BIOLOGICAL RESOURCES ASSESSMENT

1850 OGULIN CANYON ROAD [APN 010-053-03]
LAKE COUNTY, CALIFORNIA

PREPARED FOR:

Emerald Mountain Farms
1850 Ogulin Canyon Road
Clearlake, California 95422

PREPARED BY:

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1.0 INTRODUCTION

1.1 PURPOSE

The purpose of this reconnaissance-level Biological Resources Assessment (BRA) is to evaluate the existence of special-status species (SSS) and/or habitats, as well as assess the potential for SSS listed in Appendix A to occur on or near the site of commercial cultivation activities, pursuant to applicable regulations from County of Lake and the State of California. This BRA also analyzes the potential for jurisdictional wetlands and other waters of the U.S. to exist onsite, and classifies landforms that may potentially convey sediment to waters of the U.S. including dry creeks, washes, swales, gullys, and other erosional features. Also included is a set of Best Management Practices (BMPs) that are adapted from a variety of sources including State Water Resources Control Board *Cannabis* General Order No. WQ 2017-0023-DWQ and other state and local ordinances.

1.2 PROJECT SUMMARY

The proposed project involves permitting of commercial *Cannabis* cultivation on the parcel located at 1850 Ogulin Canyon Road in unincorporated Lake County near the City of Clearlake (Figure 1). The proposed outdoor cultivation areas (Figures 9 & 10) are located on the top of a ridge to the east of California Highway 53 (Figure 1). The parcel contains a single occupied residence and is accessed via graded dirt and gravel road that branches to the northeast off of Ogulin Canyon Road, and is in good condition (Figure 6). There are several small Class III watercourses and two unnamed Class II watercourses that drain the site (Figure 11). In addition there are several roadside drainage culverts (Figures 7 & 8) and a small stock pond (Figure 13). The project as designed should have no impact on sensitive species or habitats if the measures described in Appendix D and in the "*Blue Oak Woodland Habitat Conservation & Replacement Plan*" prepared for the project are implemented to the greatest extent practicable.

1.3 LOCATION

1.3.1 Site Overview

The project site is located at 1850 Ogulin Canyon Road in unincorporated Lake County, 2.7 miles northeast of the City of Clearlake, 18 miles east of the City of Lakeport, and 26 miles west of the City of Williams (Figure 1). The parcel is located in Sections 12 & 13, Township 13 North, Range 7 West, on the USGS Lower Lake 7.5 minute quadrangle (Figure 2). The approximate latitude and longitude of the centroid of the parcel is 38.982 and -122.580. The parcel is designated Assessor's Parcel Number (APN) 010-053-03, measures 78.0 acres in size, is zoned Rural Lands (RL), and is under the jurisdiction of the Central Valley (Region 5) Regional Water Quality Control Board (RWQCB), and the North-Central Region (District 2) of the California Department of Fish & Wildlife (CDFW).

1.3.2 Federal Critical Habitat

Federal Critical Habitat (FCH) is designated by the U.S. Fish & Wildlife Service (USFWS) and provides special protections for habitats considered important for long-term population persistence of endangered or threatened species. There is no FCH onsite for any animal or plant species. The nearest FCH is located 7.3 miles south of the project parcel for Slender Orcutt grass (*Orcuttia tenuis*) near Little High Valley. There is also FCH for Slender Orcutt grass 11.4 miles to the southwest associated with Bogg's Lake. The next nearest species with designated FCH is for Northern spotted owl (*Strix occidentalis*; NSO) located 13.7 miles southwest of the project parcel near Cobb Mountain. The next nearest FCH is for Steelhead trout (*Oncorhynchus mykiss*) located 15.8 miles southwest of the parcel in Big Sulphur Creek. There is no other FCH within 15 miles of the project parcel.

1.3.3 CNDDB Occurrences

Special-status species (SSS) are those species that receive special protections under either local, State, or Federal law and include both State and Federally Endangered and Threatened species of animals and plants, as well as candidate listing species and other species or populations of special concern for which additional information is required. The California Natural Diversity Database (CNDDB) provides information on most known SSS occurrences in the State of California. A description of the habitat requirements and likelihood of occurrence of potential SSS on the project parcel based the CNDDB database, published scientific literature, and the expertise of PEC staff, is provided in Appendix A, with all SSS known from a 5 mile radius around the project parcel highlighted. Additionally, map-based representation of all of the SSS within a 5 mile radius around the project site is provided in Appendix B.

Special-Status Animals

There are no known occurrences of special-status animal species from the project parcel. The nearest known occurrence of special-status animal species is Foothill Yellow-Legged Frog (*Rana boylii*; FYLF), located 2.2 miles east of the parcel near Perkins Creek (Appendix C). The next nearest known occurrence of special-status animal species is Pallid bat (*Antrozous pallidus*) located 2.2 miles east of the parcel near Perkins Creek. The next nearest known occurrence of special-status animal species is Western yellow-billed cuckoo (*Coccyzus americanus occidentalis*) located 3.1 miles southwest of the parcel near the City of Clearlake. The next nearest known occurrence of special-status animal species is Red-bellied newt (*Taricha rivularis*) located 3.0 miles south of the project parcel in Dry Creek. The next nearest known occurrence of special-status animal species is Brownish dubiraphian riffle beetle (*Dubiraphia brunnescens*) located 3.8 miles west of the parcel in Clear Lake. Also located 3.8 miles west of the parcel in Clear Lake are Clear Lake hitch (*Lavinia exilicauda chi*) and Sacramento perch (*Archoplites interruptus*). The next nearest known occurrence of special-status animal species is Borax Lake cuckoo wasp (*Hedychridium milleri*) located 4.3 miles west of the project parcel in Borax Lake. The next nearest known occurrence of special-status animal species is Golden eagle (*Aquila chrysaetos*) located 4.3 miles south of the project parcel near Cache Creek. The next nearest known occurrence of special-status animal species is Osprey (*Pandion haliaetus*) located 4.2 miles northwest

of the project parcel near Clearlake Oaks. The next nearest known occurrence of special-status animal species is Townsend's big-eared bat (*Corynorhinus townsendii*) located 4.2 miles northwest of the project parcel near Clearlake Oaks. The next nearest known occurrence of special-status animal species is Prairie falcon (*Falco mexicanus*) located 4.3 miles east of the project parcel somewhere within the Wilbur Springs USGS 7.5 minute quadrangle. There are no other special-status animal species known from within 5 miles of the project site.

Special-Status Plants

There is are no known occurrences of special-status plant species from within the project parcel. The nearest known occurrence of special-status plant species is an occurrence of Colusa Layia (*Layia septentrionalis*) located 0.8 miles southwest of the project parcel near Quackenbush Mountain (Appendix C). The next nearest known occurrence of special-status plant species is Bent-flowered fiddleneck (*Amsinckia lunaris*) located 1.2 miles west of the parcel near CA-53. The next nearest known occurrence of special-status plant species is Eel-grass pondweed (*Potamogeton zosteriformis*) located as close as 1.2 miles west of the parcel near the City of Clearlake. The next nearest known occurrence of special-status plant species is Baker's navarretia (*Navarretia leucocephala* ssp. *bakeri*) located 1.4 miles west of the parcel near CA-53. The next nearest known occurrence of special-status plant species is Jepson's milk vetch (*Astragalus rattanii* var. *jepsonianus*) located 2.6 miles east of the parcel near Perkins Creek Ridge. The next nearest known occurrence of special-status plant species is Brandegee's eriastrum (*Eriastrum brandegeeae*) located 3.4 miles west of the parcel near Borax Lake. The next nearest known occurrence of special-status plant species is Adobe Lily (*Fritillaria pluriflora*) located 3.6 miles east of the project parcel near The Peninsula. There are no other known occurrences within 4 miles of the project parcel (Appendix C).

1.3.4 Landforms & Water Features

The parcel consists of a series of low hills bisected by Blackeye Canyon (Figure 1). The maximum elevation of the parcels is 1,790 feet above sea level in the southwest corner of the parcel, and the minimum elevation is 1,556 feet above sea level near the northwest corner of the property where the seasonal Class II drainage exits the parcel (Figure 2). Slopes range from 10% to 40%, as measured by Suunto PM5 handheld clinometer.

There are several unnamed ephemeral Class III watercourses that flow towards an unnamed seasonal Class II watercourses that flows west through Blackeye Canyon (Figure 3). There is also an unnamed seasonal Class II watercourse with several Class III spurs that exists in the far northeast corner of the parcel and drains towards the northeast. Two culverts convey water beneath the access roads onsite (Figures 7 & 8) and are both in good condition and have rock protection installed up and downstream. There is additionally one stock pond that exists south of the main road (Figure 13) that does not appear to have a channelized inlet source. There are no areas onsite that appear to be potential wetlands.

Precipitation mostly infiltrates locally due to the lack of a significant upslope watershed (Figure 2). During large storm events water may flow overland primarily as unconsolidated sheet flow into the series of ephemeral Class III watercourses. All water onsite eventually drains towards the center of the property into Blackeye Canyon, which flows west for 1.9 miles before entering the Burns Valley,

which flows west for another 2.5 miles through orchards and rural residential developments before emptying into Clear Lake near Konocti Street (Figure 1). From the Cache Creek Dam, Cache Creek flows west for approximately 70 miles before entering the Yolo Bypass near Woodland, which flows south and then west for approximately 65 miles before emptying into Suisun Bay and the Pacific Ocean.

1.3.5 Existing Structures

The driveway that passes through Blackeye Canyon is known as Ogulin Canyon Road and is in good condition, packed dirt and gravel (Figure 6). Access is controlled by a locking metal automatic entry gate equipped with emergency lock access box. The road is in good condition and exhibits rock protection in numerous locations. Culverts are well built and maintained free of debris and appear to be adequately sized. There is one occupied single family residence onsite that is located approximately 0.3 miles past the entrance to the parcel. An existing 1,500 gallon septic system exits downhill from the main residence to the southeast. The proposed cultivation areas are located approximately 0.15 miles further to the east on the top of the main ridge (Figure 9) in an area of annual grassland and blue oak trees. There is a solar powered well located near the residence and water is pumped into a series of HDPE water storage tanks located at the top of the ridge near the proposed cultivation areas. The cultivation areas are surrounded by chain link fencing with visibility screening. There is a vehicle garage and outbuilding onsite but no other permanent structures.

1.3.6 Regional Land Uses

Land uses in the vicinity of the project parcel are primarily rural residences, light industrial manufacturing, vehicle and property storage units, and grazing land. Further to the west is higher proportion of orchards and residential developments, becoming increasingly developed until reaching the City of Clearlake. To the east the terrain becomes steeper and more undeveloped and is primarily grazing land and chaparral wildland. To the north and south are primarily blue oak dominated chaparral wildland. No portions of the parcel have burned in the previous 10 years.

1.4 METHODS

1.4.1 Records Search & Literature Review

Based on a review of the literature and relevant databases, we compiled a list of special-status plant and animal species that are known to occur within Lake County, or that occupy habitats that are known to be present on or near the project site (Appendix A). Sources of information referenced include the California Department of Fish & Wildlife (CDFW) *California Natural Diversity Database* (CNDDB 2019), U.S. Fish and Wildlife Service Environmental Conservation Online System (USFWS 2019), the California Native Plants Society (CNPS) *Inventory of Rare and Endangered Vascular Plants of California* (CNPS 2018), the CDFW *Habitat Relationships System* (HRS), and the knowledge of PEC staff familiar with the species and habitats of Lake County.

Additional information on sensitive habitats including wetlands was obtained from the USFWS National Wetlands Inventory (NWI 2019), and the County of Lake Geographic Information System Portal (Lake Co. 2019). Plant species included here are state or federal endangered or threatened species, and/or considered rare by CDFW, and/or are recognized as special-status species (SSS) by CNPS or CDFW. Animal species included here are designated as State or Federally Endangered or Threatened, and/or CDFW species of special concern (SSC), and/or CDFW fully protected species (FPS). In addition, nests of most native bird species, regardless of their regulatory status, are protected from take or harassment under the U.S. Migratory Bird Treaty Act (MBTA) and relevant sections of the California Fish & Wildlife Code.

1.4.2 Field Surveys

A wildlife and botanical survey was conducted at the site on July 19, 2019 by Dr. Christopher DiVittorio of PEC. A second protocol-level botanical survey was performed on April 30, 2021 by Dr. Christopher DiVittorio and Dr. Zoya Akulova of PEC. During the first survey the weather was typical for this time of year, the sky was clear, air temperature was 90.6 degF, relative humidity was 36%, and wind was from the west at 1-2 mph. For the second survey temperature and relative humidity was not recorded but the weather was clear and sunny and temperature was normal for the time of year. All measurements were made using Kestrel 3000 handheld weather station. No rain fell in the preceding two weeks from the first survey (NWS 2019), although late rains during 2019 prolonged the growing season, thus all most the vegetation was identifiable including many early-season plants, and many perennial and annual plant species were still flowering. For the second survey, the rain year was short however several inches of rain fell the preceding month and many species were flowering. Starting with the portion of the property closest to the proposed cultivation area, the entire project site was surveyed on foot by PEC biologist Dr. Christopher T. DiVittorio, recording the location and identity of all plant and animal species encountered. Plant voucher specimens were taken of any species that were not identifiable in the field, and that were not likely to be special-status. The vast majority of species were identifiable at the time of the survey, although some had to be identified based on vegetative parts. Photographs and voucher specimens were taken of any plants that were identified solely based on vegetative characters.

The field survey was conducted by dividing the outdoor portions of the parcel into zones and cataloging all of the species found in each zone. Each zone was surveyed by walking in parallel lines until the whole zone was covered. Notes were also taken in each zone documenting the general site characteristics and current land uses, as well as any surface erosional features that may require remediation. Botanical specimens were taken back to the laboratory for identification if identification was not possible in the field. If species were not flowering at the time of the survey and morphological characteristics indicated that the species may be special-status, notes were made for a follow-up visit. Birds and nests were identified by call and with binoculars. Vocalizations, scat, tracks, feathers, burrows, nests, and molts were used for identification of animals present onsite. Any onsite aquatic habitats were observed for a minimum of ten minutes without movement in order to observe animals that may hide when approached.

2.0 RESULTS

2.1 NATURAL COMMUNITIES IN THE EVALUATION AREA

Using field surveys, a review of published literature, and the knowledge of PEC staff, all of the natural communities present on and around the project site were assessed. Regionally, the dominant vegetation type is *Chamise* chaparral and mixed Blue oak woodland, with annual grasslands on hilltops, and a greater proportion of hardwoods at the bottoms of canyons (Figure 4). The parcel was not burned at any point during the last 10 years, although much of the surrounding region was burned during the Rocky/Jerusalem Fires in 2015. Regionally there are abundant serpentine outcrops although there are no serpentine outcrops or soils known from the project parcel as described in greater detail in §2.5, below.

2.2 NATURAL COMMUNITIES WITHIN THE PROJECT SITE

Overall, the parcel consists of approximately 70% Blue oak woodland, 20% *Chamise* chaparral, and 10% annual grassland and developed area (Figure 5). The bottom of Blackeye Canyon contains a slightly higher proportion of hardwood and riparian species and so is treated separately, below. The grassland and chaparral habitats are continuous with the oak woodland habitat and the entirety of the parcel is more or less homogenous in community composition. The specific community descriptions below are organized based on the zones that were surveyed, and the floristic results presented in Appendix B.

A full list of all species observed at both 2019 and 2021 surveys is provided in Appendix B. Below is a list of the dominant species observed at both time points.

2.2.1 Blue Oak Woodland

The vast majority of the parcel can be described as Blue oak woodland dominated by Blue oak (*Quercus douglasii*) to 24" diameter-at-breast-height (DBH) but averaging 10-12" DBH. Other subdominant tree species include Gray pine (*Pinus sabiniana*) to 20" DBH, Ponderosa pine (*Pinus ponderosa*) to 16" DBH, Black oak (*Quercus kelloggii*) to 10" DBH, and Madrone to (*Arbutus menziesii*) to 12" DBH. Native subdominant species include hoary manzanita (*Arctostaphylos canescens*), toyon (*Heteromeles arbutifolia*), poison oak (*Toxicodendron diversilobium*), Yerba Santa (*Eriodictyon californicum*), mountain mahogany (*Cercocarpus betuloides*), deer brush (*Ceanothus integerrimus*), common yarrow (*Achillea millefolium*), soap plant (*Chlorogalum pomeridianum*), large fruited lomatium (*Lomatium macrocarpum*), common tarweed (*Centromadia pungens*), gumweed (*Madia gracilis*), Needleleaf navarretia (*Navarretia intertexta*), imbricate phacelia (*Phacelia imbricata*), whisker-brush (*Leptosiphon ciliatus*), naked buckwheat (*Eriogonum nudum*), twining brodiaea (*Dichelostemma volubile*), blue dicks (*Dichelostemma capitatum*), harvest brodiaea

(*Brodiaea elegans*), blue eyed grass (*Sisyrinchium bellum*), Douglas' iris (*Iris douglasii*), Pacific sanicle (*Sanicula crassicaulis*), California fuchsia (*Epilobium canum*), squirreltail grass (*Elymus elymoides*), blue wildrye (*Elymus glaucus*), California western flax (*Hesperolinon californicum*), woolly leaved sunflower (*Eriophyllum lanatum*), babystars (*Leptosiphon bicolor*), and golden fairy lantern (*Calochortus amabilis*).

Nonnative species dominate the grassland portions of the site and include ripgut brome (*Bromus diandrus*), foxtail chess (*Hordeum murinum*), dogstail grass (*Cynosurus echinatus*), hairgrass (*Aira caryophyllea*), wild oats (*Avena barbata*), soft chess (*Bromus hordeaceous*), Zorro fescue (*Festuca myuros*), Medusahead (*Elymus caput-medusae*), little rattlesnake grass (*Briza minor*), nit grass (*Gastridium phleoides*), Italian thistle (*Carduus pycnocephalus*), black mustard (*Brassica nigra*), wild geranium (*Geranium molle*), chickweed (*Stellaria media*), big heron bill (*Erodium botrys*), English plantain (*Plantago lanceolata*), field parsley (*Torilis arvensis*), Klamathweed (*Hypericum perforatum*), smooth cat's ear (*Hypochaeris glabra*), prickly lettuce (*Lactuca serriola*), bull thistle (*Cirsium vulgare*), rose clover (*Trifolium hirtum*), pineapple weed (*Matricaria discoidea*), sheep sorrel (*Rumex acetocella*), hairy vetch (*Vicia villosa*), red brome (*Bromus madritensis*), yellow star thistle (*Centaurea solstitialis*), woolly mullein (*Verbascum thapsus*), and turkey mullein (*Croton setiger*).

2.2.2 Chamise Chaparral

Approximately one half of the parcel can be described as mixed *Chamise* chaparral dominated by chamise (*Adenostoma fasiculatum*), toyon (*Heteromeles arbutifolia*), poison oak (*Toxicodendron diversilobium*), Yerba Santa (*Eriodictyon californicum*), hoary manzanita (*Arctostaphylos canescens*), deer brush (*Ceanothus integerrimus*), buck brush (*Ceanothus cuneatus*), mountain mahogany (*Cercocarpus betuloides*), Western redbud (*Cercis occidentalis*), Hollyleaf redberry (*Rhamnus ilicifolia*), and California coffeeberry (*Frangula californica*). Subdominants include Western buttercup (*Ranunculus occidentalis*), blue eyed grass (*Sisyrinchium bellum*), small tarweed (*Madia exigua*), bird's foot trefoil (*Acmispon americanus*), blue dicks (*Dichelostemma capitatum*), common tarweed (*Centromadia pungens*), annual Vulpia (*Festuca microstachys*), harvest brodiaea (*Brodiaea elegans*), purple needlegrass (*Stipa pulchra*), annual lupine (*Lupinus bicolor*), ladies' tobacco (*Gnaphalium californicum*), common fiddleneck (*Amsinckia intermedia*), hayfield tarweed (*Hemizonia congesta*), woolly leaved sunflower (*Eriophyllum lanatum*), gumweed (*Grindelia camporum*), purple navarretia (*Navarretia pubescens*), California yellow mariposa lily (*Calochortus luteus*), and babystars (*Leptosiphon bicolor*).

2.2.3 Riparian Woodland

All of the watercourses onsite are ephemeral and do not exhibit substantial riparian vegetation. Despite this, the vegetation in the bottom of Blackeye Canyon exhibit somewhat elevated proportions of hardwoods and hydrophilic herbaceous species compared with the rest of the parcel and so are treated separately here. Approximately 10% of the parcel can be described as riparian corridor. Species unique to this habitat include Oregon oak (*Quercus garryana*), Bigleaf maple (*Acer macrophyllum*), American mistletoe (*Phoradendron leucarpum*), Himalayan blackberry (*Rubus armeniacus*), coyote brush (*Baccharis pilularis*), buck brush (*Ceanothus cuneatus*), Western redbud

(*Cercis occidentalis*), Hollyleaf redberry (*Rhamnus ilicifolia*), bracken fern (*Pteridium aquilinum*), blue miner's lettuce (*Claytonia perfoliata*), common bedstraw (*Galium aparine*), willow herb (*Epilobium brachycarpum*), California rose (*Rosa californica*), and golden fairy lantern (*Calochortus amabilis*).

2.3 WILDLIFE

Numerous wildlife species were observed both directly and indirectly onsite at the time of the survey including black-tailed jackrabbit (*Lepus californicus*), mule deer (*Odocoileus hemionus*), California ground squirrel (*Otospermophilus beecheyi*), Western gray squirrel (*Sciurus griseus*), Western yellow-bellied racer (*Coluber constrictor mormon*), Western fence lizard (*Sceloporous occidentalis*), Western scrub jay (*Aphelocoma californica*), mourning dove (*Zenaida macroura*), acorn woodpecker (*Melanerpes formicivorus*), California quail (*Callipepla californica*), common crow (*Corvus brachyrhynchos*), turkey vulture (*Cathartes aura*), dark-eyed junco (*Junco hyemalis*), and an unknown bumblebee species (*Bombus* spp.).

2.4 WETLANDS & STREAMS

Streams and watercourses onsite were classified according to the three-tier method used by the California Department of Forestry & Fire Protection (CALFIRE 2017) and included as a reference in Appendix E. Jurisdictional streamcourses are mapped in Figure 3. According to these criteria, there are two unnamed ephemeral Class II watercourses onsite. The main drainage flows through Blackeye Canyon and drains a series of smaller Class III watercourses that flow through the steep chaparral hillslope in the south portion of the parcel (Figure 11). A second Class II drainage flows north in the far northeast portion of the parcel. Several drainage culverts exist onsite (Figure 3). The culvert designated "A" is a corrugated metal approximately 12" diameter pipe with rock protection (Figure 7), and the culvert designated "B" is an approximately 10" HDPE ditch relief culvert also with rock protection (Figure 8). The culverts appear to be functioning properly and do not exhibit evidence of overtopping.

The stock pond is not likely to be jurisdictional due to the lack of a defined inlet stream, and it is our recommendation that this feature is not an instream reservoir and instead collects subsurface flow locally. The stock pond is small and measures approximately 0.06 surface acres and has an outlet composed of a 24" corrugated metal pipe that is buried into the earthen fill dam and spills out into an area of intact vegetation to the west. There was no streamchannel observed associated with the outfall and it does not appear that the outfall spills every year.

Potential wetlands onsite were assessed based on the likelihood to satisfy the three-tier wetland delineation criteria used by the Army Corps of Engineers *Wetland Delineation Manual* (ACOE 1987). There are no locations onsite that appear to satisfy the ACOE criteria for wetlands, although a protocol-level wetland delineation was not performed. The vegetation surrounding the ephemeral channels and stock pond is not different than the upland grassland vegetation. There were no locations onsite that exhibited hydrophytic vegetation sufficient to qualify as jurisdictional wetland.

2.5 SOILS & LOCAL GEOMORPHOLOGY

The parent materials are typical of inner Coast Range mountains of the Lake County subtype, with highly dissected valleys cut into soft Franciscan sediments, with abundant volcanic extrusive and intrusive formations (USGS 1985). Local formations in the central portion of the site including the residence are mapped as well drained Skyhigh-Asbill complex (#208), 15% to 50% slopes, with lesser proportions of Sleeper (10%), and unnamed (10%) soils. This complex exhibits 0% of hydric soils and minimum bedrock depth of 38". The eastern portion of the site including the cultivation areas are mapped as well drained Sleeper variant-Sleeper loams (#215), 30% to 50% slopes, with lesser proportions of Millsholm (10%), and Skyhigh (5%) soils. Parent materials are sedimentary. The typical proportion of hydric soils is 0%, and the area is classified as not prime farmland. There are no serpentine or other ultramafic rock types onsite and no serpentine derived soils. There are no alkalai or vernal pool soil types onsite.

3.0 SUMMARY & CONCLUSIONS

No special-status plant species were observed during the surveys performed at the site in July 2019 or April 2021. No impacts are predicted for any of the State or Federal special-status plant species in Appendix A based on the lack of special-status species observed onsite. The nearest occurrence of special-status plants are Colusa Layia and Adobe Lily within one mile of the project parcel, however neither of these species were observed onsite. There are furthermore no vernal pools, wetlands, or serpentine outcrops that would possess a high likelihood of containing special-status plant species. There are, however, some impacts to oak savannah habitat due to removal of approximately 38 blue oak trees of various diameters, and this community does contain a high proportion of native species. To offset for these impacts, a Blue Oak Woodland Habitat Conservation and Replacement Plan was prepared in order to offset the impacts of removing these trees. As long as this Plan is implemented, and the BMPs in Appendix D are implemented to the greatest extent practicable, there should be no net impacts to special-status plant species or their habitats.

No special-status animal species were observed during the surveys performed at the site in July 2019 or April 2021. No impacts are predicted for any State or Federal special-status animal species in Appendix A as long as appropriate setbacks are observed from the pond, and watercourses as shown in Figure 3. The nearest occurrence of special-status amphibian is Foothill yellow-legged frog (FYLF) located more than 2 miles from the project parcel, and there is little suitable breeding habitat nearby, thus we have no specific avoidance measures for FYLF aside from the general cultivation BMPs described in Appendix D.

No impacts are predicted for sediment discharge to watercourses or wetlands due to the lack of actively eroding features onsite, and the presence of dense vegetation between the potential activity areas and any downstream watercourses. There are several small Class II/III drainages onsite, however these are largely inaccessible due to dense chaparral vegetation and there are no pathways for sediment to reach them from the cultivation areas. Culverts are adequately protected and are free from obstructions. Roadways are in excellent condition and have properly formed crowns and inboard ditches and no remediation is recommended at this time. Additional erosion control measures described in Appendix D should be implemented during the course of construction wherever bare ground is visible, and we encourage the use of native vegetation from locally sourced genotypes along road cuts and anywhere soil stabilization is required in the future.

4.0 REGULATORY FRAMEWORK

4.1 FEDERAL ENDANGERED SPECIES ACT

The U.S. Fish and Wildlife Service (USFWS) has jurisdiction over federally-listed threatened and endangered species under the federal Endangered Species Act (FESA). The USFWS also maintains a list of 'proposed' species and candidate species that are not legally protected under the FESA, but are often included in their review of a project as they may become listed in the near future. The FESA protects listed animal species from harm or "take" which is broadly defined as to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, collect, or attempt to engage in any such conduct. Take can also include habitat modification or degradation that results in death or injury to a listed species. An activity can be defined as a "take" even if it is unintentional or accidental. Listed plant species are provided less protection than listed wildlife species. Listed plant species are legally protected from take under FESA if they occur on federal lands. Pursuant to the requirements of the FESA, a federal agency reviewing a proposed project within its jurisdiction must determine whether any federally-listed threatened or endangered species (plants and animals) may be present in the project area and determine whether the proposed project may affect such species. Any activities that could result in the take of a federally-listed species will require formal consultation with the USFWS.

4.2 CALIFORNIA ENDANGERED SPECIES ACT

The California Endangered Species Act (CESA) protects any plant or animal listed or proposed for listing as rare (plants only), threatened, or endangered. In accordance with the CESA, the California Department of Fish and Wildlife (CDFW) has jurisdiction over state-listed species (California Fish and Wildlife Code 2070). Take of state-listed species requires a permit from CDFW, which is granted only under strictly limited circumstances. Additionally, the CDFW maintains lists of "species of special concern" that are defined as animal species that appear to be vulnerable to extinction because of declining populations, limited ranges, and/or continuing threats. Pursuant to the requirements of CESA, an agency reviewing a proposed project within its jurisdiction must determine whether any state-listed or proposed endangered or threatened species may be present in the project area and determine whether the proposed project may result in a significant impact on such species.

4.3 CALIFORNIA ENVIRONMENTAL QUALITY ACT

Section 15380(b) of the California Environmental Quality Act (CEQA) Guidelines provides that a species not listed on the federal or state list of protected species may be considered rare or endangered if the species can be shown to meet certain specified criteria. These criteria have been modeled after the definitions in FESA and CESA and the section of the California Fish and Wildlife Code dealing with rare or endangered plants or animals. This section was included in the guidelines primarily to deal with situations in which a public agency is reviewing a project that may have a significant effect on a species that has not yet been listed by either the USFWS or CDFW. Thus, CEQA provides an agency with the ability to protect a species from a project's potential impacts, if it finds that the species meets the criteria of a threatened or endangered species.

4.4 CLEAN WATER ACT

Under Section 404 of the federal Clean Water Act, the U.S. Army Corps of Engineers (Corps) is responsible for regulating the discharge of fill material into waters of the United States. Waters of the U.S. and their lateral limits are defined in 33 CFR Part 328.3 (a) and include streams that are tributary to navigable waters and their adjacent wetlands. Wetlands that are not adjacent to waters of the U.S. are termed "isolated wetlands" and, depending on the circumstances, may also be subject to Corps jurisdiction. In general, a Corps permit must be obtained before placing fill in wetlands or other waters of the U.S. The type of permit depends on the acreage involved and the purpose of the proposed fill. Minor amounts of fill are sometimes covered by Nationwide Permits, which were established to streamline the permit process for projects with "minimal" impacts on wetlands or other waters of the U.S. An Individual Permit is required for projects that result in more than a minimal impact on jurisdictional areas. The Individual Permit process requires evidence that fill of jurisdictional areas has been minimized to the extent "practicable" and provides an opportunity for public review of the project.

4.5 CALIFORNIA WATER QUALITY REGULATORY PROGRAMS

Pursuant to Section 401 of the federal Clean Water Act and the state's Porter-Cologne Act, projects that are regulated by the Corps must obtain water quality certification from the Regional Water Quality Control Board (RWQCB). This certification ensures that the project will uphold state water quality standards. The RWQCB sometimes asserts jurisdiction over wetlands that the Corps does not (e.g. certain isolated wetlands) and may impose mitigation requirements even if the Corps does not. The CDFW also exerts jurisdiction over the bed and banks of watercourses and water bodies according to provisions of Section 1601to1603 of the Fish and Wildlife Code. The Fish and Wildlife Code requires a Stream Alteration Agreement for the fill or removal of material within the bed and banks of a watercourse or water body.

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FIGURE 1: REGIONAL LOCATION

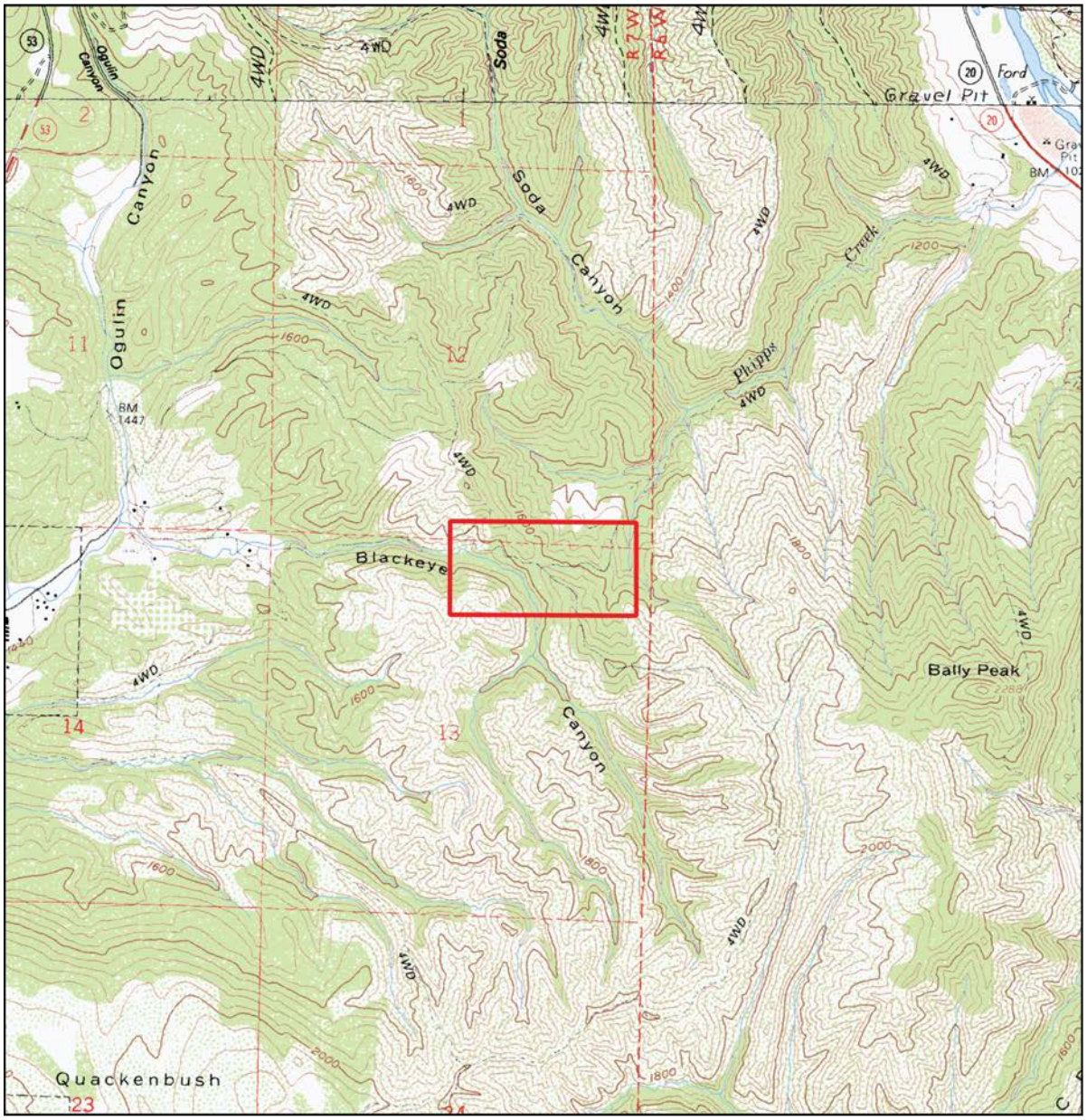

FIGURE I

Pinecrest Environmental Consulting

N

0 500 1000 m

Project Parcel

SOURCES: USGS Topographic Map

APN 010-053-03
Regional Topography

FIGURE 2: 40 FOOT CONTOURS

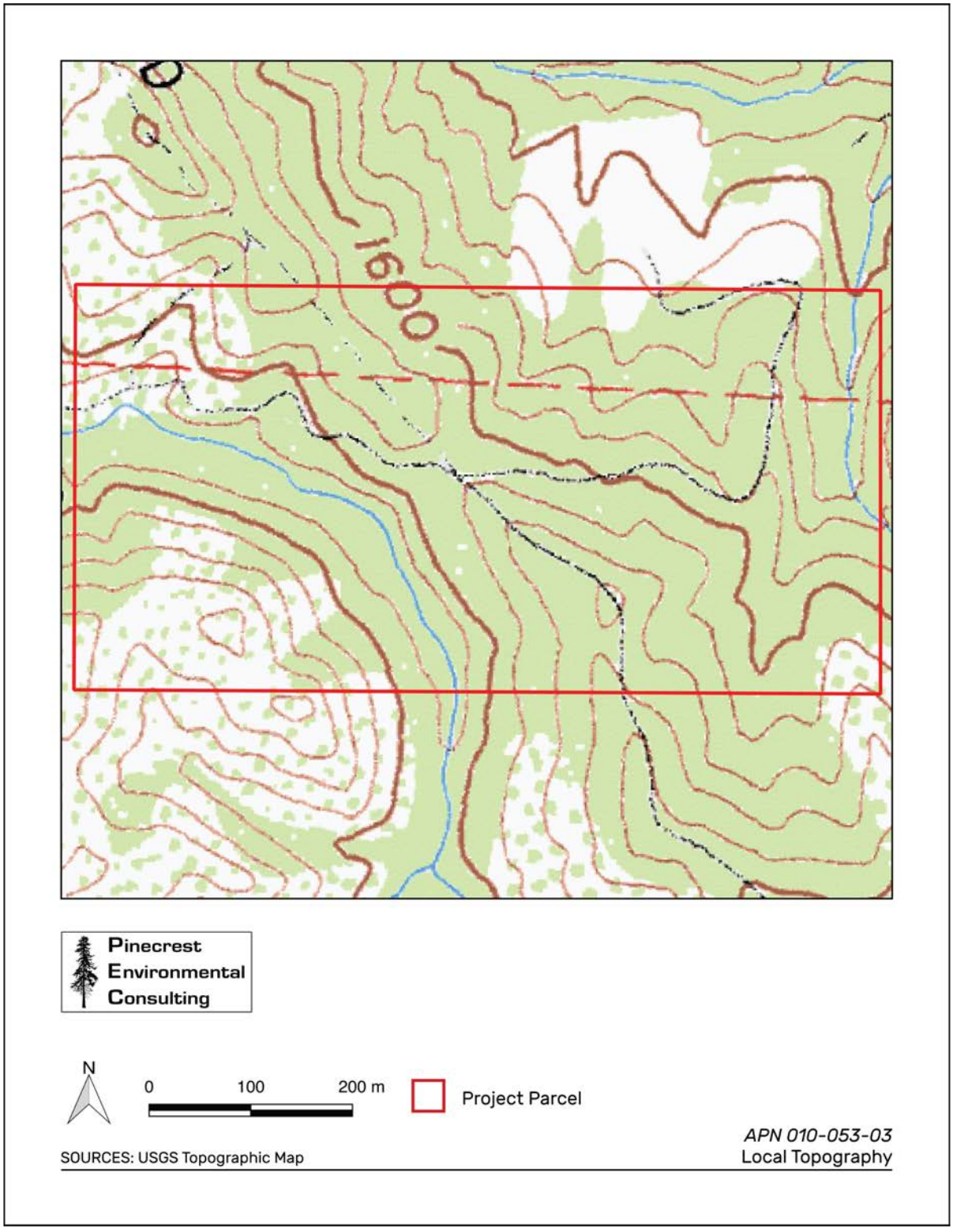

FIGURE 3: WATER FEATURES

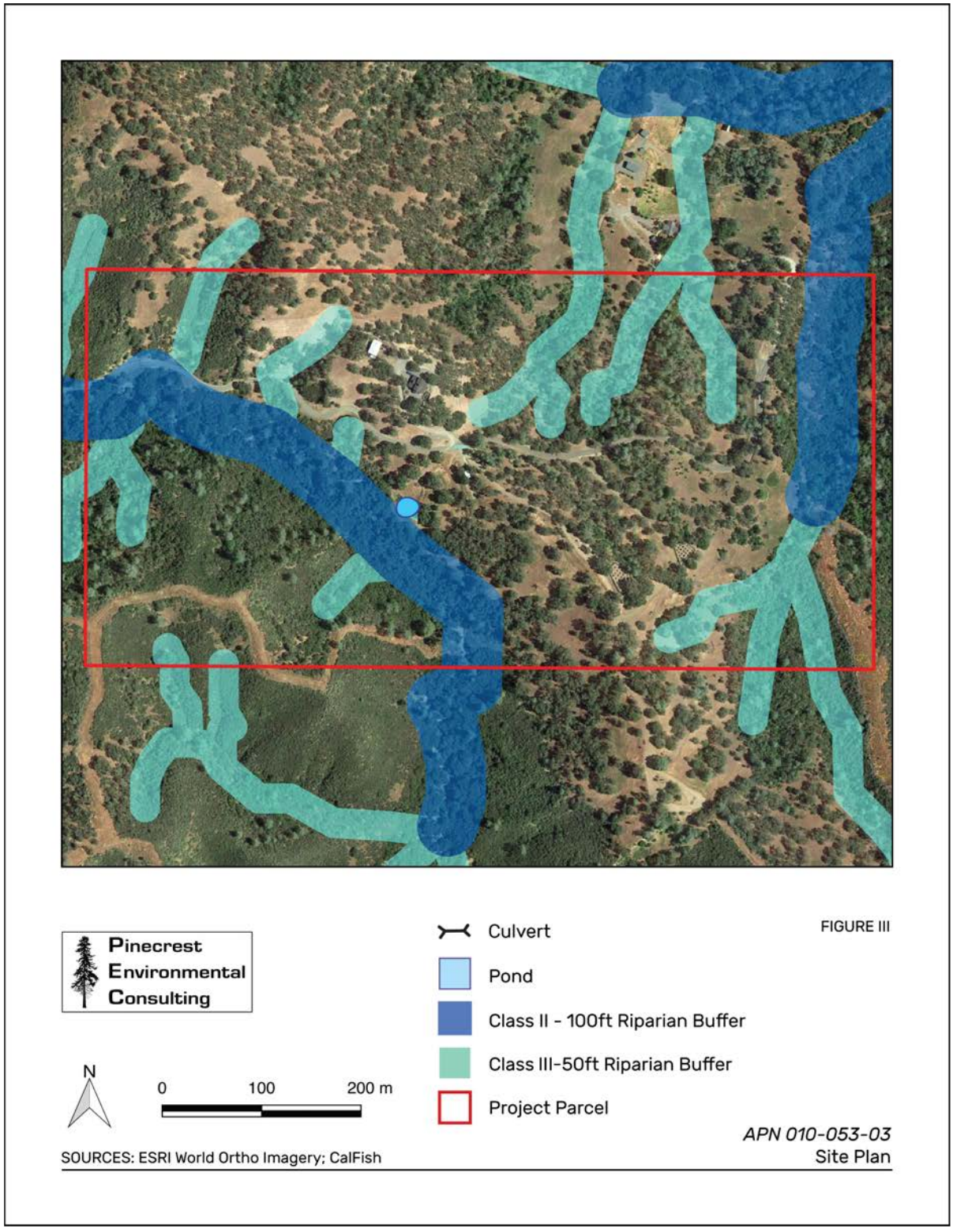

FIGURE 4: REGIONAL COMMUNITY TYPES

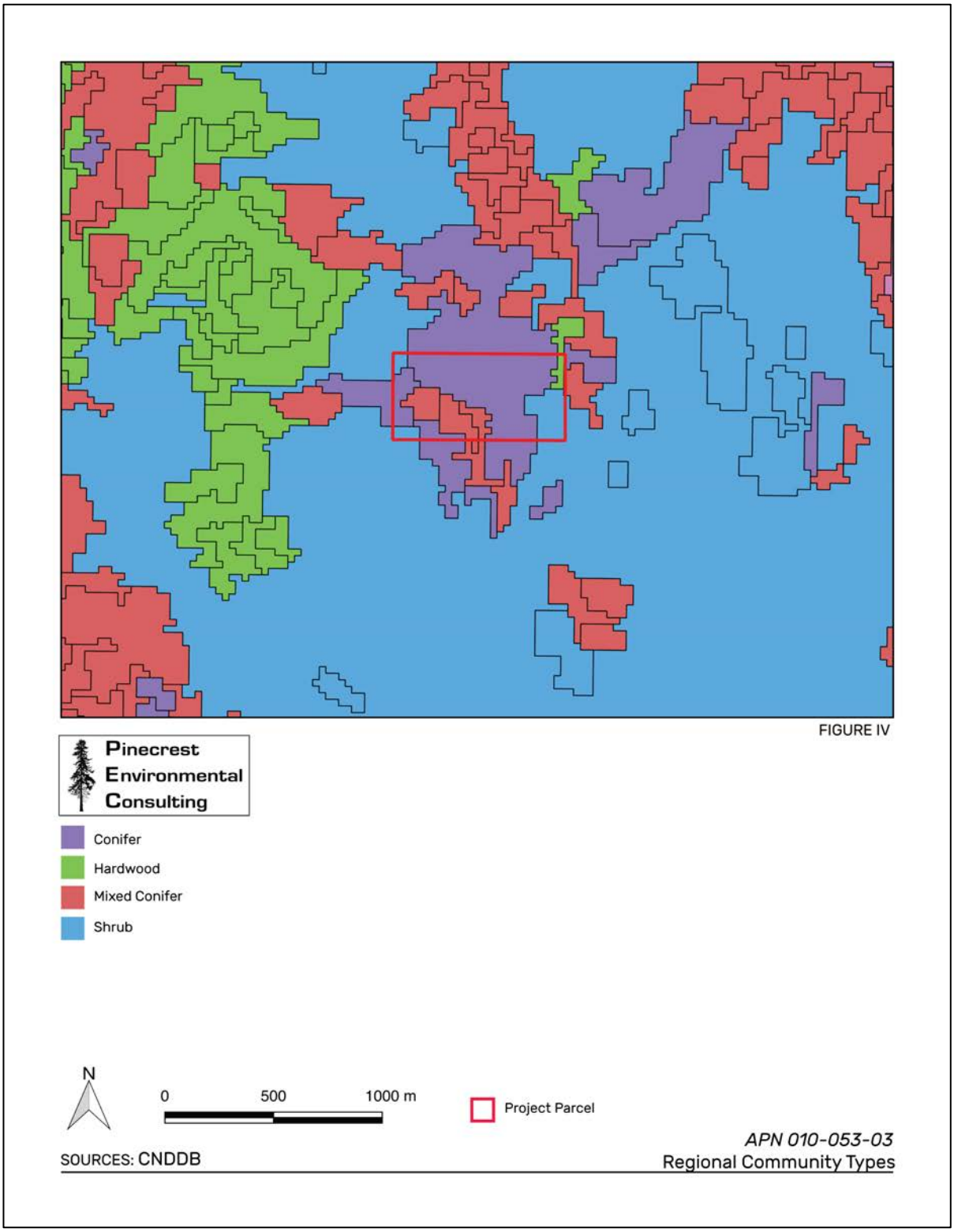

FIGURE 5: ONSITE PLANT COMMUNITIES

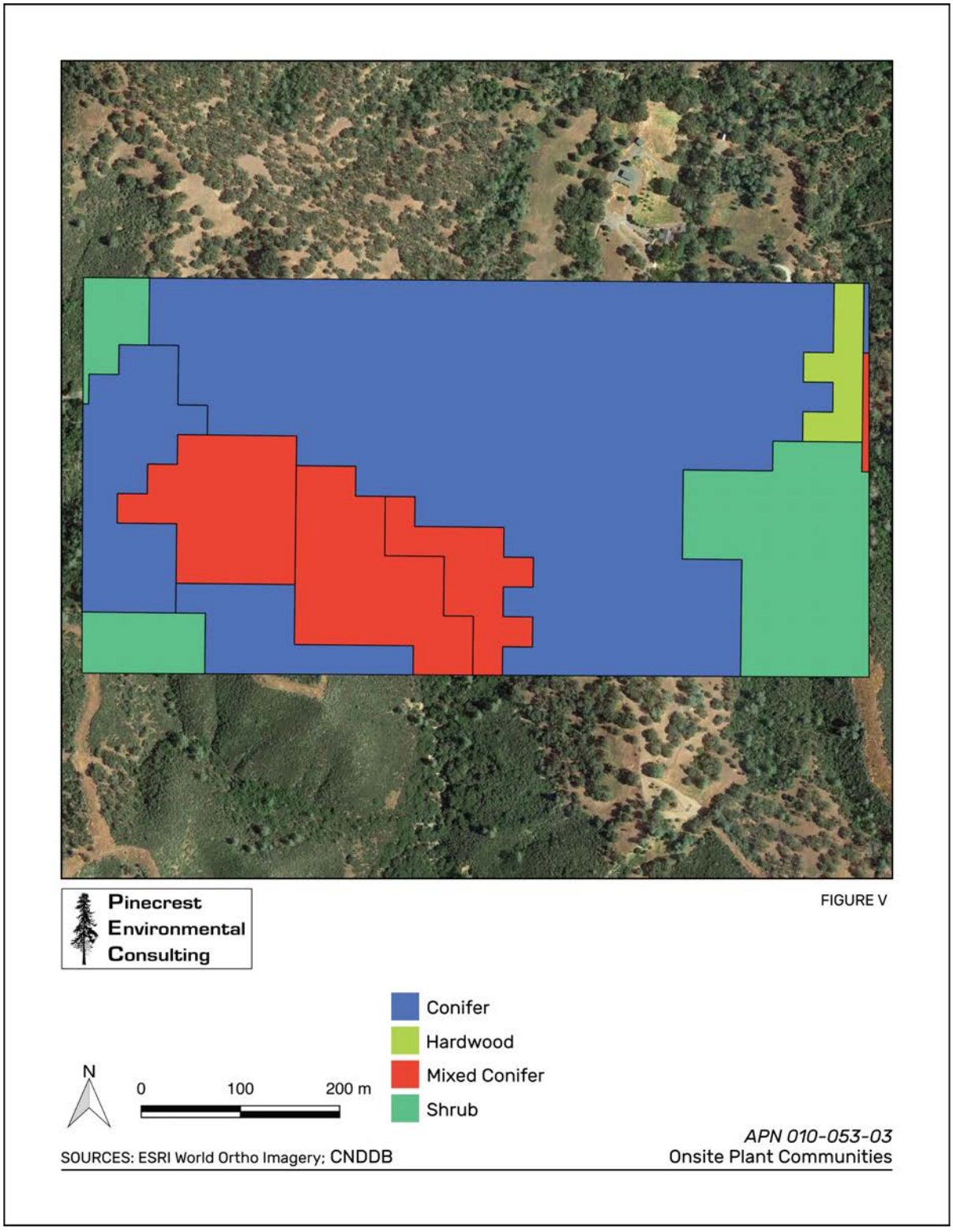

FIGURE 6: PHOTOGRAPH OF ACCESS ROAD

Pinecrest Environmental Consulting

(510) 881-3039 info@pinecrestenvironmental.org
5627 Telegraph Ave, Ste. 420 | Oakland, CA 94609
105 Morris St, Suite 184 | Sebastopol, CA 95472

APN 010-053-03

SOURCES: Pinecrest Environmental

1850 Ogulin Canyon Road, Clearlake, CA 95422

FIGURE 7: PHOTOGRAPH OF CULVERT 'A'

Pinecrest Environmental Consulting

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APN 010-053-03

SOURCES: Pinecrest Environmental

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FIGURE 8: PHOTOGRAPH OF CULVERT 'B'

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APN 010-053-03

SOURCES: Pinecrest Environmental

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FIGURE 9: PHOTOGRAPH OF CULTIVATION AREA 'A'

Pinecrest Environmental Consulting

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APN 010-053-03

SOURCES: Pinecrest Environmental

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FIGURE 10: PHOTOGRAPH OF CULTIVATION AREA 'B'

Pinecrest Environmental Consulting

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105 Morris St, Suite 184 | Sebastopol, CA 95472

APN 010-053-03

SOURCES: Pinecrest Environmental

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FIGURE 11: PHOTOGRAPH OF MIXED OAK WOODLAND

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APN 010-053-03

SOURCES: Pinecrest Environmental

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FIGURE 12: PHOTOGRAPH OF CLASS III WATERCOURSE

Pinecrest Environmental Consulting

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APN 010-053-03

SOURCES: Pinecrest Environmental

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FIGURE 13: PHOTOGRAPH OF STOCK POND

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APN 010-053-03

SOURCES: Pinecrest Environmental

1850 Ogulin Canyon Road, Clearlake, CA 95422

APPENDIX A: SPECIAL-STATUS SPECIES CONSIDERED

The following is a list of special-status plant and animal species generated based on knowledge of the species and habitats of Lake County by PEC staff, from various State and Federal databases, and from the California Natural Diversity Database (CNDDB). CNDDB occurrences within 5 miles of the project site are shown in bold.

Taxon	Status[1] Fed/State/CNPS	Habitat	Potential to Occur Within the Project Area
PLANTS			
Adobe lily (*Fritillaria pluriflora*)	**—/—/1B.2**	**Valley grasslands, foothill woodland**	**Medium: Some grassland habitat exists onsite. Nearest known occurrence is 3.8 miles east of the parcel near The Peninsula.**
Alkalai milk-vetch (*Astragalus tener* var. *tener*)	—/—/1B.2	Valley grasslands, alkali sinks	None: No suitable alkalai habitat exists onsite.
Anthony peak lupine (*Lupinus antoninus*)	—/—/1B.2	Montane forest	None: No suitable montane habitat exists onsite.
Baker's manzanita (*Arctostaphylos bakeri* ssp. *bakeri*)	—/—/1B.1	Serpentine chaparral	None: No serpentine habitat exists onsite.
Baker's meadowfoam (*Limnanthes bakeri*)	—/ST/1B.1	Vernal pools, freshwater wetland	None: No suitable wetland habitat exists onsite.
Baker's navarretia (*Navarretia leucocephala* ssp. *bakeri*)	**—/—/1B.1**	**Vernal pools**	**Very Low: No vernal pool habitat exists onsite. Nearest known occurrence is 1.3 miles southwest of the parcel along CA-53.**
Beaked tracyina (*Tracyina rostrata*)	—/—/1B.2	Valley grassland, foothill woodland	Low: Some grassland habitat exists onsite.
Bent flowered fiddleneck (*Amsinckia lunaris*)	**—/—/1B.2**	**Valley grassland, foothill woodland**	**Medium: Some suitable grassland habitat exists onsite. Nearest known occurrence is 1.1 miles west of the parcel along CA-53.**
Big scale balsamroot (*Balsamorhiza macrolepis*)	—/—/1B.2	Valley grassland, foothill woodland	Low: Some grassland habitat exists onsite.

Taxon	Status[1] Fed/State/CNPS	Habitat	Potential to Occur Within the Project Area
Bogg's Lake hedge-hyssop (*Gratiola heterosepala*)	—/—/1B.2	Vernal pools, lake margins	Low: No suitable wetland habitat exists onsite.
Bolander's horkelia (*Horkelia bolanderi*)	—/—/1B.2	Yellow pine forest, grassland	Low: No suitable forest habitat exists onsite.
Brandegee's eriastrum (*Eriastrum brandegeeae*)	**—/—/1B.1**	**Clearings in chaparral**	**Low: No suitable chaparral habitat exists onsite. Nearest known occurrence is 3.3 miles west of the parcel near Borax Lake.**
Bristly sedge (*Carex comosa*)	—/—/2B.1	Freshwater marsh, riparian	Very Low: No suitable wetland habitat exists onsite.
Brownish beaked-rush (*Rhynchospora capitellata*)	—/—/2B.2	Freshwater marsh, riparian	Very Low: No suitable wetland habitat exists onsite.
Burke's goldfields (*Lasthenia burkei*)	FE/SE/1B.1	Vernal pools	Very Low: No suitable vernal pool habitat exists onsite.
California alkalai grass (*Puccinellia simplex*)	—/—/1B.2	Alkalai sink	None: No alkalai wetland habitat exists onsite.
California beaked-rush (*Rhynchospora californica*)	—/—/1B.1	Freshwater wetlands	None: No suitable wetland habitat exists onsite.
California satintail (*Imperata brevifolia*)	—/—/2B.1	Chaparral	Very Low: No suitable chaparral habitat exists onsite.
Calistoga ceanothus (*Ceanothus divergens*)	—/—/1B.2	Chaparral	Very Low: No chaparral habitat exists onsite.
Cascade downingia (*Downingia willamettensis*)	—/—/2B.2	Vernal pool	None: No vernal pool habitat exists onsite.
Clara Hunt's milk vetch (*Astragalus claranus*)	—/—/1B.1	Chaparral, grassland	Very Low: No chaparral habitat exists onsite.
Cobb Mountain lupine (*Lupinus sericatus*)	—/—/1B.2	Chaparral, pine forest	Very Low: No chaparral habitat exists onsite.
Colusa layia (*Layia septentrionalis*)	**—/—/1B.2**	**Chaparral, valley grassland**	**Medium: Some suitable grassland habitat exists onsite. Nearest known occurrence is 0.8 miles southwest of the parcel near Quackenbush Mountain.**

Taxon	Status[1] Fed/State/CNPS	Habitat	Potential to Occur Within the Project Area
Congested-headed hayfield tarplant (*Hemizonia congesta* ssp. *congesta*)	—/—/1B.2	Grassland, coastal scrub	Low: Some grassland habitat exists onsite.
Deep scarred cryptantha (*Cryptantha excavata*)	—/—/1B.1	Foothill woodland	Low: Some grassland habitat exists onsite.
Dimorphic snapdragon (*Antirrhinum subcordatum*)	—/—/4.3	Serpentine chaparral	None: No serpentine habitat exists onsite.
Drymaria-like western flax (*Hesperolinon drymarioides*)	—/—/1B.2	Serpentine outcrops	None: No serpentine outcrop habitat exists onsite.
Dwarf downingia (*Downingia pusilla*)	—/—/2B.2	Vernal pools, freshwater wetland	None: No vernal pool habitat exists onsite.
Dwarf soaproot (*Chlorogalum pomeridianum* var. *minus*)	—/—/1B.2	Serpentine chaparral	None: No serpentine chaparral habitat exists onsite.
Eel-grass pondweed (*Potamogeton zosteriformis*)	**—/—/2B.2**	**Freshwater lakes, ponds**	**Low: Some poor quality pond habitat exists onsite. Nearest known occurrence is indistinct locality as close as 1.1 miles west of the parcel near Clear Lake.**
Few-flowered navarretia (*Navarretia leucocephala* ssp. *pauciflora*)	**FE/ST/1B.1**	**Vernal pools**	**Very Low: No suitable vernal pool habitat exists onsite. Nearest known occurrence is 4.1 miles south of the parcel near Lower Lake.**
Franciscan onion (*Allium peninsulare* var. *franciscanum*)	—/—/1B.2	Grassland	Very Low: Some grassland habitat exists onsite.
Freed's jewelflower (*Streptanthus brachiatus* ssp. *hoffmanii*)	—/—/1B.2	Serpentine outcrops	None: No serpentine outcrop habitat exists onsite.
Geysers panicum (*Panicum acuminatum* var. *thermale*)	—/—/1B.2	Chaparral, wetlands	Very Low: No chaparral seep habitat exists onsite.
Glandular western flax (*Hesperolinon adenophyllum*)	—/—/1B.2	Chaparral	Low: No suitable chaparral habitat exists onsite.
Grassleaf water plantain (*Alisma gramineum*)	—/—/2B.2	Wetland, riparian	Low: No suitable wetland habitat exists onsite.
Green jewelflower (*Streptanthus hesperidis*)	—/—/1B.2	Serpentine outcrops	None: No serpentine outcrop habitat exists onsite.

Taxon	Status[1] Fed/State/CNPS	Habitat	Potential to Occur Within the Project Area
Greene's narrow-leaved daisy (*Erigeron greenei*)	—/—/1B.2	Serpentine grassland	None: No serpentine habitat exists onsite.
Hall's harmonia (*Harmonia hallii*)	**—/—/1B.2**	**Chaparral, grassland**	**Medium: Some grassland habitat exists onsite. Nearest known occurrence is 4.1 miles south of the parcel near Lower Lake.**
Hoffman's bristly jewelflower (*Streptanthus glandulosus* spp. *hoffmanii*)	—/—/1B.3	Chaparral, foothill woodland	Very Low: No suitable chaparral habitat exists onsite.
Holly-leaved ceanothus (*Ceanothus purpureus*)	—/—/1B.2	Chaparral	Very Low: No suitable chaparral habitat exists onsite.
Hospital Canyon larkspur (*Delphinium californicum* ssp. *interius*)	—/—/1B.2	Foothill woodland	Low: Some woodland habitat exists onsite.
Indian Valley brodiaea (*Brodiaea rosea*)	—/SE/3.1	Serpentine chaparral	Very Low: No serpentine habitat exists onsite.
Jepson's coyote thistle (*Eryngium jepsonii*)	—/—/4.2	Wetlands and vernal pools	None: No vernal pool habitat exists onsite.
Jepson's leptosiphon (*Leptosiphon jepsonii*)	—/—/1B.2	Chaparral, serpentine grassland	None: No serpentine chaparral habitat exists onsite.
Jepson's milk-vetch (*Astragalus rattanii* var. *jepsonianus*)	**—/—/1B.2**	**Chaparral, serpentine grassland**	**Low: No suitable chaparral habitat exists onsite. Nearest known occurrence is 2.7 miles east of the parcel near Perkins Creek Ridge.**
Kenwood marsh checkerbloom (*Sidalcea oregana* ssp. *valida*)	FE/SE/1B.1	Freshwater wetlands	None: No suitable wetland habitat exists onsite.
Konocti manzanita (*Arctostaphylos manzanita* ssp. *elegans*)	**—/—/1B.3**	**Chaparral, foothill woodland**	**Low: No suitable chaparral habitat exists onsite. Nearest known occurrence is 4.2 miles west of the parcel near Sulphur Bank Ridge.**
Kruckeberg's jewelflower (*Streptanthus morrisonii* ssp. *kruckebergii*)	—/—/1B.2	Serpentine outcrops	None: No serpentine outcrop habitat exists onsite.
Lake County stonecrop (*Sedella leiocarpa*)	—/—/1B.1	Rock outcrops	Very Low: No rock outcrop habitat exists onsite.

Taxon	Status[1] Fed/State/CNPS	Habitat	Potential to Occur Within the Project Area
Lake County western flax (*Hesperolinon didymocarpum*)	—/SE/1B.2	Serpentine grasslands	None: No suitable serpentine habitat exists onsite.
Legenere (*Legenere limosa*)	—/—/1B.1	Vernal pool, freshwater wetland	None: No suitable vernal pool habitat exists onsite.
Loch Lomond button-celery (*Eryngium constancei*)	FE/SE/1B.1	Vernal pool, freshwater wetland	None: No suitable vernal pool habitat exists onsite.
Many-flowered navarretia (*Navarretia leucocephala* spp. *plieantha*)	FE/SE/1B.2	Vernal pools	Very Low: No vernal pool habitat exists onsite.
Marsh checkerbloom (*Sidalcea oregana* ssp. *hydrophila*)	—/—/1B.2	Freshwater wetland, riparian	Low: No suitable riparian habitat exists onsite.
Mayacamas popcornflower (*Plagiobothrys lithocaryus*)	—/—/A1	Foothill woodland, valley grassland	Very Low: Presumed extinct. Last observed in 1884 near present-day Lakeport.
Milo Baker's lupine (*Lupinus milo-bakeri*)	—/—/1B.1	Foothill woodland	None: No suitable woodland habitat exists onsite.
Morrison's jewelflower (*Streptanthus morrisonii* ssp. *morrisonii*)	—/—/1B.2	Serpentine outcrops	None: No serpentine outcrop habitat exists onsite.
Mt. St. Helena morning-glory (*Calystegia collina* ssp. *oxyphylla*)	—/—/4.2	Serpentine chaparral	None: No serpentine habitat exists onsite.
Napa bluecurls (*Trichostema ruygtii*)	—/—/1B.2	Chaparral, grassland	Low: Some grassland habitat exists onsite.
Napa checkerbloom (*Sidalcea hickmanii* ssp. *napensis*)	—/—/1B.1	Chaparral	Low: Some woodland habitat exists onsite.
Napa false indigo (*Amorpha californica* var. *napensis*)	—/—/1B.2	Forest, woodland	Very Low: Some woodland habitat exists onsite.
Narrow-anthered brodiaea (*Brodiaea leptandra*)	—/—/1B.2	Foothill woodland, grassland	Very Low: Some grassland habitat exists onsite.
North Coast semaphore grass (*Pleuropogon hooverianus*)	—/—/1B.1	Freshwater wetland, vernal pools	None: No suitable vernal pool habitat exists onsite.
Northern California black walnut (*Juglans hindsii*)	—/—/1B.1	Riparian	Low: No suitable riparian habitat exists onsite.

Taxon	Status[1] Fed/State/CNPS	Habitat	Potential to Occur Within the Project Area
Northern meadow sedge (*Carex praticola*)	—/—/2B.2	Freshwater wetlands	None: No suitable wetland habitat exists onsite.
Nuttall's ribbon-leaved pondweed (*Potamogeton epihydrus*)	—/—/2B.2	Ponds and lakes	Very Low: Some poor quality pond habitat exists onsite.
Oregon polemonium (*Polemonium carneum*)	—/—/2B.2	Coastal scrub, yellow pine forest	None: No suitable habitat exists onsite.
Oval-leaved viburnum (*Viburnum ellipticum*)	—/—/2B.3	Chaparral	Very Low: No suitable chaparral habitat exists onsite.
Pappose tarplant (*Centromadia parryi* ssp. *parryi*)	**—/—/1B.2**	**Grassland, wetland**	**Medium: Some grassland habitat exists onsite. Nearest known occurrence is 4.8 miles east of the parcel near Grizzly Creek.**
Pennell's bird's beak (*Cordylanthus tenuis* ssp. *capillaris*)	FE/SR/1B.2	Chaparral	Very Low: No suitable chaparral habitat exists onsite.
Peruvian dodder (*Cuscuta obtusiflora* var. *glandulosa*)	—/—/1B.2	Grassland, chaparral	Very Low: Parasitic plant, typical host plants not known from the property.
Pink creamsacs (*Castilleja rubicundula* var. *rubicundula*)	—/—/1B.2	Grasslands	Low: Some grassland habitat exists onsite.
Porter's navarretia (*Navarretia paradoxinota*)	—/—/1B.3	Grasslands, wetlands	Low: Some grassland habitat exists onsite.
Raiche's manzanita (*Arctostaphylos stanfordiana* ssp. *raichei*)	—/—/1B.1	Serpentine chaparral	None: No serpentine chaparral habitat exists onsite.
Rincon Ridge ceanothus (*Ceanothus confusus*)	—/—/1B.1	Chaparral, foothill grassland	Very Low: No suitable chaparral habitat exists onsite.
Rincon Ridge manzanita (*Arctostaphylos stanfordiana* ssp. *decumbens*)	—/—/1B.1	Chaparral	Very Low: No suitable chaparral habitat exists onsite.
Round-leaved filaree (*California macrophylla*)	—/—/1B.2	Foothill grassland	Low: Some grassland habitat exists onsite.
Saline clover (*Trifolium hydrophilum*)	—/—/1B.2	Wetland, riparian	None: No suitable wetland habitat exists onsite.

Taxon	Status[1] Fed/State/CNPS	Habitat	Potential to Occur Within the Project Area
San Joaquin spearscale (*Extriplex joaquinana*)	—/—/1B.2	Shadscale scrub, valley grassland	None: No alkalai scrub habitat exists.
Santa Rosa horkelia (*Horkelia tenuiloba*)	—/—/1B.2	Chaparral	Low: No suitable chaparral habitat exists onsite.
Sebastopol meadowfoam (*Limnanthes vinculans*)	FE/SE/1B.1	Freshwater wetland, vernal pools	None: No suitable vernal pool habitat exists onsite.
Serpentine cryptantha (*Cryptantha dissita*)	—/—/1B.2	Serpentine chaparral	Very Low: No serpentine habitat exists onsite.
Serpentine daisy (*Erigeron serpentinus*)	—/—/1B.3	Serpentine chaparral	None: No serpentine chaparral habitat exists onsite.
Sharsmith's western flax (*Hesperolinon sharsmithiae*)	—/—/1B.2	Chaparral	Very Low: No suitable chaparral habitat exists onsite.
Shining navarretia (*Navarretia nigelliformis* ssp. *radians*)	—/—/1B.2	Vernal pools	Very Low: No suitable vernal pool habitat exists onsite.
Slender Orcutt grass (*Orcuttia tenuis*)	FT/SE/1B.1	Grassland, freshwater wetlands	Very Low: No suitable wet meadow habitat exists onsite.
Small-flowered calycadenia (*Calycadenia micrantha*)	—/—/1B.2	Foothill grassland	Medium: Some suitable grassland habitat onsite.
Small groundcone (*Kopsiopsis hookeri*)	—/—/2B.3	Redwood forest	None: No suitable forest habitat exists onsite.
Snow Mountain buckwheat (*Eriogonum nervulosum*)	—/—/1B.2	Serpentine outcrops	None: No serpentine outcrop habitat exists onsite.
Socrates Mine jewelflower (*Streptanthus brachiatus* ssp. *brachiatus*)	—/—/1B.2	Serpentine outcrops	None: No serpentine habitat exists onsite.
Sonoma beardtongue (*Penstemon newberryi* var. *sonomensis*)	—/—/1B.3	Chaparral	Very Low: No suitable chaparral habitat exists onsite.
Sonoma ceanothus (*Ceanothus sonomensis*)	—/—/1B.2	Chaparral	Very Low: No suitable chaparral habitat exists onsite.
Thin-lobed horkelia (*Horkelia tenuiloba*)	—/—/1B.2	Chaparral	Very Low: No suitable chaparral habitat exists onsite.

Taxon	Status[1] Fed/State/CNPS	Habitat	Potential to Occur Within the Project Area
Three-fingered morning glory (*Calystegia collina* ssp. *tridactylosa*)	—/—/1B.2	Serpentine grassland	Very Low: No serpentine habitat exists onsite.
Tracy's eriastrum (*Eriastrum tracyi*)	—/SR/3.2	Chaparral	Low: No suitable chaparral habitat exists onsite.
Two-carpellate Western flax (*Hesperolinon bicarpellatum*)	—/—/1B.2	Chaparral	Low: No suitable chaparral habitat exists onsite.
Vine Hill ceanothus (*Ceanothus foliosus* var. *vineatus*)	—/—/1B.1	Chaparral	Very Low: No suitable chaparral habitat exists onsite.
Vine Hill manzanita (*Arctostaphylos densiflora*)	—/SE/1B.1	Chaparral	Very Low: Some chaparral habitat exists onsite.
Watershield (*Brasenia schreberi*)	**—/—/2B.3**	**Pond, wetland**	**Low: Some poor quality pond habitat exists onsite. Nearest known occurrence is 4.2 miles west of the parcel near Sulphur Bank Ridge.**
White beaked-rush (*Rhynchospora alba*)	—/—/2B.2	Wetlands, freshwater marsh	None: No suitable wetland habitat exists onsite.
White flowered rein orchid (*Piperia candida*)	—/—/1B.2	Yellow pine forest	None: No suitable forest habitat exists onsite.
Wolly meadowfoam (*Limnanthes floccosa* ssp. *floccosa*)	—/—/4.2	Vernal pools	None: No vernal pool habitat exists onsite.
MOSSES, LICHENS & LIVERWORTS			
Angel's hair lichen (*Ramalina thrausta*)	—/—/2B.1	Old growth conifer and hardwood forests	None: No suitable forest habitat exists onsite.
Coastal triquetrella (*Triquetrella californica*)	—/—/1B.2	Forest, woodland	Very Low: Some woodland habitat exists onsite.
Elongate copper moss (*Mielichhoferia elongata*)	—/—/4.3	Forest, woodland	Very Low: Some woodland habitat exists onsite.
Methuselah's beard lichen (*Dolichousnea longissima*)	—/—/4.2	Old growth conifer and hardwood forests	None: No suitable forest habitat exists onsite.

Taxon	Status[1] Fed/State/CNPS	Habitat	Potential to Occur Within the Project Area
Slender silver moss (*Anomobryum julaceum*)	—/—/4.2	Rocky substrates in forests, riparian	Very Low: No suitable riparian habitat exists onsite.
Torren's grimmia (*Grimmia torenii*)	—/—/1B.3	Forest, woodland	Very Low: Some woodland habitat exists onsite.
FISH			
Chinook Salmon Coastal California DPS (*Oncorhynchus kisutch*)	FT/SE/—	Freshwater streams, open ocean and estuaries	None: No suitable streams exist onsite.
Clear Lake Drainage Resident Rainbow trout (*Oncorhynchus mykiss*)	FE/SE/—	Freshwater streams, open ocean and estuaries	None: No suitable habitat exists in the project area.
Clear Lake hitch (*Lavinia exilicauda chi*)	**FE/SE/—**	**Freshwater lakes and streams**	**None: No suitable habitat exists in the project area. Nearest known occurrence is 3.6 miles west of the parcel in Clear Lake.**
Coho Salmon Central California Coast ESU (*Oncorhynchus kisutch*)	FE/SE/—	Freshwater streams, open ocean and estuaries	None: No suitable streams exist onsite.
Sacramento perch (*Archoplites interruptus*)	**—/SSC/—**	**Low gradient sloughs and lakes**	**None: No suitable habitat exists in the project area. Nearest known occurrence is 3.6 miles west of the parcel in Clear Lake.**
Sacramento splittail (*Pogonichthys macrolepidotus*)	—/SSC/—	Low gradient freshwater streams	None: No suitable streams exist onsite.
Steelhead Central California Coast DPS (*Oncorhynchus mykiss irideus*)	FT/—/—	Freshwater streams, open ocean and estuaries	None: No suitable streams exist onsite.
Steelhead Northern California DPS (*Oncorhynchus mykiss irideus*)	FT/—/—	Freshwater streams, open ocean and estuaries	None: No suitable streams exist onsite.
AMPHIBIANS & REPTILES			
California giant salamander (*Dicamptodon ensatus*)	—/SSC/—	Wetlands and riparian areas	Very Low: No suitable wetland habitat exists onsite. Species is not known from the region.

Taxon	Status[1] Fed/State/CNPS	Habitat	Potential to Occur Within the Project Area
California red-legged frog (*Rana draytonii*)	FT/SSC/—	Vernal pools, seasonal pools, stock ponds, and associated grasslands	Very Low: Some poor quality habitat exists onsite for breeding. Some estivation habitat exists onsite.
California tiger salamander (*Ambystoma californiense*)	FT/SSC/—	Ponds, streams, drainages, and associated uplands	Very Low: Some poor quality habitat exists onsite for breeding. Some estivation habitat exists onsite.
Foothill yellow-legged frog (*Rana boylii*)	**—/SSC/—**	**Wetlands, riparian, streams and ponds**	**Low: Some poor quality breeding and estivation habitat exists onsite. Nearest known occurrence is 2.3 miles east of the parcel near Perkins Creek.**
Red bellied newt (*Taricha rivularis*)	**—/SSC/—**	**Woodland streams, riparian corridors**	**Low: No suitable stream habitat exists onsite. Nearest known occurrence is 3.0 miles south of the parcel near Dry Creek.**
Western pond turtle (*Emys marmorata*)	—/SSC/—	Slow-moving creeks, streams, ponds, rivers, ditches.	None: No suitable pond habitat exists onsite.
INVERTEBRATES			
Behren's silverspot butterfly (*Speyeria zerene behrensii*)	FE/SSC/—	Coastal prairie	None: Requires blue violet to reproduce; none onsite.
Borax Lake cuckoo wasp (*Hedychridium milleri*)	**—/SSC/—**	**Lakes and streams**	**None: No suitable lake or stream habitat exists onsite. Nearest known occurrence is 4.1 miles west of the parcel in Borax Lake.**
Brownish dubiraphian riffle beetle (*Dubiraphia brunnescens*)	**—/SSC/—**	**Freshwater lakes and streams**	**None: No suitable stream habitat exists onsite. Nearest known occurrence is 3.6 miles west of the parcel in Clear Lake.**
California brackishwater snail (*Tryonia imitator*)	—/SSC/—	Brackish wetlands	None: No suitable wetland habitat exists onsite.
California floater (*Anodonta californiensis*)	—/SSC/—	Freshwater ponds, streams	None: No suitable stream habitat exists onsite.
California freshwater shrimp (*Syncaris pacifica*)	FE/SE/—	Freshwater ponds	None: No suitable pond habitat exists onsite.

Taxon	Status[1] Fed/State/CNPS	Habitat	Potential to Occur Within the Project Area
California linderiella (*Linderiella occidentalis*)	—/SSC/—	Vernal pools	None: No vernal pool habitat exists onsite.
Clear Lake pyrg (*Pyrgulopsis ventricosa*)	—/SSC/—	Freshwater streams	None: No suitable stream habitat exists onsite.
Crotch bumble bee (*Bombus crotchii*)	—/SSC/—	Grassland, chaparral	Medium: Some grassland habitat exists onsite.
Leech's skyline diving beetle (*Hydroporus leechi*)	—/SSC/—	Freshwater ponds	Very Low: No suitable natural pond habitat exists onsite.
Myrtle silverspot butterfly (*Speyeria zerene myrtleae*)	FE/SSC/—	Coastal prairie, chaparral	None: Requires western dog violet for reproduction; none onsite.
Monarch butterfly California overwintering Population #1 (*Danaus plexippus*)	—/SSC/—	Large trees required for roosting.	Low: Some suitable trees for roosting onsite.
Obscure bumble bee (*Bombus caliginosus*)	—/SSC/—	Grassland, foothill woodland, chaparral	Medium: Some grassland habitat exists onsite.
Opler's longhorn moth (*Adela oplerella*)	—/SSC/—	Usually associated with *Platystemon* (creamcups)	None: No suitable host plants onsite.
Oregon floater (*Anodonta oregonensis*)	—/SSC/—	Large freshwater streams	None: No suitable stream habitat exists onsite.
Ricksecker's water scavenger beetle (*Hydrochara ricksecker*i)	—/SSC/—	Freshwater lakes and ponds	Very Low: No suitable natural pond habitat exists onsite.
Sonoma zerene fritillary (*Speyeria zerene sonomensis*)	—/SSC/—	Grasslands and meadows with *Viola* plants	None: Requires *Viola* for reproduction; none onsite.
Western bumblebee (*Bombus occidentalis*)	—/SSC/—	Grassland	Medium: Some grassland habitat exists onsite.
Wilbur Springs minute moss beetle (*Ochthebius recticulus*)	—/SSC/—	Shorelines of hot springs	Very Low: No suitable hot spring habitat exists onsite.
Wilbur Springs shorebug (*Saldula usingeri*)	—/SSC/—	Ponds	Very Low: No suitable natural pond habitat exists onsite.
Wilbur Springs shore fly (*Paracoenia calida*)	—/SSC/—	Hot sulphur springs	None: No suitable hot spring habitat exists onsite.

Taxon	Status[1] Fed/State/CNPS	Habitat	Potential to Occur Within the Project Area
Vernal pool andrenid bee (*Andrena blennospermatis*)	—/SSC/—	Upland areas near vernal pools	Very Low: No suitable vernal pool habitat exists onsite although some grassland habitat exists.
BIRDS			
American perigrine falcon (*Falco peregrinus anatum*)	—/SSC/—	Forages in open grasslands, nests in trees	Medium: Some suitable nesting and foraging habitat exists.
Bank swallow (*Riparia riparia*)	FE/SE/—	Typically found near lakes and streams	None: No suitable stream habitat exists onsite.
Bald eagle (*Haliaeetus leucocephalus*)	—/SSC/—	Forages over open lakes and streams	Very Low: No suitable foraging or nesting habitat exists onsite.
Bell's sage sparrow (*Artemisiospiza belli belli*)	—/SSC/—	Cliff faces near water	Medium: Some suitable woodland habitat exists onsite.
Black swift (*Cypseloides niger*)	—/SSC/—	Cliff faces near water	None: No suitable stream habitat exists onsite.
Burrowing owl (*Athene cunicularia*)	—/SSC/—	Grasslands with ground squirrel burrows	Low: Some suitable grassland habitat exists onsite.
California black rail (*Laterallus jamaicensis coturniculus*)	FE/SE/—	Coastal salt marshes and mudflats	None: No suitable salt marsh habitat exists onsite.
California horned lark (*Eremophila alpestris actia*)	—/SSC/—	Herbaceous vegetation, chaparral	Low: Some suitable foraging and nesting habitat exists onsite.
Cooper's hawk (*Accipiter cooperii*)	—/WL/—	Forages over open grassland.	Low: Some suitable foraging and nesting habitat exists onsite.
Ferruginous hawk (*Buteo regalis*)	—/SSC/—	Forages over open grassland. Nests in old-growth trees.	Low: Some suitable foraging and nesting habitat exists onsite.
Golden eagle (*Aquila chrysaetos*)	**—/SSC/—**	**Forages over open grassland. Nests in old-growth trees.**	**Medium: Some suitable foraging habitat. Some suitable nesting habitat. Nearest known occurrence is 4.1 miles south of the parcel near Cache Creek.**
Grasshopper sparrow (*Ammodramus savannarum*)	—/SSC/—	Forages over open grassland.	Low: Some suitable foraging and nesting habitat exists onsite.

Taxon	Status[1] Fed/State/CNPS	Habitat	Potential to Occur Within the Project Area
Great blue heron (*Ardea herodias*)	—/SSC/—	Nests in trees, forages in wetlands and grasslands	Very Low: No suitable foraging or nesting habitat exists onsite.
Great egret (*Ardea alba*)	—/SSC/—	Nests in trees, forages in wetlands and grasslands	Very Low: No suitable foraging or nesting habitat exists onsite.
Marbled murrelet (*Brachyramphus marmoratus*)	FT/SE/—	Old growth coniferous forest	None: No suitable forest habitat exists onsite.
Northern goshawk (*Accipiter gentilis*)	—/SSC/—	Coniferous forest	None: No suitable forest habitat exists onsite.
Osprey (*Pandion haliaetus*)	**—/WL/—**	**Areas with fish**	**Very Low: No suitable foraging habitat onsite. Some poor quality nesting habitat onsite. Nearest known occurrence is 4.1 miles northwest of the parcel near Clearlake Oaks.**
Prairie falcon (*Falco mexicanus*)	**—/SSC/—**	**Forages over grasslands**	**Medium: Some suitable nesting and foraging habitat exists onsite. Nearest known occurrence is an indistinct locality as close as 4.5 miles east of the parcel in the USGS Wilbur Springs 7.5 minute quad.**
Purple martin (*Progne subis*)	FE/SE/—	Insectivorous, nests in cavities	Medium: Some suitable nesting habitat onsite. Some suitable foraging habitat onsite.
Ridgway's rail (*Rallus obsoletus obsoletus*)	FE/SE/—	Mudflats and tidal sloughs	None: No suitable tidal habitat exists onsite.
Salt marsh common yellowthroat (*Geothlypis trichas sinuosa*)	—/SSC/—	Forages in grasslands and nests in dense freshwater marshes	Very Low: No suitable nesting habitat exists. Some suitable foraging habitat.
Sharp-shinned hawk (*Accipiter striatus*)	—/SSC/—	Forest and woodland	Very Low: Some suitable nesting and foraging habitat exists onsite.
Tricolored blackbird (*Agelaius tricolor*)	—/SSC/—	Forages in grasslands and nests in freshwater marshes	Low: Some suitable nesting and foraging habitat exists onsite.
Western yellow-billed cuckoo (*Coccyzus americanus occidentalis*)	**—/SE/—**	**Woodland, riparian**	**Medium: Some suitable nesting and foraging habitat exists onsite. Nearest known occurrence is 2.9 miles southwest of the parcel near City of Clearlake.**

Taxon	Status[1] Fed/State/CNPS	Habitat	Potential to Occur Within the Project Area
White-tailed kite (*Elanus leucurus*)	—/CFP/—	Prefers to nest in marshes next to deciduous forests.	Low: Some suitable nesting and foraging habitat exists onsite.
Yellow breasted chat (*Icteria virens*)	—/SSC/—	Dense shrubby growth, grasslands	Low: Some suitable grassland habitat exists onsite.
Yellow rail (*Coturnicops noveboracensis*)	—/SSC/—	Breeds in marshes, forages in wet meadows	None: No suitable marsh habitat exists onsite.
Yellow warbler (*Coturnicops noveboracensis*)	—/SSC/—	Riparian, shrubland, farmland	Low: Some suitable scrub habitat exists onsite.
MAMMALS			
American badger (*Taxidea taxus*)	—/SSC/—	Open grassland habitats with plenty of prey	Low: Some suitable den habitat exists onsite.
Big free-tailed bat (*Nyctinomops macrotis*)	—/SSC/—	Forages over open areas, roots in trees or caves	None: Some suitable foraging habitat. Few suitable roosts in project area.
Fisher (*Pekania pennanti*)	—/SSC/—	Forages and breeds primarily in forests	Very Low: No suitable forest habitat exists onsite.
Fringed myotis (*Myotis thysanodes*)	—/SSC/—	Roosts in caves or buildings and forages in open habitats	Very Low: Some suitable foraging habitat. Few suitable roosts in project area.
Hoary bat (*Lasiurus cinereus*)	—/SSC/—	Forages over open areas, roots in trees or caves at high altitude	Very Low: Foraging limited to high altitudes. Few suitable roosts in the project area.
Long-eared myotis (*Myotis evotis*)	—/SSC/—	Roosts in caves or buildings and forages in open habitats	Low: Some suitable foraging habitat. Few suitable roosts in project area.
Long-legged myotis (*Myotis volans*)	—/SSC/—	Roosts in caves or buildings and forages in open habitats	Very Low: Some foraging habitat. Few suitable roosts in project area.
North American porcupine (*Erethizon dorsatum*)	—/SSC/—	Require rocky areas or trees for dens, abundant open space for foraging	Very Low: Some suitable foraging and den habitat exists onsite.

Taxon	Status[1] Fed/State/CNPS	Habitat	Potential to Occur Within the Project Area
Pallid bat (*Antrozous pallidus*)	**—/SSC/—**	**Common in open dry habitats with rocky areas for roosting**	**Medium: Some foraging habitat exists. Few suitable roosts in the project area. Nearest known occurrence is 2.3 miles east of the parcel near Perkins Creek.**
Silver haired bat (*Lasionycteris noctivagans*)	—/SSC/—	Nocturnal, migratory, solitary, roosts in tree cavities	Medium: Some suitable trees exist for roosting. Some foraging habitat exists.
Sonoma tree vole (*Arborimus pomo*)	—/SSC/—	Old growth Douglas fir canopies	None: No suitable forest habitat exists onsite.
Townsend's big-eared bat (*Corynorhinus townsendii*)	**—/SSC/—**	**Hibernate in mines or caves, roost in man made structures and caves**	**Medium: Few man-made structures exist suitable for roosting. Some habitat for foraging. Nearest known occurrence is 4.1 miles northwest of the parcel near Clearlake Oaks.**
Western red bat (*Lasiurus blossevillii*)	—/SSC/—	Forages over open areas, roots in trees or caves	Very Low: Little suitable roosting habitat. Some suitable foraging habitat.
Yuma myotis (*Myotis yumanensis*)	—/SSC/—	Forages over open areas, roots in trees or caves	Very Low: No suitable nesting habitat exists onsite. Some suitable foraging habitat exists onsite.
HABITATS			
Coastal & Valley Freshwater Marsh (CVFM)	—	—	None: No marsh habitat exists onsite.
Northern Hardpan Vernal Pool (NHVP)	—	—	None: No hardpan vernal pool habitat exists onsite.
Northern Vernal Pool (NVP)	—	—	None: No vernal pool habitat exists onsite.
Sycamore Alluvial Woodland (SAW)	—	—	None: No woodland habitat exists onsite.
Valley Needlegrass Grassland (VNG)	—	—	Low: Some grassland habitat exists onsite.
Valley Oak Woodland (VOW)	—	—	None: No valley oaks exist onsite.

Taxon	Status[1] Fed/State/CNPS	Habitat	Potential to Occur Within the Project Area
Valley Sink Scrub (VSS)	—	—	None: No sink habitat exists onsite.

[1] Status:

Federal
FE = Federally Endangered Species
FT = Federally Threatened Species

State
SE = State Endangered Species
ST = State Threatened Species
SSC = California Species of Special Concern
CFP = California Fully Protected Species

CNPS (applies to plants only)
List 1B = plants considered rare, threatened, or endangered in California and elsewhere
List 2B = plants rare, threatened or endangered in California, but more common elsewhere
List 3 = plant is likely rare but more information is required
List 4 = plants of limited distribution

[2] USFWS

APPENDIX B: PLANT SPECIES ENCOUNTERED

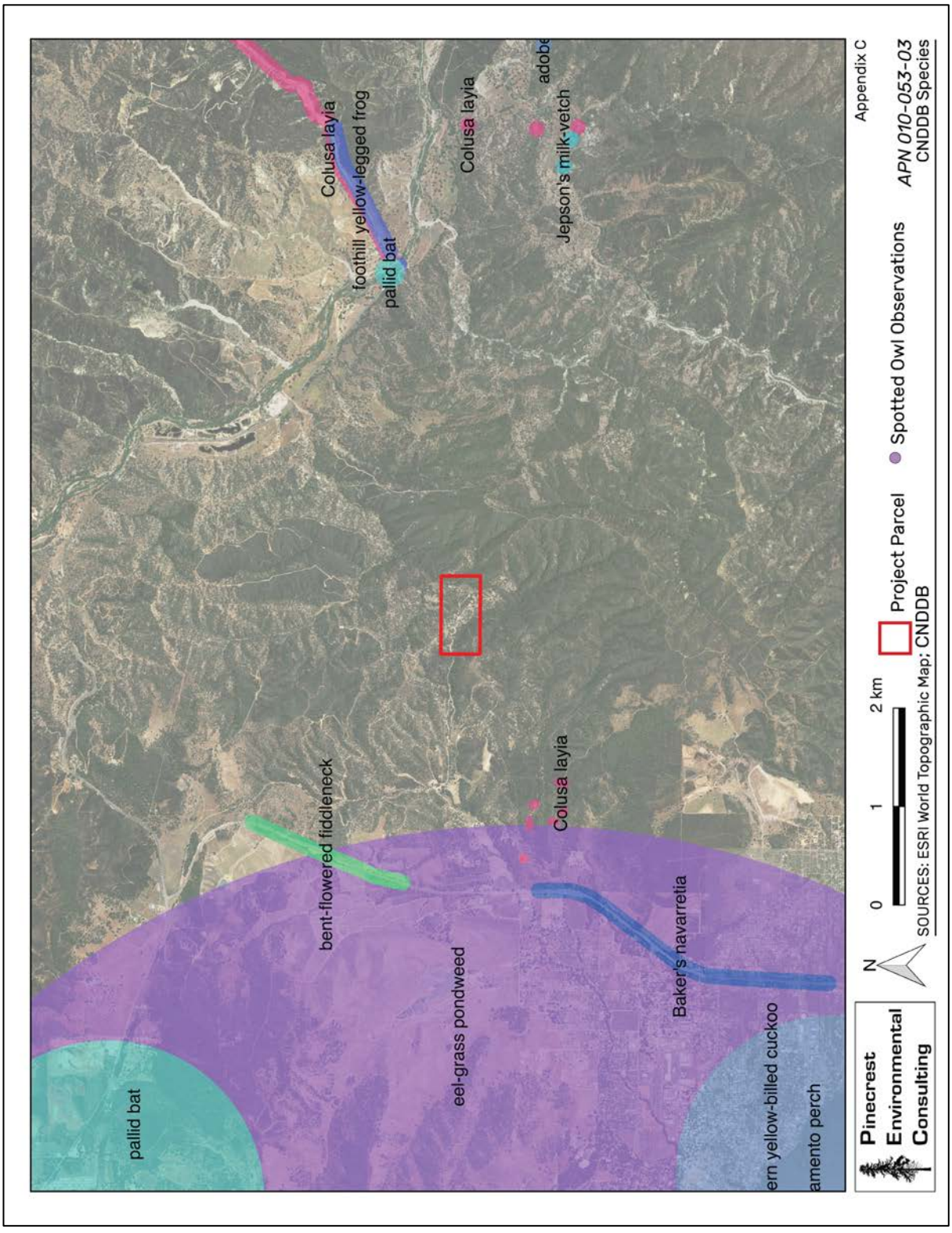
This list contains a list of all of the plants and animals observed onsite within the study area during site visits on July 2019 and April 2021. Any special-status species (SSS) are denoted in bold with an asterisk. No SSS species were directly observed at the time of the surveys.

Scientific name	**Common name**	**Native**
Acer macrophyllum	Big-leaf maple	yes
Achillea millefolium	Yarrow	yes
Achyrachaena mollis	Blow-wives	yes
Acmispon americanus	Bird's foot trefoil	yes
Adenostoma fasciculatum	Chamise	yes
Aira caryophyllea	Hairgrass	no
Allium amplectens	Narrowleaf onion	yes
Amsinckia menziesii	Menzies' fiddleneck	yes
Ancistrocarphus filagineus	Woolly fishhooks	yes
Arctostaphylos canescens	Hoary manzanita	yes
Arctostaphylos manzanita	Green-leaved manzanita	yes
Athysanus pusillus	Dwarf athysanus	yes
Avena fatua	Wild oats	no
Baccharis pilularis	Coyote brush	yes
Brassica nigra	Mustard	no
Briza minor	Little rattlesnake grass	no
Brodiaea elegans	Harvest brodiaea	yes
Bromus diandrus	Ripgut brome	no
Bromus hordeaceus	Soft chess	no
Bromus madritensis	Madrid brome	no
Calochortus amabilis	Golden fairy lantern	yes
Calochortus luteus	Yellow mariposa lily	yes
Capsella bursa-pastoris	Shepherd's purse	no
Cardamine oligosperma	Bitter cress	yes
Carduus pycnocephalus	Italian thistle	no
Ceanothus cuneatus var. *cuneatus*	Buckbush	yes
Ceanothus integerrimus	Deerbrush	yes
Centaurea solstitialis	Yellow star thistle	no
Centromadia pungens	Common tarweed	yes
Cercis occidentalis	Red-bud	yes
Cercocarpus betuloides	Mountain mahogany	yes
Chlorogalum pomeridianum	Soap plant	yes
Clarkia purpurea ssp. *quadrivulnera*	Purple clarkia	yes
Cirsium vulgare	Bull thistle	no
Claytonia perfoliata	Red maids	yes
Collinsia sparsiflora	Few flowered collinsia	yes
Collinsia heterophylla	Purple Chinese houses	yes
Convolvulus arvensis	Field bindweed	no
Croton setiger	Turkey mullein	yes

Cynosurus echinatus	Dogstail grass	no
Dichelostemma capitatum	Blue dicks	yes
Dichelostemma volubile	Twining brodiaea	yes
Draba verna	Spring whitlow grass	no
Eleocharis macrostachya	Spike rush	yes
Elymus caput-medusae	Medusa head	no
Elymus glaucus	California wild rye	yes
Epilobium brachycarpum	Narrowleaf willowherb	yes
Erigeron canadensis	Canadian horseweed	yes
Eriodictyon californicum	Yerba Santa	yes
Eriogonum nudum	Naked stem buckwheat	yes
Eriophyllum lanatum	Woolly sunflower	yes
Erodium cicutarium	Redstem filaree	no
Erodium moschatum	White-stem filaree	no
Festuca bromoides	Brome fescue	no
Festuca microstachys	Small fescue	yes
Ficus carica	Fig tree	no
Galium aparine	Common bedstraw	yes
Galium parisiense	Wall bedstraw	no
Galium porrigens	Climbing bedstraw	yes
Geranium molle	Woodland geranium	no
Gilia tricolor	Bird's eyes	yes
Grindelia camporum	Gumweed	yes
Hemizonia congesta	Hayfield tarweed	yes
Hesperolinon californicum	California western flax	yes
Heteromeles arbutifolia	Toyon	yes
Hordeum murinum ssp. *leporinum*	Lepor barley	no
Hyacinthus sp.	Hyacinth	no
Hypericum perforatum	St. John's Wort	no
Hypochaeris glabra	Smooth cat's tongue	no
Iris douglasii	Douglas' iris	yes
Lactuca serriola	Prickly lettuce	no
Lasthenia californica	California goldfields	yes
Lepidium nitidum	Shining peppergrass	yes
Leptosiphon bicolor	True babystars	yes
Leptosiphon ciliatus	Whiskerbrush	yes
Lomatium macrocarpum	Bigfruit lomatium	yes
Lomatium utriculatum	Hog fennel	yes
Lupinus bicolor	Miniature lupine	yes
Madia exigua	Small tarweed	yes
Madia gracilis	Gumweed	yes
Malva parviflora	Cheeseweed mallow	no
Marah fabaceus	Manroot	yes
Matricaria discoidea	Pineapple weed	no
Medicago lupulina	Black medic	no
Medicago polymorpha	California burclover	no
Melilotus indicus	Annual yellow sweetclover	no
Micropus californicus	Q-tips	yes
Microsteris gracilis	Slender flox	yes
Narcissus sp.	Narcissus	no
Navarretia intertexta	Interwoven navarretia	yes

Navarretia pubescens	Purple navarretia	yes
Pectocarya pusilla	Little combseed	yes
Phacelia imbricata	Imbricate phacelia	yes
Phoradendron leucarpum ssp. *tomentosum*	Mistletoe	yes
Pinus sabiniana	Gray pine	yes
Plagiobothrys bracteatus	Bracted allocarya	yes
Plantago erecta	Hill plantain	yes
Poa infirma	Weak blue grass	no
Poa bulbosa	Bulbous bluegrass	no
Pogogyne serpylloides	Thyme-leaf mesa mint	yes
Polygonum aviculare	Knotweed	no
Pteridium aquilinum	Bracken fern	yes
Quercus chrysolepis	Canyon live oak	yes
Quercus douglasii	Blue oak	yes
Quercus kelloggii	Black oak	yes
Rhus aromatica	Fragrant sumac	yes
Rosa californica	California rose	no
Rubus armeniacus	Himalayan blackberry	no
Rhamnus ilicifolia	Evergreen buckthorn	yes
Rumex crispus	Curly dock	no
Sanicula crassicaulis	Gamble weed	yes
Sanicula bipinnata	Poison sanicle	yes
Scandix pecten-veneris	Shepherd's needle	no
Senecio vulgaris	Common groundsel	no
Sidalcea diploscypha	Fringed checkerbloom	yes
Sisyrinchium bellum	Blue-eyed grass	yes
Spergularia rubra	Red sand spurry	no
Stellaria media	Chickweed	no
Stipa pulchra	Purple needlegrass	yes
Torilis arvensis	Spreading hedge-parsley	no
Toxicodendron diversilobium	Poison oak	yes
Trifolium bifidum	Notchleaf clover	yes
Trifolium glomeratum	Clustered clover	no
Trifolium hirtum	Rose clover	no
Triteleia laxa	Ithuriel's spear	yes
Uropappus lindleyi	Silver puffs	yes
Urtica urens	Annual nettle	no
Verbascum thapsus	Woolly mullein	no
Vicia sativa	Common vetch	no
Wyethia sp.	Mule ears	yes

APPENDIX C: CNDDB OCCURRENCES MAP



APPENDIX D: CANNABIS CULTIVATION BEST MANAGEMENT PRACTICES

Best management practices (BMPs) are designed to prevent, minimize, and control the discharge of waste and pollutants associated with site operations and maintenance for the aforementioned project. Many of these BMPs are considered enforceable conditions under State Water Resources Control Board *Cannabis* General Order No. WQ 2017-0023-DWQ.

D.1 CANNABIS CULTIVATION

- Pesticide and fertilizer storage facilities shall be located outside of the riparian corridor setbacks for structures.
- Pesticide and fertilizer storage facilities shall not be located within 100 feet of a wellhead, or within 50 feet of identified wetlands.
- Pesticide and fertilizer storage facilities shall be adequate to protect pesticide and fertilizer containers from the weather.
- Store all bags and boxes of pesticides and fertilizers off the ground on pallets or shelves.
- If the structure does not have an impermeable floor, store all liquid pesticides and fertilizers on shelves capable of containing spills or provide appropriate secondary containment.
- Routinely check for leaks and spills.
- Have spill cleanup kit onsite to be able to respond to any leaks or spills.
- Inspect planting stock for pests and diseases prior to planting.
- Avoid planting stock with pests and disease and notify the supplier of the planting stock of the infestation.
- Comply with all pesticide laws and regulations as enforced by the California Department of Pesticide Regulation and County Agricultural Commissioner.
- For pesticides with the signal word CAUTION that have listed food uses, comply with all pesticide label directions as they pertain to personal protective equipment, application method, and rate, environmental hazards, longest reentry intervals and greenhouse and indoor use directions.
- For all other pesticides, use must comply with all label requirements including site and crop restrictions.
- Prior to the use of any registered pesticide on *Cannabis*, Operator Identification Number should be obtained from the County Agricultural Commissioner if required.
- Submit monthly pesticide use reports to the County Agricultural Commissioner if required.

- Prior to applying fertilizers, evaluate irrigation water, soils, growth media, and plant tissue to optimize plant growth and avoid over fertilization.
- Apply fertilizers at label rates and no higher.
- Do not apply fertilizers in a way that will result in runoff that may contaminate ground or surface water or escape via airborne drift or fugitive dust.
- Observe riparian corridor setbacks for agricultural cultivation as applicable. These shall be maintained as "no touch" areas and demarcated with appropriate flagging.
- The removal of vegetation is prohibited within riparian setback areas.
- No equipment, vehicles, or other materials shall be stored in the riparian setback areas.
- Composting areas shall not be located in the riparian setback areas.
- Irrigation must be conducted in a manner that does not result in runoff from the cultivated area.
- Any water tanks or storage facilities must obtain permits from the local City or County planning department where required.
- The use of membrane based water bladders is prohibited.
- If using an irrigation system, inspect for and repair leaks prior to planting each year and continuously during the season.
- Irrigation systems shall be equipped with a backflow prevention devices and shutoff valves.
- Recycle or properly dispose of all plastic bags, containers, and irrigation materials.
- Properly dispose of green waste in a manner that does not discharge pollutants to a watercourse. This may be accomplished by composting, chipping, and/or shredding.
- The method of green waste disposal must be documented.
- Used growth medium (soil and other organic medium) shall be handled to minimize or prevent discharge of soil and residual nutrients and chemicals to watercourses. Proper disposal could include incorporating into garden beds, spreading on a stable surface and re-vegetating, storage in watertight dumpsters, or covering with tarps or plastic sheeting prior to proper disposal.
- The method of disposal of growth medium must be documented.
- Compost piles are to be located outside of riparian setbacks for agricultural cultivation and in a manner that will not discharge pollutants to a watercourse.
- If necessary, construct a berm or install fiber roll around compost area to prevent runoff or use straw wattles around perimeter.
- Cover compost piles with tarp or impermeable surface prior to fall rains and continuously throughout the rainy season.
- Leave a vegetative barrier along the property boundary and interior watercourses to act as a pollutant filter.
- Avoid soil disturbance between November 1 and April 15 and during times of active precipitation.

- All exposed and disturbed soil must be covered with a minimum of 2 inches of mulch, such as straw, bark, wood chips, etc., by November 15. Alternatively, establish a thick cover crop over disturbed areas composed of native species.
- Erosion control materials shall be available on site at all times in the form of straw, mulch, wattles, silt fencing, erosion control fabrics, sand bags, or other materials adequate to cover areas of disturbed soil or incipient erosion events.
- In the event of a forecast storm event likely to produce runoff, apply mulch, wattles, or other erosion prevention measures to the disturbed areas prior to rain event.
- Any grading or drainage conducted as part of site preparation shall have permits from local County or City agencies if required.

D.2 EROSION & SEDIMENT CONTROL

- Erosion control and sediment detention devices and materials shall be incorporated into the cleanup/restoration work design and installed prior to the end of project work and before the beginning of the rainy season or any predicted rain events.
- Any continuing, approved project work conducted after October 15 shall have erosion control measures completed and up-to-date.
- All erosion control measures shall be inspected daily during severe rain events.
- Erosion control materials shall be, at minimum, stored on-site at all times during approved project work between May 1 and October 15.
- Approved project work within the 5-year flood plain shall not begin until all temporary erosion controls (straw bales or silt fences that are effectively keyed-in) are installed downslope of cleanup/restoration activities.
- Native species appropriate to the local habitat shall be used for all revegetation purposes. Non-invasive, non-persistent grass species (e.g., barley grass) may be used for their temporary erosion control benefits to stabilize disturbed slopes and prevent exposure of disturbed soils to rainfall.
- Upon work completion, all exposed soil present in and around the cleanup/restoration sites shall be stabilized within 7 days.
- The disturbed area will be minimized at all times to only that which is essential for the completion of the project.
- Provide temporary cover over disturbed areas that are not currently being worked on.
- Heavy equipment shall not be used in flowing water.
- Use of heavy equipment shall be avoided or minimized in a channel bottom with rocky or cobbled substrate.
- Heavy equipment shall not introduce chemicals or foreign sediment to the channel (e.g., remove mud from tracks or cover channel work area with plastic sheeting prior to heavy equipment entry).
- When heavy equipment is used, any woody debris and stream bank or streambed vegetation

disturbed shall be replaced to a pre-project density with native species appropriate to the site.

- When possible, existing ingress or egress points shall be used or work shall be performed remotely from the top of the creek banks.
- Divert runoff away from unprotected slopes or loose soils using a combination of mats, geotextiles, silt fencing, wattling, check dams, sediment basins, vegetated buffers, or rock armor.
- Deploy appropriate erosion control measures such as silt fencing or straw wattles around all temporary exposed piles or soil or surface disturbances.
- All temporary exposed piles or soil or surface disturbances shall have tarping and sand bags or other stabilization materials deployed in order to prevent discharge of sediments in the event of a rain or wind event.
- Geotechnical fabric shall be deployed on all exposed dirt surfaces with a slope of greater than 15% and staked in place during ground disturbing activities, and silt fencing deployed on slopes of greater than 15% where appropriate.
- Sand bags, straw bales, or other devices shall be placed at appropriate locations near and alongside the roadsides and swales in anticipation of large storm events.
- Bioswales and cultivation areas including parking areas shall be maintained free of trash including empty soil and pesticide or fertilizer containers.
- Locations of sediment sources shall be identified during rain events and mitigated where appropriate.
- Protect ditch inlets and outlets from erosion using rock armor.
- Silt fencing shall be installed downstream of rock piles, stockpiles, and temporary soils storage areas.
- Desilting or retention basins shall be installed if the capacity of the natural percolation exceeds the inputs during routine storm events.
- Sediment traps shall be used on all exposed driveway surfaces where natural vegetation is not able to be established.
- Exposed unvegetated surfaces will be graveled where appropriate.
- Rock placed for slope protection shall be the minimum necessary to avoid erosion, and shall be part of a design that provides for native plant revegetation and minimizes bank armoring.
- Soil exposed as a result of project work, soil above rock riprap, and interstitial spaces between rocks shall be revegetated with native vegetation by live planting, seed casting, or hydroseeding prior to the rainy season of the year work is completed.
- Avoidance of earthwork on steep slopes and minimization of cut/fill volumes, combined with proper compaction, shall occur to ensure the area is resilient to issues associated with seismic events and mass wasting. If cracks are observed, or new construction is anticipated, consultation with a qualified professional is recommended.
- Culvert fill slopes shall be constructed at a 2:1 slope or shall be armored with rock.

- If it is necessary to conduct work in or near a live stream, the work space shall be isolated to avoid project activities in flowing water.
- Any spoils associated with site maintenance shall be placed in a stable location where it cannot enter a watercourse.
- Sidecasting shall be minimized and shall be avoided on unstable areas or where it has the potential to enter a watercourse.
- Entrance to the project site shall be maintained in a condition that will prevent tracking or flowing of sediment into the public right-of-way.
- All sediment spilled, dropped, washed, or tracked onto the public right-of-ways shall be removed immediately.
- When necessary, wheels shall be cleaned to remove sediment prior to entrance onto public rights-of-ways.
- When wheel washing is required, it shall be done in an area stabilized with crushed stone that drains into a sediment trap fitted with appropriate erosion control measures.
- To control surface water runoff in and around cultivation areas use fiber rolls or wattling and stake appropriately and perpendicular to the flow path.
- Cover crops should be utilized on all exposed slopes that are not able to be protected by other means.
- Cover crops should be native species as described in the associated biological resources report.
- Rip compacted soils prior to placing spoils to prevent the potential for ponding under the spoils that could result in spoil site failure and subsequent sedimentation.
- Compact and contour stored spoils to mimic the natural slope contours and drainage patterns to reduce the potential for fill saturation and failure.
- Ensure that spoil materials are free of woody debris, and not placed on top of brush, logs or trees.
- Inspect all roads and culverts regularly for blockages.

D.3 WATER USE & POLLUTION

- Ensure that all appropriate water rights permits are filed with the State Water Resources Control Board.
- Notify the California Department of Fish and Wildlife by submitting a Lake and Streambed Alteration (LSA) notification package if the proposed activities involve substantial diversion from or alteration of the bed or bank of a stream or other waterbody.
- Ensure that all water storage features are permitted from the Department of Water Rights if necessary.
- All refueling and pesticide and chemical storage and transfer shall occur greater than 100 feet away from any swales, creeks, or natural areas.

- All refueling and pesticide and chemical storage and transfer shall occur on top of an impermeable metal or other fabric mat that is no less than 2 inches high on all sides and capable of completely containing any spillage.
- Concrete truck and other vehicles shall not be washed out in natural areas or directly onto soil and shall be washed out into a metal or other impermeable basin and disposed of properly such that no water is discharged to the soil.
- All waste shall be kept in plastic drums with tight fitting lids so that water is not able to make contact with the contents and potentially leach to the environment.
- All pesticide sprays shall occur on windless nights for outdoor facilities.
- Chemical or fertilizer wastes shall never be disposed of into swales or creeks and shall be contained inside closed-roof facilities and designated with appropriate labeling until it is possible to dispose of properly.
- Septic leach fields and graywater mulch fields shall be maintained free of large vegetation and not used for aboveground storage that may impact their proper functioning.
- Chemical contamination (fuel, grease, oil, hydraulic fluid, solvents, etc.) of water and soils is prohibited during routine equipment operation and maintenance.
- The use or storage of petroleum-powered equipment shall be accomplished in a manner that prevents the potential release of petroleum materials into waters of the state (Fish and Game Code 5650).
- Schedule excavation and grading activities for dry weather periods.
- Designate a contained area for equipment storage, short-term maintenance, and refueling. Ensure it is located at least 50 feet from waterbodies.
- Inspect vehicles for leaks and repair immediately.
- Clean up leaks, drips and other spills immediately to avoid soil or groundwater contamination.
- Conduct major vehicle maintenance and washing offsite.
- Ensure that all spent fluids including motor oil, radiator coolant, or other fluids and used vehicle batteries are collected, stored, and recycled as hazardous waste offsite.
- Ensure that all construction debris is taken to appropriate landfills and all sediment disposed of in upland areas or offsite, beyond the 100-year floodplain.
- Use dry cleanup methods (e.g., absorbent materials, cat litter, and/or rags) whenever possible. If necessary for dust control, use only a minimal amount of water.
- Sweep up spilled dry materials immediately.
- Separate organic material (e.g., roots, stumps) from the dirt fill and store separately. Place this material in long-term, upland storage sites, as it cannot be used for fill.
- Spoils shall not be placed or stored in locations where soils are wet or unstable, or where slope stability could be adversely affected.
- Do not locate spoil piles in or immediately adjacent to wetlands and watercourses.

- Store spoil piles in a manner (e.g. cover pile with plastic tarps and surround base of pile with straw wattle) or location that would not result in any runoff from the spoil pile ending up in wetlands and watercourses.
- Keep temporary disposal sites out of wetlands, adjacent riparian corridors, and ordinary high water areas as well as high risk zones, such as 100-year floodplain and unstable slopes.
- Conduct operations on a size and scale that considers available water sources and other water use and users in the planning watershed.
- Implement water conservation measures such as rainwater catchment systems, drip irrigation, mulching, or irrigation water recycling where possible.
- Hauled water utilized for irrigation shall be documented via receipt or similar, and show the date, name, and license plate of the water hauler, and the quantity of water purchased.
- If using a water storage tank, do not locate the tank in a flood plain or next to equipment that generates heat. Locate the tank so it is easy to install, access, and maintain.
- Vertical tanks should be installed according to manufacturer's specifications and placed on firm, compacted soil that is free of rocks/sharp objects and capable of bearing the weight of the tank and its maximum contents.
- Install float valves on tanks to prevent them from overflowing.
- Place proper lining or sealing in ponds to prevent water loss.

D.4 ROAD MAINTENANCE & GENERAL CONSTRUCTION

- Always limit work to the appropriate work date windows considering wet weather, migratory bird and other biological and environmental constrains that may be placed on the project.
- Proper design and location of roads and other features is critical to ensuring that a road or other feature be adequately drained and is best accomplished through consultation with a qualified professional.
- Placement of temporary access roads, staging areas, and other facilities shall avoid or minimize disturbance to habitat.
- If inspection identifies surface rills or ruts, then surfacing and drainage likely needs maintenance. Consultation should be made with a licensed professional to design appropriate erosion control strategies.
- Design of roads should allow for sheet flow of water and use water bars and rolling dips to break up slope length.
- Vehicle speed shall be kept to a maximum of 10 mph while onsite to minimize dust generation.
- All unvegetated and unpaved roadways and vehicle turnarounds shall be graveled to a depth of not less than 1" in order to prevent dust and sediment entrainment.

- Applicant will use geotechnical fabric or similar materials on exposed slopes, and distribute weed-free straw mulch wherever possible on exposed surfaces on the perimeter of all graded roads and graveled areas.
- Roads and the berms alongside all roads shall be maintained free of headcuts, gullies, stutter bumps, and other erosion features capable of discharging sediment to adjacent grassland areas.
- Roads will be graveled with clean rock whenever required to prevent dust and sediment erosion during the wet season.
- Whenever possible, road maintenance activities shall be performed from May 1 to October 15.
- Work performed outside of this window should take extra precautions for winter weather erosion control prevention beyond that which is described in this Plan.
- A 48 hour advance forecast for rain shall trigger a temporary cessation of work, and all soils piles will need to be covered and secured with sandbags or other materials.
- Placement of temporary access roads, staging areas, and other facilities shall avoid or minimize disturbance to habitat.
- Whenever feasible, finished grades shall not exceed 1.5:1 side slopes. In circumstances where final grades cannot achieve 1.5:1 slope, additional erosion control or stabilization methods shall be applied as appropriate for the project location.
- Spoils and excavated material not used during project activities shall be removed and placed outside of 100-year floodplains.
- Upon completion of grading, slope protection of all disturbed sites shall be provided prior to the rainy season through a combination of permanent vegetative treatment, mulching, geotextiles, and/or rock, or equivalent.
- Position vehicles and other apparatus so as to not block emergency vehicle access.
- After construction is complete, all storm drain systems and culverts shall be inspected and cleared of accumulated sediment and debris.
- Sediment barriers including wattles and silt fencing should be checked for sediment accumulation following each significant rainfall and sediment removed or the feature replaced as needed.
- Road drainage shall be discharged to a stable location away from a watercourse.
- Use sediment control devices, such as check dams, sand/gravel bag barriers, and other acceptable techniques, when it is neither practical nor environmentally sound to disperse ditch water immediately before the ditch reaches a stream.
- Within areas with potential to discharge to a watercourse (i.e. within riparian areas of at least 200 feet of a stream) road surface drainage shall be filtered through vegetation, slash, or other appropriate material or settled into a depression with an outlet with adequate drainage.

D.5 SWALE & VEGETATION MANAGEMENT

- The work area shall be restored to pre-project work condition or better.
- Any stream bank area left barren of vegetation as a result of cleanup/restoration activities shall be stabilized by seeding, replanting, or other means with native trees, shrubs, and/or grasses appropriate to the site prior to the rainy season in the year work was conducted.
- Ensure that vegetated swales are properly formed, allow moderate velocity water passage without causing sediment entrainment, and are otherwise functioning properly.
- Create and expand vegetated bioswales where necessary, should additional construction or road maintenance be required, in order to maintain flow without scour.
- All bioswales and other drainage features requiring revegetation will be seeded with native vegetation and lawns and hedgerows maintained in good health and watered in dry years.
- Vegetation including grasses shall be mowed as necessary to create fire breaks and to prevent the accumulation of fuels that would be able to sustain a ground fire.
- All vegetation shall be surveyed on foot once a year by staff and new outbreaks of any invasive weeds identified by the California Invasive Plant Council as noxious or invasive to be removed by the owner or qualified landscaping professionals.
- Channels and swales that show evidence of overland flow and scour (e.g. bare of vegetation) shall be seeded with native grasses such as *Stipa pulchra*, *Hordeum brachyantherum*, *Elymus glaucus*, and *Bromus carinatus*, and kept vegetated at all times.
- If shrubs and non-woody riparian vegetation are disturbed, they shall be replaced with similar native species appropriate to the site.
- Disturbance to native shrubs, woody perennials or tree removal on the streambank or in the stream channel shall be avoided or minimized.
- If riparian trees over six inches dbh (diameter at breast height) are to be removed, they shall be replaced by native species appropriate to the site at a 3:1 ratio.
- Where physical constraints in the project area prevent replanting at a 3:1 ratio and canopy cover is sufficient for habitat needs, replanting may occur at a lesser replacement ratio.
- Vegetation planting for slope protection purposes shall be timed to require as little irrigation as possible for ensuring establishment by the commencement of the rainy season.
- The spread or introduction of exotic plant species shall be avoided to the maximum extent possible by avoiding areas with established native vegetation during cleanup/restoration activities, restoring disturbed areas with appropriate native species, and post-project monitoring and control of exotic species.
- Removal of invasive exotic species after construction activities is strongly recommended. Mechanical removal (hand tools, weed whacking, hand pulling) of exotics shall be done in preparation for establishment of native plantings.
- Where permanent soil stabilization is required a locally-appropriate mix of native grass species shall be used such as a mix containing *Nassella pulchra*, *Hordeum brachyantherum*, *Elymus glaucus*, and *Bromus carinatus* or as described in the site's Biological Resources Assessment.

- Entire cultivation site shall be seeded and maintained as a permanent non-tilled cover crop during non-usage times. Straw mulch shall be used where native seeding is not practicable.
- Use mulches (e.g. wood chips or bark) in cultivation areas that do not have ground cover to prevent erosion and minimize evaporative loss.
- Mulch shall be applied at a rate of 4000 lbs / acre and seeding shall be applied to achieve 70% cover in the first year or approximately 200 lbs / acre.
- Annual inspections for the purpose of assessing the survival and growth of revegetated areas and the presence of exposed soil shall be conducted for three years following project work.
- Dischargers and/or their consultant(s) or third party representative(s) shall note the presence of native/non-native vegetation and extent of exposed soil, and take photographs during each inspection.
- Dischargers and/or their consultant(s) or third party representative(s) shall provide the location of each work site, pre- and post-project work photos, diagram of all areas revegetated and the planting methods and plants used, and an assessment of the success of the revegetation program in the annual monitoring report as required under relevant state and local water board regulations.

D.6 IRRIGATION & CULTIVATION MANAGEMENT

- Cultivation-related waste shall be stored in a place where it will not enter a stream.
- Soil bags and other garbage shall be collected, contained, and disposed of at an appropriate facility, including for recycling where available.
- Pots shall be collected and stored where they will not enter a waterway or create a nuisance.
- Plant waste and other compostable materials be stored (or composted, as applicable) at locations where they will not enter or be blown into surface waters, and in a manner that ensures that residues and pollutants within those materials do not migrate or leach into surface water or groundwaters.
- Imported soil for cultivation purposes shall be minimized. In the event that containers (e.g. grow bags or grow pots) are used for cultivation, reuse of soil shall be maximized to the extent feasible.
- Spent growth medium (i.e. soil and other organic medium) shall be handled to minimize discharge of soil and residual nutrients and chemicals to watercourses. Proper handling of spent soil could include incorporating into garden beds, spreading on a stable surface and revegetation, storage in watertight dumpsters, covering with tarps or plastic sheeting prior to proper disposal.
- Trash containers of sufficient size and number shall be provided and properly serviced to contain the solid waste generated by the project.
- Provide roofs, awnings, or attached lids on all trash containers to minimize direct precipitation and prevent rainfall from entering containers.

- Use lined bins or dumpsters to reduce leaking of liquid waste. Design trash container areas so that drainage from adjoining roofs and pavement is diverted around the area(s) to avoid run-on.
- Make sure trash container areas are screened or walled to prevent off-site transport of trash. Consider using refuse containers that are bear-proof and/or secure from wildlife.
- Refuse shall be removed from the site on a frequency that does not result in nuisance conditions, transported in a manner that they remain contained during transport, and the contents shall be disposed of properly at a proper disposal facility.
- Ensure that human waste disposal systems do not pose a threat to surface or ground water quality or create a nuisance. Onsite treatment systems should follow applicable County ordinances for human waste disposal requirements, consistent with the applicable tier under the State Water Resources Control Board Onsite Waste Treatment System Policy.
- Install buffer strips, bioswales, or vegetation downslope of cultivation areas to filter runoff of chemicals from irrigation.
- Irrigate at rates to avoid or minimize runoff.
- Regularly inspect and repair leaks in mains and laterals, in irrigation connections, or at the ends of drip tape and feeder lines.
- Design irrigation system to include redundancy (i.e., safety valves) in the event that leaks occur, so that waste of water is prevented and minimized.
- Recapture and reuse irrigation runoff (tailwater) where possible, through passive (gravity-fed) or active (pumped) means.
- Construct retention basins for tailwater infiltration; percolation medium may be used to reduce pollutant concentration in infiltrated water. Constructed treatment wetlands may also be effective at reducing nutrient loads in water.
- Ensure that drainage and/or infiltration areas are located away from unstable or potentially unstable features.
- Regularly replace worn, outdated or inefficient irrigation system components and equipment.
- Leave a vegetative barrier along the property boundary and interior watercourses to act as a pollutant filter.
- Employ rain-triggered shutoff devices to prevent irrigation after precipitation.
- Evaluate irrigation water, soils, growth media, and plant tissue to optimize plant growth and avoid over-fertilization.
- All chemicals shall be stored in a manner, method, and location that ensures that there is no threat of discharge to waters of the State.
- Products shall be labeled properly and applied according to the label.
- Use integrated pest management strategies that apply pesticides only to the area of need, only when there is an economic benefit to the grower, and at times when runoff losses are least likely.
- Periodically calibrate pesticide application equipment.

- Use anti-backflow devices on water supply hoses, and other mixing/loading practices designed to reduce the risk of runoff and spills.
- Petroleum products shall be stored with a secondary containment system such as a pan or a tub
- Throughout the rainy season, any temporary containment facility shall have a permanent cover and side-wind protection, or be covered during non-working days and prior to and during rain events.
- Materials shall be stored in their original containers and the original product labels shall be maintained in place in a legible condition. Damaged or otherwise illegible labels shall be replaced immediately.
- Bagged and boxed materials shall be stored on pallets and shall not be allowed to accumulate on the ground. To provide protection from wind and rain throughout the rainy season, bagged and boxed materials shall be covered during non-working days and prior to rain events.
- Have proper chemical and fertilizer storage instructions posted at all times in an open and conspicuous location.
- Prepare and keep a spill prevention and cleanup plan onsite when dealing with any hazardous materials.
- Keep ample supply of appropriate spill clean-up material near storage areas.
- Plant cover crops to boost soil fertility, improve soil texture, and protect from storm caused sediment runoff.

APPENDIX E: STREAM CLASSIFICATION CRITERIA

The following stream classification criteria were copied form the California Department of Forestry & Fire Protection *Forest Practice Rules* (CALFIRE 2017) and is widely used by many state and local agencies. Most state and local jurisdictions require setbacks of 50, 100, and 150 feet from Class III, II, and I streams, respectively, although greater setbacks may be required in some jurisdictions.

Watercourse – a natural or artificial channel through which water flows.

- Perennial watercourse (Class I*):
  1. In the absence of diversions, water is flowing for more than nine months during a typical year,
  2. Fish always or seasonally present onsite or includes habitat to sustain fish migration and spawning, and/or
  3. Spring: an area where there is concentrated discharge of ground water that flows at the ground surface. A spring may flow any part of the year. For the purpose of this Policy, a spring does not have a defined bed and banks.
- Intermittent watercourse (Class II*):
  1. In the absence of diversions, water is flowing for three to nine months during a typical year,
  2. Provides aquatic habitat for non-fish aquatic species,
  3. Fish always or seasonally present within 1,000 feet downstream, and/or
  4. Water is flowing less than three months during a typical year and the stream supports riparian vegetation.
- Ephemeral watercourse (Class III*): In the absence of diversion, water is flowing less than three months during a typical year and the stream does not support riparian vegetation or aquatic life. Ephemeral watercourses typically have water flowing for a short duration after precipitation events or snowmelt and show evidence of being capable of sediment transport.
- Other watercourses (Class IV*): Class IV watercourses do not support native aquatic species and are man-made, provide established domestic, agricultural, hydroelectric supply, or other beneficial use.

*Except where more restrictive, stream class designations are equivalent to the Forest Practice Rules Water Course and Lake Protection Zone definitions (California Code of Regulations, title 14, Chapter 4. Forest Practice Rules, Subchapters 4, 5, and 6 Forest District Rules, Article 6 Water Course and Lake Protection).