Blooms May–Aug.	Not expected to occur. The site lacks suitable habitat for this species.
<i>California macrophylla</i>	round-leaved filaree	None/None, 1B.2	Annual herb. Cismontane woodland, valley and foothill grassland. Elevation 45–3,935 feet. Blooms Mar–May.	Low potential to occur. Although the grassland on site may provide suitable habitat for this species, the nearest documented occurrence is located approximately 7.5 miles south of the project site (CDFW 2017).

APPENDIX C (Continued)

Scientific Name	Common Name	Status (Federal/State, CRPR)	Primary Habitat Associations/ Life Form/ Blooming Period/ Elevation Range (feet)	Potential to Occur
<i>Campanula californica</i>	swamp harebell	None/None, 1B.2	Perennial rhizomatous herb. Bogs and fens, closed-cone coniferous forest, coastal prairie, meadows and seeps, marshes and swamps (freshwater), North Coast coniferous forest. Elevation 0–1,330 feet. Blooms Jun–Oct.	Not expected to occur. The site lacks suitable habitat for this species.
<i>Castilleja uliginosa</i>	Pitkin Marsh paintbrush	None/Endangered, 1A	Perennial herb (hemiparasitic). Marshes and swamps (freshwater). Elevation 785 feet. Blooms Jun–Jul.	Not expected to occur. The site lacks suitable habitat and outside the elevation range for this species.
<i>Ceanothus confusus</i>	Rincon Ridge ceanothus	None/None, 1B.1	Perennial evergreen shrub. Closed-cone coniferous forest, chaparral, cismontane woodland. Elevation 245–3,495 feet. Blooms Feb–Jun.	Not expected to occur. The site lacks suitable habitat for this species.
<i>Ceanothus divergens</i>	Calistoga ceanothus	None/None, 1B.2	Perennial evergreen shrub. Chaparral (serpentinite or volcanic, rocky). Elevation 555–3,115 feet. Blooms Feb–Apr.	Not expected to occur. The site lacks suitable habitat for this species.
<i>Ceanothus foliosus</i> var. <i>vineatus</i>	Vine Hill ceanothus	None/None, 1B.1	Perennial evergreen shrub. Chaparral. Elevation 145–1,000 feet. Blooms Mar–May.	Not expected to occur. The site lacks suitable habitat for this species.
<i>Ceanothus masonii</i>	Mason's ceanothus	None/Rare, 1B.2	Perennial evergreen shrub. Chaparral (openings, rocky, serpentinite). Elevation 750–1,640 feet. Blooms Mar–Apr.	Not expected to occur. The site lacks suitable habitat for this species.
<i>Ceanothus purpureus</i>	holly-leaved ceanothus	None/None, 1B.2	Perennial evergreen shrub. Chaparral, cismontane woodland. Elevation 390–2,100 feet. Blooms Feb–Jun.	Not expected to occur. The site lacks suitable habitat for this species.
<i>Ceanothus sonomensis</i>	Sonoma ceanothus	None/None, 1B.2	Perennial evergreen shrub. Chaparral (sandy, serpentinite or volcanic). Elevation 705–2,625 feet. Blooms Feb–Apr.	Not expected to occur. The site lacks suitable habitat and is outside the elevation range for this species.
<i>Centromadia parryi</i> ssp. <i>parryi</i>	pappose tarplant	None/None, 1B.2	Annual herb. Chaparral, coastal prairie, meadows and seeps, marshes and swamps (coastal salt), valley and foothill grassland (vernally mesic). Elevation 0–1,380 feet. Blooms May–Nov.	High potential to occur. Seasonally mesic areas of the grassland on site provide potentially suitable habitat for this species. The nearest documented occurrence for this species is located approximately 2 miles south of the project site (CDFW 2017).

APPENDIX C (Continued)

Scientific Name	Common Name	Status (Federal/State, CRPR)	Primary Habitat Associations/ Life Form/ Blooming Period/ Elevation Range (feet)	Potential to Occur
<i>Chloropyron maritimum</i> ssp. <i>palustre</i>	Point Reyes bird's-beak	None/None, 1B.2	Annual herb (hemiparasitic). Marshes and swamps (coastal salt). Elevation 0–35 feet. Blooms Jun–Oct.	Not expected to occur. The site lacks suitable habitat and is outside the elevation range for this species.
<i>Chloropyron molle</i> ssp. <i>molle</i>	soft bird's-beak	Endangered/Rare, 1B.2	Annual herb (hemiparasitic). Marshes and swamps (coastal salt). Elevation 0–10 feet. Blooms Jun–Nov.	Not expected to occur. The site lacks suitable habitat and is outside the elevation range for this species.
<i>Chorizanthe valida</i>	Sonoma spineflower	Endangered/Endangered, 1B.1	Annual herb. Coastal prairie (sandy). Elevation 30–1,000 feet. Blooms Jun–Aug.	Not expected to occur. The site lacks suitable sandy soils and coastal habitat for this species.
<i>Cirsium andrewsii</i>	Franciscan thistle	None/None, 1B.2	Perennial herb. Broadleaved upland forest, coastal bluff scrub, coastal prairie, coastal scrub. Elevation 0–490 feet. Blooms Mar–Jul.	Not expected to occur. The site lacks suitable habitat for this species.
<i>Clarkia imbricata</i>	Vine Hill clarkia	Endangered/Endangered, 1B.1	Annual herb. Chaparral, valley and foothill grassland. Elevation 160–245 feet. Blooms Jun–Aug.	Not expected to occur. This species occurs in a defined geographic region at Vine Hill, more than 10 miles northeast of the project site (CDFW 2017).
<i>Cuscuta obtusiflora</i> var. <i>glandulosa</i>	Peruvian dodder	None/None, 2B.2	Annual vine (parasitic). Marshes and swamps (freshwater). Elevation 45–920 feet. Blooms Jul–Oct.	Not expected to occur. The site lacks suitable habitat for this species.
<i>Delphinium bakeri</i>	Baker's larkspur	Endangered/Endangered, 1B.1	Perennial herb. Broadleaved upland forest, coastal scrub, valley and foothill grassland. Elevation 260–1,000 feet. Blooms Mar–May.	Not expected to occur. While the grassland on site may provide marginally suitable habitat for this species, it is known from environs closer to the coast. The nearest documented occurrence is located approximately 9.7 miles southwest of the project site (CDFW 2017).
<i>Delphinium luteum</i>	golden larkspur	Endangered/Rare, 1B.1	Perennial herb. Chaparral, coastal prairie, coastal scrub. Elevation 0–330 feet. Blooms Mar–May.	Not expected to occur. The site lacks suitable chaparral or coastal habitat for this species.
<i>Downingia pusilla</i>	dwarf downingia	None/None, 2B.2	Annual herb. Valley and foothill grassland (mesic), vernal pools. Elevation 0–1,460 feet. Blooms Mar–May.	Low potential to occur. There is marginally suitable habitat for this species in mesic areas of the grassland onsite; however, the site does not contain vernal pool habitat preferred by this species. The nearest documented occurrence for this species is located approximately 4.9 miles northwest of the project site (CDFW 2017).

APPENDIX C (Continued)

Scientific Name	Common Name	Status (Federal/State, CRPR)	Primary Habitat Associations/ Life Form/ Blooming Period/ Elevation Range (feet)	Potential to Occur
<i>Eriogonum luteolum</i> var. <i>caninum</i>	Tiburon buckwheat	None/None, 1B.2	Annual herb. Chaparral, cismontane woodland, coastal prairie, valley and foothill grassland. Elevation 0–2,295 feet. Blooms May–Sep.	Not expected to occur. Although there is potentially suitable habitat in the grassland on site, this species has not been previously documented within 10 miles of the project site (CDFW 2017).
<i>Fritillaria lanceolata</i> var. <i>tristulis</i>	Marin checker lily	None/None, 1B.1	Perennial bulbiferous herb. Coastal bluff scrub, coastal prairie, coastal scrub. Elevation 45–490 feet. Blooms Feb–May.	Not expected to occur. The site lacks suitable coastal habitat for this species.
<i>Fritillaria liliacea</i>	fragrant fritillary	None/None, 1B.2	Perennial bulbiferous herb. Cismontane woodland, coastal prairie, coastal scrub, valley and foothill grassland. Elevation 5–1,345 feet. Blooms Feb–Apr.	High potential to occur. The oak woodland and grassland on site provide suitable habitat for this species. The nearest documented occurrence for this species is located approximately 3.9 miles east of the project site (CDFW 2017).
<i>Gilia capitata</i> ssp. <i>tomentosa</i>	woolly-headed gilia	None/None, 1B.1	Annual herb. Coastal bluff scrub, valley and foothill grassland. Elevation 30–720 feet. Blooms May–Jul.	Not expected to occur. Although there is potentially suitable habitat in the grassland on site, this species appears to prefer more coastal environments and has not been previously documented within 10 miles of the project site (CDFW 2017).
<i>Hemizonia congesta</i> ssp. <i>congesta</i>	congested-headed hayfield tarplant	None/None, 1B.2	Annual herb. Valley and foothill grassland. Elevation 65–1,835 feet. Blooms Apr–Nov.	High potential to occur. The grassland on site provides suitable habitat for this species. The nearest documented occurrence for this species is located approximately 2.3 miles southwest of the project site (CDFW 2017).
<i>Hesperolinon congestum</i>	Marin western flax	Threatened/Threatened, 1B.1	Annual herb. Chaparral, valley and foothill grassland. Elevation 15–1,215 feet. Blooms Apr–Jul.	Not expected to occur. Although there is potentially suitable habitat in the grassland on site, this species has not been previously documented within 10 miles of the project site (CDFW 2017).
<i>Horkelia tenuiloba</i>	thin-lobed horkelia	None/None, 1B.2	Perennial herb. Broadleaved upland forest, chaparral, valley and foothill grassland. Elevation 160–1,640 feet. Blooms May–Jul.	Low potential to occur. The grassland on site may provide suitable habitat for this species; however, the nearest documented occurrence for this species is approximately 7.5 miles northwest of the project site (CDFW 2017).

APPENDIX C (Continued)

Scientific Name	Common Name	Status (Federal/State, CRPR)	Primary Habitat Associations/ Life Form/ Blooming Period/ Elevation Range (feet)	Potential to Occur
<i>Lasthenia burkei</i>	Burke's goldfields	Endangered/Endangered, 1B.1	Annual herb. Meadows and seeps (mesic), Vernal pools. Elevation 45–1,970 feet. Blooms Apr–Jun.	Low potential to occur. There is marginally suitable habitat for this species in mesic areas of the grassland onsite; however, the site does not contain vernal pool habitat preferred by this species. The nearest documented occurrence for this species is located approximately 1.9 miles northwest of the project site (CDFW 2017).
<i>Lasthenia californica</i> ssp. <i>bakeri</i>	Baker's goldfields	None/None, 1B.2	Perennial herb. Closed-cone coniferous forest (openings), coastal scrub, meadows and seeps, marshes and swamps. Elevation 195–1,705 feet. Blooms Apr–Oct.	Not expected to occur. The site lacks suitable habitat for this species.
<i>Lasthenia conjugens</i>	Contra Costa goldfields	Endangered/None, 1B.1	Annual herb. Cismontane woodland, playas (alkaline), valley and foothill grassland, vernal pools. Elevation 0–1,540 feet. Blooms Mar–Jun.	Not expected to occur. The site lacks suitable alkaline habitat for this species, and it has not been previously documented within 10 miles of the project site (CDFW 2017).
<i>Layia septentrionalis</i>	Colusa layia	None/None, 1B.2	Annual herb. Chaparral, cismontane woodland, valley and foothill grassland. Elevation 325–3,595 feet. Blooms Apr–May.	Low potential to occur. The grassland on may provide suitable habitat for this species. The nearest documented occurrence for this species is located approximately 4.8 miles north of the project site (CDFW 2017).
<i>Legenere limosa</i>	legenere	None/None, 1B.1	Annual herb. Vernal pools. Elevation 0–2,885 feet. Blooms Apr–Jun.	Not expected to occur. The site lacks suitable habitat for this species.
<i>Leptosiphon jepsonii</i>	Jepson's leptosiphon	None/None, 1B.2	Annual herb. Chaparral, cismontane woodland, valley and foothill grassland. Elevation 325–1,640 feet. Blooms Mar–May.	High potential to occur. Oak woodland and grassland on site provide suitable habitat for this species. The nearest documented occurrence is located approximately 2.3 miles southeast of the project site (CDFW 2017).
<i>Lilium pardalinum</i> ssp. <i>pitkinense</i>	Pitkin Marsh lily	Endangered/Endangered, 1B.1	Perennial bulbiferous herb. Cismontane woodland, meadows and seeps, marshes and swamps (freshwater). Elevation 110–215 feet. Blooms Jun–Jul.	Not expected to occur. This species occurs at one isolated geographic location at the Pitkin Marsh, greater than 5 miles southwest of the project site.
<i>Limnanthes vinculans</i>	Sebastopol meadowfoam	Endangered/Endangered, 1B.1	Annual herb. Meadows and seeps, valley and foothill grassland, Vernal pools. Elevation 45–1,000 feet. Blooms Apr–May.	Not expected to occur. The site lacks suitable habitat for this species.

APPENDIX C (Continued)

Scientific Name	Common Name	Status (Federal/State, CRPR)	Primary Habitat Associations/ Life Form/ Blooming Period/ Elevation Range (feet)	Potential to Occur
<i>Microseris paludosa</i>	marsh microseris	None/None, 1B.2	Perennial herb. Closed-cone coniferous forest, cismontane woodland, coastal scrub, valley and foothill grassland. Elevation 15–1,165 feet. Blooms Apr–Jun.	Not expected to occur. The site lacks suitable habitat for this species.
<i>Navarretia leucocephala</i> ssp. <i>bakeri</i>	Baker's navarretia	None/None, 1B.1	Annual herb. Cismontane woodland, lower montane coniferous forest, meadows and seeps, valley and foothill grassland, vernal pools. Elevation 15–5,710 feet. Blooms Apr–Jun.	Not expected to occur. The site lacks suitable habitat for this species.
<i>Navarretia leucocephala</i> ssp. <i>pliantha</i>	many-flowered navarretia	Endangered/Endangered, 1B.2	Annual herb. Vernal pools (volcanic ash flow). Elevation 95–3,115 feet. Blooms May–Jun.	Not expected to occur. The site lacks suitable habitat for this species.
<i>Penstemon newberryi</i> var. <i>sonomensis</i>	Sonoma beardtongue	None/None, 1B.3	Perennial herb. Chaparral (rocky). Elevation 2,295–4,495 feet. Blooms Apr–Aug.	Not expected to occur. The site lacks suitable habitat and is outside the elevation range for this species.
<i>Plagiobothrys mollis</i> var. <i>vestitus</i>	Petaluma popcornflower	None/None, 1A	Perennial herb. Marshes and swamps (coastal salt), valley and foothill grassland (mesic). Elevation 30–165 feet. Blooms Jun–Jul.	Not expected to occur. Although mesic areas in the grassland onsite may provide marginally suitable habitat, the nearest documented occurrence for this species is located approximately 6.9 miles south of the project site (CDFW 2017).
<i>Pleuropogon hooverianus</i>	North Coast semaphore grass	None/Threatened, 1B.1	Perennial rhizomatous herb. Broadleaved upland forest, meadows and seeps, North Coast coniferous forest. Elevation 30–2,200 feet. Blooms Apr–Jun.	Not expected to occur. The site lacks suitable habitat for this species.
<i>Potentilla uliginosa</i>	Cunningham Marsh cinquefoil	None/None, 1A	Perennial herb. Marshes and swamps. Elevation 95–130 feet. Blooms May–Aug.	Not expected to occur. The site lacks suitable habitat for this species.
<i>Rhynchospora alba</i>	white beaked-rush	None/None, 2B.2	Perennial rhizomatous herb. Bogs and fens, meadows and seeps, marshes and swamps (freshwater). Elevation 195–6,695 feet. Blooms Jun–Aug.	Not expected to occur. The site lacks suitable habitat for this species.

APPENDIX C (Continued)

Scientific Name	Common Name	Status (Federal/State, CRPR)	Primary Habitat Associations/ Life Form/ Blooming Period/ Elevation Range (feet)	Potential to Occur
<i>Rhynchospora californica</i>	California beaked-rush	None/None, 1B.1	Perennial rhizomatous herb. Bogs and fens, lower montane coniferous forest, meadows and seeps (seeps), marshes and swamps (freshwater). Elevation 145–3,315 feet. Blooms May–Jul.	Not expected to occur. The site lacks suitable habitat for this species.
<i>Rhynchospora capitellata</i>	brownish beaked-rush	None/None, 2B.2	Perennial herb. Lower montane coniferous forest, meadows and seeps, marshes and swamps, upper montane coniferous forest. Elevation 145–6,560 feet. Blooms Jul–Aug.	Not expected to occur. The site lacks suitable habitat for this species.
<i>Rhynchospora globularis</i>	round-headed beaked-rush	None/None, 2B.1	Perennial rhizomatous herb. Marshes and swamps (freshwater). Elevation 145–195 feet. Blooms Jul–Aug.	Not expected to occur. The site lacks suitable habitat for this species.
<i>Sidalcea calycosa</i> ssp. <i>rhizomata</i>	Point Reyes checkerbloom	None/None, 1B.2	Perennial rhizomatous herb. Marshes and swamps (freshwater, near coast). Elevation 5–245 feet. Blooms Apr–Sep.	Not expected to occur. The site lacks suitable habitat for this species.
<i>Sidalcea oregana</i> ssp. <i>valida</i>	Kenwood Marsh checkerbloom	Endangered/Endangered, 1B.1	Perennial rhizomatous herb. Marshes and swamps (freshwater). Elevation 375–490 feet. Blooms Jun–Sep.	Not expected to occur. The site lacks suitable habitat for this species.
<i>Trifolium amoenum</i>	two-fork clover	Endangered/None, 1B.1	Annual herb. Coastal bluff scrub, valley and foothill grassland (sometimes serpentinite). Elevation 15–1,360 feet. Blooms Apr–Jun.	Moderate potential to occur. The grassland onsite may provide suitable habitat for this species. The nearest documented occurrence for this species is located approximately 2.5 miles west of the project site (CDFW 2017).
<i>Trifolium buckwestiorum</i>	Santa Cruz clover	None/None, 1B.1	Annual herb. Broadleaved upland forest, cismontane woodland, coastal prairie. Elevation 340–2,000 feet. Blooms Apr–Oct.	Not expected to occur. Although the oak woodland onsite provides marginally suitable habitat, this species is not known from the same geographic region as the project site and has not been documented within 10 miles (CDFW 2017).
<i>Trifolium hydrophilum</i>	saline clover	None/None, 1B.2	Annual herb. Marshes and swamps, valley and foothill grassland (mesic, alkaline), vernal pools. Elevation 0–985 feet. Blooms Apr–Jun.	Low potential to occur. Although the grassland onsite provides potentially suitable habitat for this species, there are no alkaline soils present. The nearest documented occurrence for this species is located approximately 1.2 miles west of the project site (CDFW 2017).

APPENDIX C (Continued)

Scientific Name	Common Name	Status (Federal/State, CRPR)	Primary Habitat Associations/ Life Form/ Blooming Period/ Elevation Range (feet)	Potential to Occur
<i>Triphysaria floribunda</i>	San Francisco owl's-clover	None/None, 1B.2	Annual herb. Coastal prairie, coastal scrub, valley and foothill grassland. Elevation 30–525 feet. Blooms Apr–Jun.	Not expected to occur. Although the grassland on site may provide suitable habitat for this species, it is restricted to coastal environs and has not been documented within 10 miles of the project site (CDFW 2017).
<i>Triquetrella californica</i>	coastal triquetrella	None/None, 1B.2	Moss. Coastal bluff scrub, coastal scrub. Elevation 30–330 feet.	Not expected to occur. The site lacks suitable habitat for this species.
<i>Viburnum ellipticum</i>	oval-leaved viburnum	None/None, 2B.3	Perennial deciduous shrub. Chaparral, cismontane woodland, lower montane coniferous forest. Elevation 705–4,595 feet. Blooms May–Jun.	Not expected to occur. The site lacks suitable habitat and is outside the elevation range for this species.

Status Legend:

FE: Federally listed as endangered

FT: Federally listed as threatened

FC: Federal Candidate for listing

DL: Delisted

SE: State listed as endangered

ST: State listed as threatened

SR: State Rare

CRPR 1A: Plants Presumed Extirpated in California and Either Rare or Extinct Elsewhere

CRPR 1B: Plants Rare, Threatened, or Endangered in California and Elsewhere

CRPR 2A: Plants Presumed Extirpated in California, But More Common Elsewhere

CRPR 2B: Plants Rare, Threatened, or Endangered in California, But More Common Elsewhere

1 Seriously threatened in California (over 80% of occurrences threatened / high degree and immediacy of threat)

2 Moderately threatened in California (20–80% occurrences threatened / moderate degree and immediacy of threat)

3 Not very threatened in California (<20% of occurrences threatened / low degree and immediacy of threat or no current threats known)

Sources:

California Native Plant Society (CNPS). 2017. Inventory of Rare and Endangered Plants (online edition, v8-02). California Native Plant Society. Sacramento, CA. Accessed December 2017.

APPENDIX C (Continued)

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APPENDIX D

*Special-Status Wildlife Species with Known or
Potential Occurrence*

APPENDIX D

Special-Status Wildlife Species with Known or Potential Occurrence in the Vicinity of the Copeland Creek Detention Basin and Trail Project in Sonoma County, California

Common Name	Scientific Name	Federal/State Status	Habitat Associations	Potential to Occur in the Project Area
<i>Invertebrates</i>				
California freshwater shrimp	<i>Syncaris pacifica</i>	Endangered/ Endangered	California freshwater shrimp is found in low to moderate gradient perennial creeks and streams where there is some emergent vegetation, high water quality, low levels of pollution and good oxygen levels. Some salinity is tolerated, although they are not found in any tidally influenced or brackish waters. Oviposition occurs in late spring and eggs hatch in June.	Not expected to occur. Copeland Creek is an intermittent stream and therefore does not provide suitable habitat for this species.
San Bruno elfin butterfly	<i>Callophrys mossii bayensis</i>	Endangered/None	The San Bruno Elfin Butterfly inhabits rocky outcrops and cliffs in coastal scrub in the coastal mountains near San Francisco Bay, in the fog-belt of steep north facing slopes that receive little direct sunlight. Elfin butterflies feed on other flowers in addition to their host plant, stonecrop (<i>Sedum spathulifolium</i>), which is associated with rocky outcrops. Adult food plants have not been fully determined. All known locations are restricted to San Mateo County.	Not expected to occur. Suitable habitat for this species is not present within or adjacent to the project area.
<i>Fish</i>				
coho salmon - central California coast ESU	<i>Oncorhynchus kisutch</i>	Endangered/ Endangered	Coho spend approximately the first half of their life cycle rearing and feeding in streams and small freshwater tributaries. Spawning habitat is small streams with stable gravel substrates. The remainder of the life cycle is spent foraging in estuarine and marine waters of the Pacific Ocean. They feed on plankton and insects in freshwater and switch to a diet of small fishes while in the ocean.	High potential to occur. Suitable habitat for this species is present within Copeland Creek and they are known to occur in Copeland Creek.
longfin smelt	<i>Spirinchus thaleichthys</i>	Candidate Threatened/ Threatened, SSC	The longfin smelt is a pelagic estuarine fish. Longfin smelt generally spawn in freshwater and then move downstream to brackish water to mature. The life cycle of most longfin smelt generally requires estuarine conditions. Juvenile and adult longfin smelt have been found throughout the year in salinities ranging from pure freshwater to pure seawater, although once past the juvenile stage, they are typically collected in waters with salinities ranging from 14 to 28 parts per thousand. Longfin smelt are thought to be restricted by high water temperatures, generally greater than 22 degrees °C. Most longfin smelt in the San Francisco Bay are believed to breed in the lower reaches of the Sacramento and San Joaquin Rivers.	Not expected to occur. Suitable habitat for this species is not present within or adjacent to the project area.

APPENDIX D (Continued)

Common Name	Scientific Name	Federal/State Status	Habitat Associations	Potential to Occur in the Project Area
Sacramento splittail	<i>Pogonichthys macrolepidotus</i>	None/SSC	Splittail are endemic to the Central Valley of California and depend on both brackish-water rearing habitats in the San Francisco estuary and on floodplain and river-edge spawning habitats immediately above the estuary. Most migrate between these two habitat types on a near annual basis. They are adapted to a wide range of salinities. From November through February, adults migrate upstream in pulses in response to flow events. Adults spawn on floodplains or flooded edge habitats in March and April and then migrate back downstream. Embryos and larvae remain in flooded vegetation for 3-6 weeks during March and April.	Not expected to occur. Suitable habitat for this species is not present within or adjacent to the project area.
steelhead – central California coast DPS (NMFS)	<i>Oncorhynchus mykiss irideus</i>	Threatened/None	Central California coast steelhead (and their progeny) spawns in streams from the Russian River to Aptos Creek, Santa Cruz County, California (inclusive). They also occur in drainages of San Francisco and San Pablo Bays. Regardless of life history strategy, for the first year or two of life rainbow trout and steelhead are found in cool, clear, fast-flowing permanent streams and rivers where riffles predominate over pools, there is ample cover from riparian vegetation or undercut banks, and invertebrate life is diverse and abundant.	High potential to occur. Suitable habitat for this species is present within Copeland Creek and they are known to occur in Copeland Creek.
<i>Amphibians and Reptiles</i>				
California giant salamander	<i>Dicamptodon ensatus</i>	None/SSC	California giant salamander occurs in wet coastal forests in or near clear, cold permanent and semi-permanent streams and seepages. Aquatic larvae transform into four-legged salamanders that live on the ground and breathe air with lungs. Neotenic adults which retain their gills and continue to live in water are found in many populations. This salamander is nocturnal, but also active in daylight in wet conditions. They can be found walking across roads on rainy nights, especially with the first heavy rains of the fall, usually in November. Adults are also found under cover objects such as rocks, logs and artificial cover.	Not expected to occur. Suitable habitat for this species is not present within or adjacent to the project area.
California red-legged frog	<i>Rana draytonii</i>	Threatened/None, SSC	California red-legged frogs occur in different habitats depending on their life stage, the season, and weather conditions. Breeding habitat includes coastal lagoons, marshes, springs, permanent and semi-permanent natural ponds, and ponded and backwater portions of streams. These frogs also breed in artificial	Not expected to occur. Suitable habitat for this species is not present within or adjacent to the project area. Copeland Creek does not provide a

APPENDIX D (Continued)

Common Name	Scientific Name	Federal/State Status	Habitat Associations	Potential to Occur in the Project Area
			impoundments including stock ponds, irrigation ponds, and siltation ponds. Creeks and ponds with dense growths of woody riparian vegetation, especially willows (<i>Salix</i> spp.) are preferred, although the absence of vegetation at an aquatic site does not rule out the possibility of occupancy. Adult frogs prefer dense, shrubby or emergent riparian vegetation near deep (≥ 2 to 3 feet), still or slow moving water, especially where dense stands of overhanging willow and an intermixed fringe of cattail occur adjacent to open water.	permanent water source for this species, and the nearest occurrence record is located approximately four miles east of the site
California tiger salamander	<i>Ambystoma californiense</i>	Threatened/Threatened	California tiger salamander (CTS) may be found in riparian and wet meadow habitats, but is more common in grasslands. CTS spend most of its life cycle underground in adjacent valley oak woodland or grassland habitat, primarily in rodent burrows. Breeding takes place following the first heavy winter rains. Temporary or permanent freshwater pools or slowly flowing streams are required for egg-laying and larval development. They appear to be absent in waters containing predatory game fish.	Not expected to occur. Multiple sampling efforts for larvae and adults from 1994-2003 in the vicinity of the site resulted in negative findings, and the nearest historical documented occurrence is approximately 1.80 miles south of the site. The site is outside of the planning area for the CTS Recovery Plan.
foothill yellow-legged frog	<i>Rana boylei</i>	None/Candidate Threatened, SSC	Frequents rocky streams and rivers with rocky substrate and open, sunny banks, in forests, chaparral, and woodlands. Sometimes found in isolated pools, vegetated backwaters, and deep, shaded, spring-fed pools.	Low potential to occur. Suitable habitat for this species occurs intermittently throughout the year within Copeland Creek. Because the creek only provides water temporarily for this species in the winter and spring, it is unlikely to occur within the project area during most of the year. This species likely moves through the site sporadically when there is water in the creek to access adjacent habitat; however, the dense nature of the vegetation along the creek within the project area likely precludes this species from staying on the site.

APPENDIX D (Continued)

Common Name	Scientific Name	Federal/State Status	Habitat Associations	Potential to Occur in the Project Area
red-bellied newt	<i>Taricha rivularis</i>	None/SSC	Red-bellied newt is a stream or river dweller found in coastal woodlands and redwood forest along the coast of northern California from near Bodega, Sonoma county, to near Honeydew, Humboldt county, and inland to Lower lake and Kelsey Creek, Lake County. Adults are terrestrial, becoming aquatic when breeding. Terrestrial animals spend the dry summer in moist habitats under woody debris, rocks, in animal burrows. Juveniles apparently spend most of their time underground and are not active on the surface until near sexual maturity. Ponds, lakes, and other standing waters are avoided.	Not expected to occur. Suitable habitat for this species is not present within or adjacent to the project area.
western pond turtle	<i>Emys marmorata</i>	None/SSC	Western pond turtles use both aquatic and terrestrial habitats. They are found in rivers, lakes, streams, ponds, wetlands, ephemeral creeks, reservoirs, agricultural ditches, estuaries, and brackish waters. Western pond turtles prefer areas that provide cover from predators, such as vegetation and algae, as well as basking sites for thermoregulation. Adults tend to favor deeper, slow moving water, whereas hatchlings search for slow and shallow water that is slightly warmer. Terrestrial habitats are used for wintering and usually consist of burrows in leaves and soil. Western pond turtles also lay their eggs in terrestrial habitats. They are rarely found at altitudes above 1,500 meters.	Low potential to occur. Although Copeland Creek provides suitable habitat for this species, the nearest documented occurrence is approximately 3 miles west of the site.
<i>Birds</i>				
bank swallow	<i>Riparia riparia</i>	None/Threatened	Restricted to riparian, lacustrine, and coastal areas with vertical banks, bluffs, and cliffs with fine-textured or sandy soils, into which it digs nesting holes. Feeds predominantly over open riparian areas, but also over brushland, grassland, wetlands, water, and cropland.	Not expected to occur. Suitable habitat for this species is not present within or adjacent to the project area.
burrowing owl	<i>Athene cunicularia</i>	None/SSC	The burrowing owl utilizes abandoned ground squirrel burrows in open habitats and grasslands, also disturbed areas. Diet consists of insects, small mammals, reptiles and amphibians. Commonly uses burrows on levees or mounds where there are unobstructed views of possible predators such as raptors or foxes.	Present. Two burrowing owls were observed at active burrows on the site during the November 9, 2017 survey.

APPENDIX D (Continued)

Common Name	Scientific Name	Federal/State Status	Habitat Associations	Potential to Occur in the Project Area
California black rail	<i>Laterallus jamaicensis coturniculus</i>	None/Threatened, FP	California black rail occurs near freshwater marshes along the margins of ponds, lakes, and water impoundments; also herb dominated wetlands on sloped ground associated with springs, canal leaks, seepage from impoundments and agricultural irrigation. Needs water depths of about 1 inch that do not fluctuate during the year and dense vegetation for nesting habitat.	Not expected to occur. Suitable habitat for this species is not present within or adjacent to the project area.
California Ridgway's rail	<i>Rallus obsoletus obsoletus</i>	Endangered/ Endangered, FP	Populations of the California Ridgway's rail now live almost exclusively in the marshes of the San Francisco estuary. They inhabit a range of salt and brackish water marshes and tidal sloughs. They typically utilize salt marshes dominated by both pickleweed (<i>Salicornia virginica</i>) and Pacific cordgrass (<i>Spartina foliosa</i>).	Not expected to occur. Suitable habitat for this species is not present within or adjacent to the project area.
golden eagle	<i>Aquila chrysaetos</i>	None/None, FP, BGEPA	Golden eagle is found in open country including mountains, foothills, and plains. In the west, they are found over prairie, rangeland, or desert. They are very wide-ranging in winter, and more restricted to areas with good nest sites in summer, which consist of cliff ledges or often large trees.	Moderate potential to occur. Suitable foraging habitat is present within the site, and there are recent occurrence records from the Sonoma Mountain area approximately 3 miles east of the site.
grasshopper sparrow	<i>Ammodramus savannarum</i>	None/SSC	Grasshopper sparrow is found in grasslands, hayfields and prairies. Breeds in dry fields and prairies, especially those with fairly tall grass and weeds and a few scattered shrubs. Also nests in overgrown pastures and hayfields, and sometimes in fields of other crops. May nest in small colonies. Forages for mostly insects and seeds.	Low potential to occur. Suitable habitat for this species is present within project site; however, the nearest documented occurrence is 5.5 miles east of the site.
northern spotted owl	<i>Strix occidentalis caurina</i>	Threatened/ Threatened, SSC	Northern spotted owls generally inhabit older stands of forested habitats that contain the necessary habitat characteristics for nesting and foraging, including multi-layered, multi-species canopy with moderate to high canopy closure. These stands typically contain a high number of trees with large cavities and other types of deformities; large snags (standing dead trees); an abundance of large, dead wood on the ground; and open space within and below the upper canopy for spotted owls to fly.	Not expected to occur. Suitable habitat for this species is not present within or adjacent to the project area.

APPENDIX D (Continued)

Common Name	Scientific Name	Federal/State Status	Habitat Associations	Potential to Occur in the Project Area
saltmarsh common yellowthroat	<i>Geothlypis trichas sinuosa</i>	None/SSC	The saltmarsh common yellowthroat remains locally numerous in areas where extensive wetlands with adjacent riparian thickets remain. In brackish and saline tidal marsh habitat around San Francisco Bay, yellowthroats prefer habitats consisting of rushes (<i>Scirpus</i> spp.), peppergrass (<i>Leipidium latifolium</i>), and <i>Juncus</i> .	Not expected to occur. Suitable habitat for this species is not present within or adjacent to the project area.
San Pablo song sparrow	<i>Melospiza melodia samuelis</i>	None/SSC	San Pablo song sparrow inhabits salt marshes along the northern edge of the San Francisco and San Pablo bays, and on the south side of San Pablo Bay southwest to San Pablo Point on the Richmond headland.	Not expected to occur. Suitable habitat for this species is not present within or adjacent to the project area.
short-eared owl	<i>Asio flammeus</i>	None/SSC	Short-eared owl lives in open terrain throughout California, such as prairies and marshes. Nests on the ground and eats small mammals.	Low potential to occur. Although suitable habitat exists for this species on site, there are no documented occurrences in the vicinity of the site.
Swainson's hawk	<i>Buteo swainsoni</i>	None/Threatened	Swainson's hawk spends the breeding season in the Central Valley of California and is commonly found in agricultural areas or open grasslands containing solitary trees for nesting. Diet consists of small mammals and reptiles.	Not expected to occur. The site is outside of the known breeding range for this species.
tricolored blackbird	<i>Agelaius tricolor</i>	None/Candidate Endangered, SSC	Tricolored blackbird is a colonial species found almost exclusively in California. It utilizes wetlands, marshes and agricultural grain fields for foraging and nesting. The tricolored blackbird population has declined significantly in the past 6 years due to habitat loss and harvest of grain fields before young have fledged.	Not expected to occur. Suitable habitat for this species is not present within or adjacent to the project area.
western yellow-billed cuckoo	<i>Coccyzus americanus occidentalis</i>	Threatened/Endangered	Western yellow-billed cuckoo inhabits woodlands, thickets, orchards, streamside groves. Breeds mostly in dense deciduous stands, including forest edges, tall thickets, dense second growth, overgrown orchards, scrubby oak woods. Often in willow groves around marshes. In the west, mostly in streamside trees, including cottonwood-willow groves in arid country. Forages by scaling through shrubs and trees, gleaning insects from foliage and branches.	Low potential to occur. Suitable riparian habitat occurs within the site; however, the nearest documented occurrence is approximately 2 miles east of the site and is from 1975.
yellow rail	<i>Coturnicops noveboracensis</i>	None/SSC	Yellow rail is highly secretive and range and abundance is incompletely known because of this. They prefer densely vegetated	Not expected to occur. Suitable habitat for this species

APPENDIX D (Continued)

Common Name	Scientific Name	Federal/State Status	Habitat Associations	Potential to Occur in the Project Area
			marshes, and sedge marshes/meadows with moist soil or shallow standing water for breeding. They are very rare, but currently known to winter in a few coastal marshes and Suisun Marsh near Fairfield, California.	is not present within or adjacent to the project area.
<i>Mammals</i>				
American badger	<i>Taxidea taxus</i>	None/SSC	American badger is most abundant in drier open stages of most shrub, forest and herbaceous habitats with friable soils. Will dig burrows for cover. Will reuse burrows occasionally but also may dig new burrows each night in summer. Diet consists of rodents, small mammals, reptiles, insects, birds and carrion.	Low potential to occur. Although suitable habitat for this species is present within the site, no suitably sized burrows were observed during the November 9, 2017 survey, and the nearest documented occurrence is 4 miles SW of the project site.
pallid bat	<i>Antrozous pallidus</i>	None/SSC	Pallid bat occupies a variety of habitats including grassland, shrubland, woodland and forests from sea level up through mixed conifer forest. Roosts in caves, mines, crevices and occasionally hollow trees or buildings. Prefers open habitats for foraging.	Moderate potential to occur. Suitable foraging habitat exists within the project site, and structures and trees within and adjacent to the site could provide suitable roosting habitat.
salt-marsh harvest mouse	<i>Reithrodontomys raviventris</i>	Endangered/ Endangered	The salt marsh harvest mouse occurs in tidal flats and on the shore in estuarine habitats, and in herbaceous wetlands. Occurs in salt and brackish marshes where plants provide a dense mat for cover, with a high percentage of pickleweed, along with a complex structure of other plant species. The salt marsh harvest mouse needs access to high ground for refuge/cover, especially during high tides in the winter. Diet is composed of green vegetation including salt grass and pickleweed, along with some seeds, but varies by available vegetation.	Not expected to occur. Suitable habitat for this species is not present within or adjacent to the project area.
Townsend's big-eared bat	<i>Corynorhinus townsendii</i>	None/SSC	Townsend's big-eared bat is found throughout most of western North America. Hibernates and roosts in caves and mines near entrances, or cave like structures such as buildings or under decks. Forages in forested habitats, along open edges.	Not expected to occur. Suitable foraging and roosting habitat for this species is not present within or adjacent to the project area.

APPENDIX D (Continued)

Common Name	Scientific Name	Federal/State Status	Habitat Associations	Potential to Occur in the Project Area
western red bat	<i>Lasiurus blossevillii</i>	None/SSC	Roosting habitat includes forests and woodlands from sea level up through mixed conifer forests. Roosts primarily in trees. Feeds over a wide variety of habitats including grasslands, shrublands, open woodlands and forests, and croplands. Not found in desert areas.	Not expected to occur. The oak woodland habitat on site is likely too small to provide suitable roosting habitat for this species and no suitable roosting habitat occurs in the vicinity of the site.

Status Legend:

SSC: Species of Special Concern (CDFW)

FP: Fully Protected (CDFW)

BGEPA: Bald and Golden Eagle Protection Act (CDFW)

Sources

CDFW (California Department of Fish and Wildlife). November 2017. California Natural Diversity Database (CNDDDB). Rarefind, Version 5 (Commercial Subscription). Sacramento, California. Accessed October 2017.

USFWS (U.S. Fish and Wildlife Service). 2017. Information, Planning and Conservation (IPaC). Accessed November 2017.

APPENDIX E

Wildlife Species Observed

APPENDIX E

Wildlife Species Observed on the Copeland Creek Detention Basin and Trail Project Site in Sonoma County, California

MAMMALS

Canis latrans – coyote (scat)
Urocyon cinereoargenteus – gray fox (scat)
Otospermophilus beecheyi – California ground squirrel
Thomomys bottae – Botta's pocket gopher (sign)
Lepus californicus – black-tailed jackrabbit

BIRDS

Cathartes aura – turkey vulture
Meleagris gallopavo – wild turkey
Buteo jamaicensis – red-tailed hawk
Melanerpes formicivorus – acorn woodpecker
Colaptes auratus – northern flicker
Sayornis saya – Say's phoebe
Sayornis nigricans – black phoebe
Sitta carolinensis – white-breasted nuthatch
Melospiza crissalis – California towhee
Junco hyemalis – dark-eyed junco
Sialia mexicana – western bluebird
Sturnella neglecta – western meadowlark
Zenaidura macroura – mourning dove
Passerculus sandwichensis – savannah sparrow
Athene cunicularia – burrowing owl

AMPHIBIANS

Pseudacris regilla – pacific chorus frog

APPENDIX E (Continued)

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