BIOLOGICAL RESOURCES ASSESSMENT

21258 MORGAN VALLEY ROAD [APN 012-069-57]
LAKE COUNTY, CALIFORNIA

PREAPRED FOR:

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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 a commercial *Cannabis* cultivation facility on the parcel located at 21258 Morgan Valley Road in unincorporated Lake County near the town of Lower Lake (Figure 1). The proposed cultivation area is a series of outdoor terraces located on the top of a ridge to the north of Morgan Valley Road (Figure 2). The cultivation areas (Figures 10-12) can be accessed via graded road that is in fair to poor condition (Figure 6). The parcel is accessed from the east, via private dirt road that branches off of Morgan Valley Road to the north and passes for 2.5 miles through private parcels until reaching the project parcel. There are no stream crossings or culverts onsite, however there are several culverts along the way to the project parcel. There are several Class III seasonal watercourses onsite that flow north and south off of the sides of the east-west trending ridge in the center of the parcel (Figure 3). There do not appear to be any jurisdictional wetlands onsite, and the project as designed should have no impact on sensitive species or habitats if the measures described in Appendices D are implemented to the greatest extent practicable.

1.3 LOCATION

1.3.1 Site Overview

The project site is located at 21258 Morgan Valley Road in unincorporated Lake County, 4.9 miles east of Lower Lake, 6.9 miles north of Hidden Valley Lake, and 23 miles southwest of Lakeport (Figure 1), Township 12 North, Range 6 West, Sections 3 and 10, on the USGS Lower Lake 7.5 minute quad (Figure 2). The property is designated Assessor's Parcel Number 012-069-57, is 80.14 acres, is zoned Rural Lands (RL), 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).

The parcel is located 1.3 miles as the crow flies to the north of Morgan Valley Road, between Clearlake Highlands to the northwest and Morgan Valley to the southeast (Figure 1). The parcel is accessed from Morgan Valley Road via packed earth ranch road that branches to the north off of Morgan Valley Road and meanders through private property for 2.3 miles generally northwest before arriving at the project parcel. The parcel itself contains no structures and development is limited to a solar powered well (Figure 14), and several storage tanks for water (Figures 8 & 9). There are no culverts or water crossings on the project parcel, although there are several crossings on the road leading to the project parcel.

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 2.8 miles to the southwest of the project parcel for Slender Orcutt grass (*Orcuttia tenuis*) near Little High Valley. The next nearest FCH is also for Slender Orcutt grass located 14 miles to the west associated with Bogg's Lake. 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 15 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.

There are no known occurrences of special-status animal species from within the project parcel. The nearest occurrence of SSS animal species is Foothill Yellow-Legged Frog (*Rana boylii*; FYLF) observed in 1943 located 0.9 miles north of the project parcel associated with the headwaters of Dry Creek (Appendix C). There the same locality also contains an occurrence of Red-bellied newt (*Taricha rivularis*) from 1943 associated with Dry Creek. The next nearest occurrences of SSS animal species is Townsend's big-eared bat (*Corynorhinus townsendii*) observed in 1946 located 1.0 miles southwest of the project parcel near the historic Baker Mine (Appendix C). The next nearest occurrences of SSS is Wilson Springs shorebug (*Saldula usingeri*) also located 1.0 miles southwest of the project parcel near Baker Mine (Appendix C). The next nearest occurrence of SSS animal species is Golden Eagle (*Aquila chrysaetos*) observed in 1986 located 1.8 miles west of the project parcel near Cache Creek. There are no other known SSS animal species from within 2 miles of the project parcel.

There are no special-status plant species known from the project parcel (Appendix C). The nearest occurrence of SSS plant species is Jepson's milk-vetch (*Astragalus rattanii* var. *jepsonianus*) located 1.4 miles northeast of the project parcel observed in 2010 in the vicinity of Rocky Creek Road. The next nearest occurrence of SSS plant species is Sharsmith's western flax (*Hesperolinon sharsmithiae*) observed in 1985 located 1.9 miles south of the project parcel near Cantwell Ranch Road. The next nearest SSS plant species are occurrences of four species associated with a serpentine outcrop near Rocky Creek, comprising Drymaria-like Western flax (*Hesperolinon drymarioides*), Freed's Jewelflower (*Streptanthus brachiatus* ssp. *hoffmanii*), Snow Mountain 2010, located 2.9 miles northeast of the project parcel. The next nearest SSS plant species is Few-flowered Navarretia (*Navarretia leucocephala* ssp. *pauciflora*) observed in 1951 located 4.0 miles to the west of the project parcel near Lower Lake. There are no other SSS plant species from within 5 miles of the project parcel (Appendix C).

1.3.4 Landforms & Water Features

The parcel comprises 80 acres encompassing the top of a ridge that extends to the west from Sky High Mountain, and the incised Class III drainages that flow down the sides of this ridge. The ridge trends northwest-southeast and the drainages flow off either side to the northeast and southwest (Figure 2). The maximum elevation of the parcel is 2,871 feet above sea level at the peak of Sky High in the center-east side of the parcel, and the minimum elevation is 2,157 feet above sea level at the far southwest corner of the parcel where the unnamed seasonal Class III watercourse exits the parcel (Figure 3). Most of the parcel is chaparral, with slopes between 30% and 70%, as measured by Suunto PM5 handheld clinometer. The only flat portion of the parcel is the ridge top and terraces that are proposed for cultivation that are located on the west side of the ridge promontory.

Water sources onsite are entirely through direct precipitation due to the location of the parcel at the top of a ridge. Precipitation eventually exits the parcel by infiltrating locally and then coalescing into a series of drainages that cut into the sides of the ridge and flow generally either southwest or northeast eventually exiting the parcel in numerous independent locations, towards a series of unnamed Class II streams, that then flow generally north for approximately 3.5 miles before the confluence with Cache Creek (Figure 2). From the confluence, the Cache Creek flows generally east for approximately 50 miles before entering the Central Valley at Capay, and then flows east through agricultural fields for 25 miles before becoming indistinct and ending channelized flow in a series of wetlands along the Sacramento River. Water eventually flows into the Sacramento River via groundwater and continues south and west for another 75 miles before emptying into Suisun Bay and the Pacific Ocean.

1.3.5 Existing Structures

There are no existing structures onsite including residential dwellings or storage sheds/outbuildings. There is one solar powered well (Figure 14) located at the top of the ridge, and several HDPE storage tanks for water including one 5,000 gal and one approximately 1,500 gal unit (Figures 8 & 9). There are no culverts or water crossings on the project parcel, although there are several crossings on the

road leading to the project parcel. The main access road on the project parcel shows some erosion due to the heavy rains of 2018-2019 and should be re-graded. The road leading to the project parcel is in poor condition and should be re-graded, although the drainage culverts that are installed are functioning. It is primarily the dirt roadbed that needs water bars or other devices to stop gullying down the center during high precipitation events. The parcel itself is not surrounded by fencing however there is a locking, manual entry metal gate where the access road branches off of Morgan Valley Road.

1.3.6 Regional Land Uses

Land uses in the vicinity of the project parcel are primarily private property including undeveloped brushland, wildlands managed for mixed uses including timber harvest, private timber grassland and shrubland for grazing, rural residential parcels, and irrigated pastureland and vineyard and orchard developments in the valley bottoms. Farther to the north and east the terrain becomes steep and densely forested and is largely inaccessible. To the west the terrain decreases in elevation before arriving at Clear Lake. To the south the terrain continues as low hills before rising in elevation into the Mayacamas Mountains and becoming densely forested (Figure 1).

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 10 miles of the project site, 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 March 14, 2019. The weather was typical for this time of year, sunny and partly cloudy with a light breeze. Approximately 15" of rain fell in the preceding month which is somewhat higher than average (NWS 2019), thus all of the vegetation was green and most perennial and annual plant species were flowering. The survey began at approximately 10:00 PM and lasted for approximately 4 hours. The temperature at the time of the survey was 55 degF, with relative humidity of 36% as measured by Kestrel 3000 handheld weather station.

Starting with the central, most easily accessible portion of the property closest to the proposed cultivation area, the entire project site was surveyed on foot by PEC Senior 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 burned chaparral and mixed conifer and chaparral scrub, with higher proportions of hardwoods near watercourses, and grasslands on flat floodplains and ridge tops, with scattered serpentine outcrops particularly to the east (Figure 4).

2.2 NATURAL COMMUNITIES WITHIN THE PROJECT SITE

The entirety of the parcel consists of burned chaparral and oak savannah, with higher proportions of oak trees on the ridge top and more chaparral on the south facing drainages (Figure 5). The entire property was severely burned during the Rocky Fire in July 2015 and many trees were killed near the ridge top, however chaparral shrubs on the south slopes are mostly resprouting. There are numerous steep Class III watercourses that run through the site that flow off the sides of the ridge top and these were surveyed remotely due to the extreme steepness of the terrain and thickness of the chaparral. The specific community descriptions below are organized based on the zones that were surveyed, and the floristic results presented in Appendix B. Overall, the parcel consists of approximately 90% mixed oak savannah, and 10% developed areas (Figure 5).

2.2.2 Oak Savannah

The entirety of the site is dense mixed coniferous forest with a continuous canopy. Tree species observed in this habitat include Black oak (*Quercus kelloggii*) to 30" diameter-at-breast-height (DBH), Interior live oak (*Quercus wislizeni*) to 18" DBH, Oregon oak (*Quercus garryana*) to 16" DBH, and Gray pine (*Pinus sabiniana*) to 16" DBH. Other understory and herbaceous species include Italian thistle (*Carduus pycnocephalus*), dogstail grass (*Cynosurus echinatus*), ripgut brome (*Bromus diandrus*), soft chess (*Bromus hordeaceous*), wild oats (*Avena barbata*), miner's lettuce (*Claytonia perfoliata*), big heron bill (*Erodium botrys*), common bedstraw (*Galium aparine*), common yarrow (*Achillea millefolium*), sowthistle (*Sonchus asper*), smooth cat's ear (*Hypochaeris glabra*), pineapple weed (*Matricaria discoidea*), chickweed (*Stellaria media*), prickly lettuce (*Lactuca serriola*), bristly ox-tongue (*Helminthotheca echioides*), bull thistle (*Cirsium vulgare*), annual stinging nettle (*Urtica urens*), black mustard (*Brassica nigra*), wild geranium (*Geranium dissectum*), ribwort (*Plantago lanceolata*), foxglove (*Digitalis purpurea*), turkey mullein (*Croton setiger*), woolly mullein (*Verbascum thapsus*), Zorro fescue (*Festuca myuros*), field parsley (*Torilis arvensis*), rose clover (*Trifolium hirtum*), bird's foot trefoil (*Acmispon americanus*), shooting stars (*Primula hendersonii*), Italian rye grass (*Festuca perennis*), and Medusa head (*Elymus caput-medusae*).

2.2.3 Chaparral

In addition to many of the species mentioned above, the areas on south facing steep slopes and in the Class III draws include chaparral species including poison oak (*Toxicodendron diversilobium*), Yerba Santa (*Eriodictyon californicum*), scrub oak (*Quercus dumosa*), common manzanita (*Arctostaphylos manzanita*), chamise (*Adenostoma fasiculatum*), hoary manzanita (*Arctostaphylos canescens*), tanoak (*Notholithocarpus densiflorus*), deer brush (*Ceanothus integerrimus*), bracken fern (*Pteridium aquilinum*), Himalayan blackberry (*Rubus armeniacus*), narrow-leaved mule ears (*Wyethia angustifolia*), woodland madia (*Ansiocarpus madioides*), spring vetch (*Vicia sativa*), crane's bill geranium (*Geranium molle*), velvet grass (*Holcus lanatus*), blue wild rye (*Elymus glaucus*), Pacific hairgrass (*Deschampsia caespitosa*), sheep sorrel (*Rumex acetocella*), soap plant (*Chlorogalum pomeridianum*), baby blue eyes (*Nemophila menziesii*), Western buttercup (*Ranunculus occidentalis*), California bedstraw (*Galium californicum*), coyote mint (*Monardella villosa*), and nit grass (*Gastridium phleoides*).

2.3 WILDLIFE

Due to the rainy conditions present at the time of the survey, few animals were observed actively onsite. Despite this, numerous species were observed both directly and indirectly. Species observed onsite include pocket gopher (*Thomomys bottae*), Western fence lizard (*Sceloporous occidentalis*), acorn woodpecker (*Melanerpes formicivorus*), prints of mule deer (*Odocoileus hemionus*), turkey vulture (*Cathartes aura*), scat of Western coyote (*Canis latrans*), and common crow (*Corvus brachyrhynchos*).

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 roughly seven unnamed seasonal Class III watercourses onsite that flow northeast and southwest off of the main ridge top. The classification begins about 200-300 feet from through the top of the ridge, and measurements should be made to verify that the gardens do not infringe on the setbacks for any of the mapped drainages in case erosion increases and the distance from the mapped drainage (Figure 3) to the cultivation area becomes smaller. These channels flow through deeply incised and densely vegetated draws, with heavy chaparral preventing examination of the bed. It is expected that these watercourses are ephemeral, do not exhibit aquatic invertebrate life, and only flow during high rain events.

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. There are no locations onsite that appear to be jurisdictional wetlands based on the absence of any areas near the proposed cultivation areas that

exhibit satisfactory cover of hydrophytic vegetation or that exhibit signs of wetland hydrology such as spring seeps or ponding. There is the potential for there to be some spring seepage associated with the Class III draws farther down the slope, however these areas are extremely steep and inaccessible, and the cultivation area is in any case at least 200 feet away from this watercourse and so any wetlands would be fully protected within the 100-foot setbacks required around Class II streams as per the State Water Quality Control Board *Cannabis* General Order (Figure 3).

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 on the top of the ridge including the cultivation terraces are mapped as well-drained Skyhigh-Millsholm loams, 15 to 50 percent slopes (#209), with lesser proportions of Bressa (10%), Asbill (4%), Etsel (4%), and Hopland (3%) formations, and exhibits average soil depth of 16". The steep hillslopes on either side of the ridge are mapped as somewhat excessively drained Maymen-Etsel-Snook complex, 30-75% slopes (#1690), with lesser proportions of Hopland (7%), Mayacama (7%) and rock outcrop (6%) formations. 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 despite the proximity to Boggs Lake which is a vernal pool formed by compacted volcanic tuff (ash) deposits.

3.0 SUMMARY & CONCLUSIONS

No special-status plant species were observed during the surveys performed at the site in March 2019. No impacts are predicted for any of the State or Federal special-status plant species in Appendix A based on lack of actual sightings, and lack of suitable habitat in the proposed cultivation activity areas. Activities are largely proposed to be limited to existing disturbed areas, and the surrounding oak savannah contains a low abundance of special-status species compared to other habitat types. In addition, the Rocky Fire burned so hot through the project area that many of the trees died and much of the remaining vegetation is ruderal annual grasses. In contrast, the habitat surrounding the Class III streams are extremely dense chaparral that is recovering nicely and no aspect of the project as currently proposed will affect these areas. There are also no wetlands, vernal pools, serpentine outcrops, or other special habitat types that possess a high likelihood of containing special-status plant species.

No special-status animal species were observed during the surveys performed at the site in March 2019. No impacts are predicted for any State or Federal special-status animal species in Appendix A due to the lack of actual observations and lack of suitable habitat near the proposed redevelopment sites. The nearest occurrence of Foothill yellow-legged frog (FYLF) is 0.9 miles to the north two ridges over in the Dry Creek drainage. Due to the existence of this site on the top of a very steep ridge covered in all sides by dense chaparral and separated by a ridge with no suitable habitat in between, that there is no chance FYLF would breed and little to no chance of FYLF estivating on the project parcel. There are also no structures that would provide habitat for any of the special-status bat species, although as mentioned above, tree removal is discouraged, even dead trees, in order to maintain potential nesting and roosting habitat for bats and migratory birds.

The only locations that appear to be in need of erosion control are the road approaches to the cultivation area, which suffered some gullying after the rains of 2018-2019. Despite this, there is low chance of these erosional features discharging sediment to waters of the State because of the grassland and chaparral vegetation between the roadway and channels is intact. These erosional features on the roadbed should be remediated using closely spaced water bars or other method to prevent linear flow down the center of the roadbed prior to next year's rains so that the vegetation can continue to function to trap sediment and new erosional features do not form. Additional erosion control measures described in Appendix D should be implemented, and we encourage the use of native vegetation 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

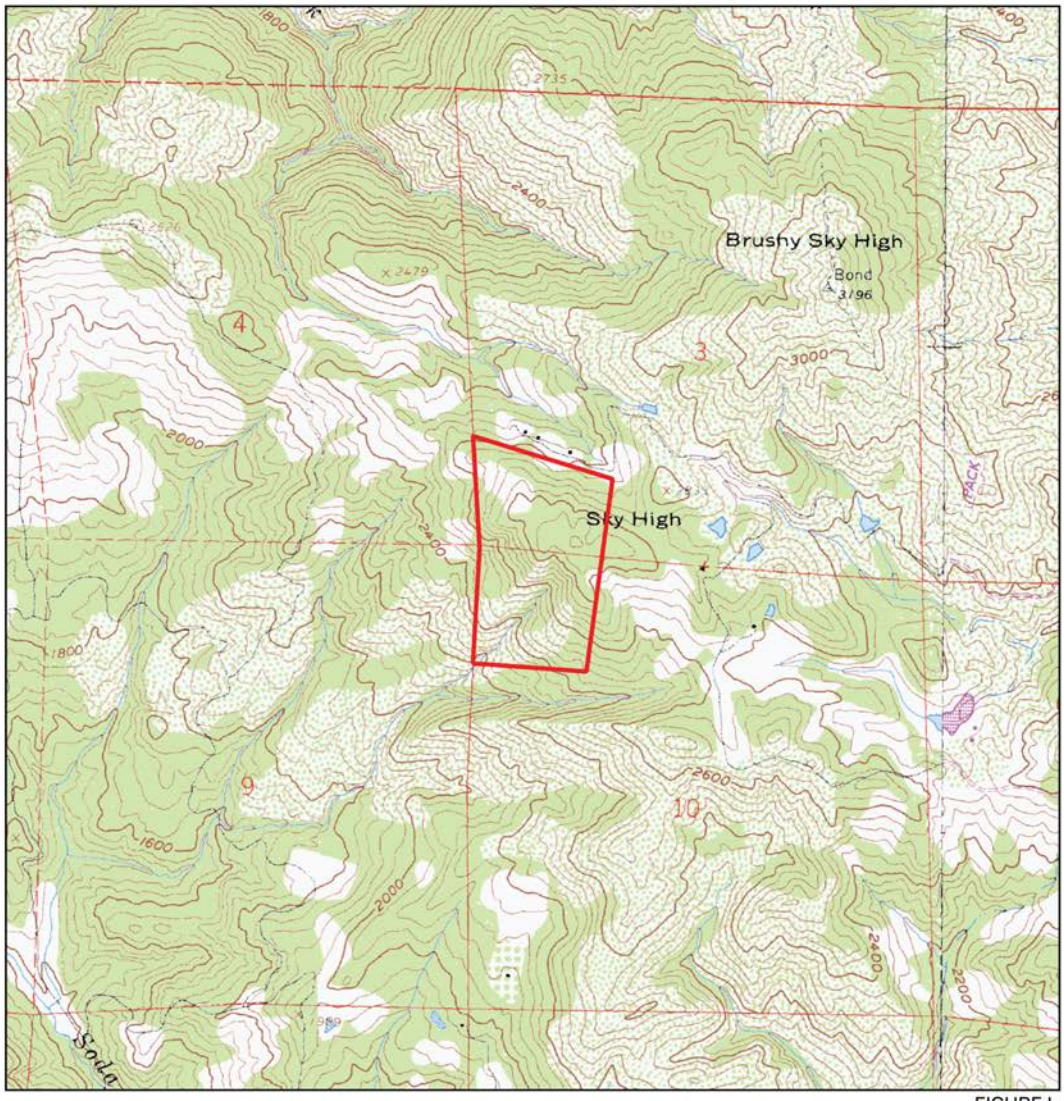

FIGURE I

Pinecrest Environmental Consulting

N

0 500 1000 m

Project Parcel

APN 012-069-57

SOURCES: USGS Topographic Map

Regional Topography

FIGURE 2: 40 FOOT CONTOURS

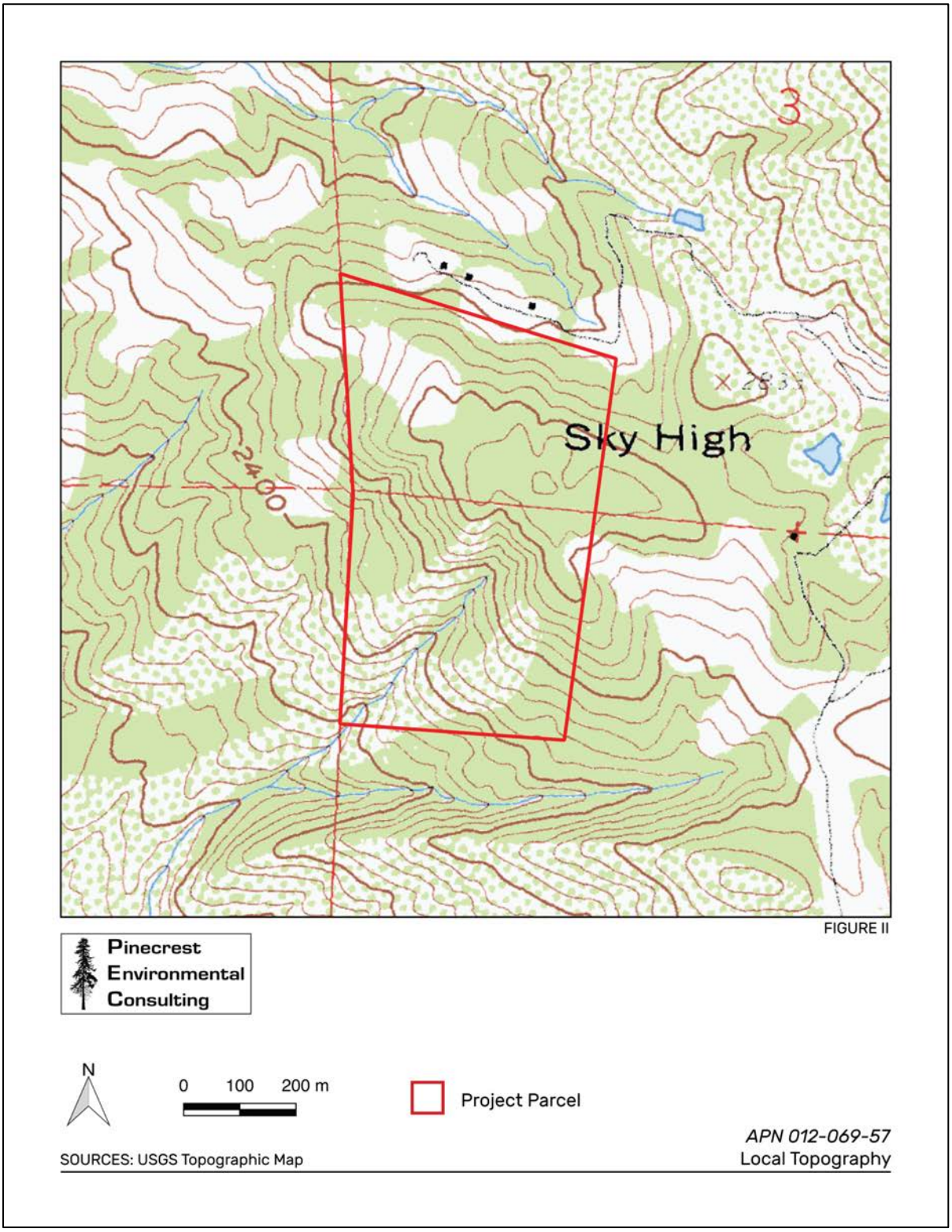

FIGURE 3: WATER FEATURES

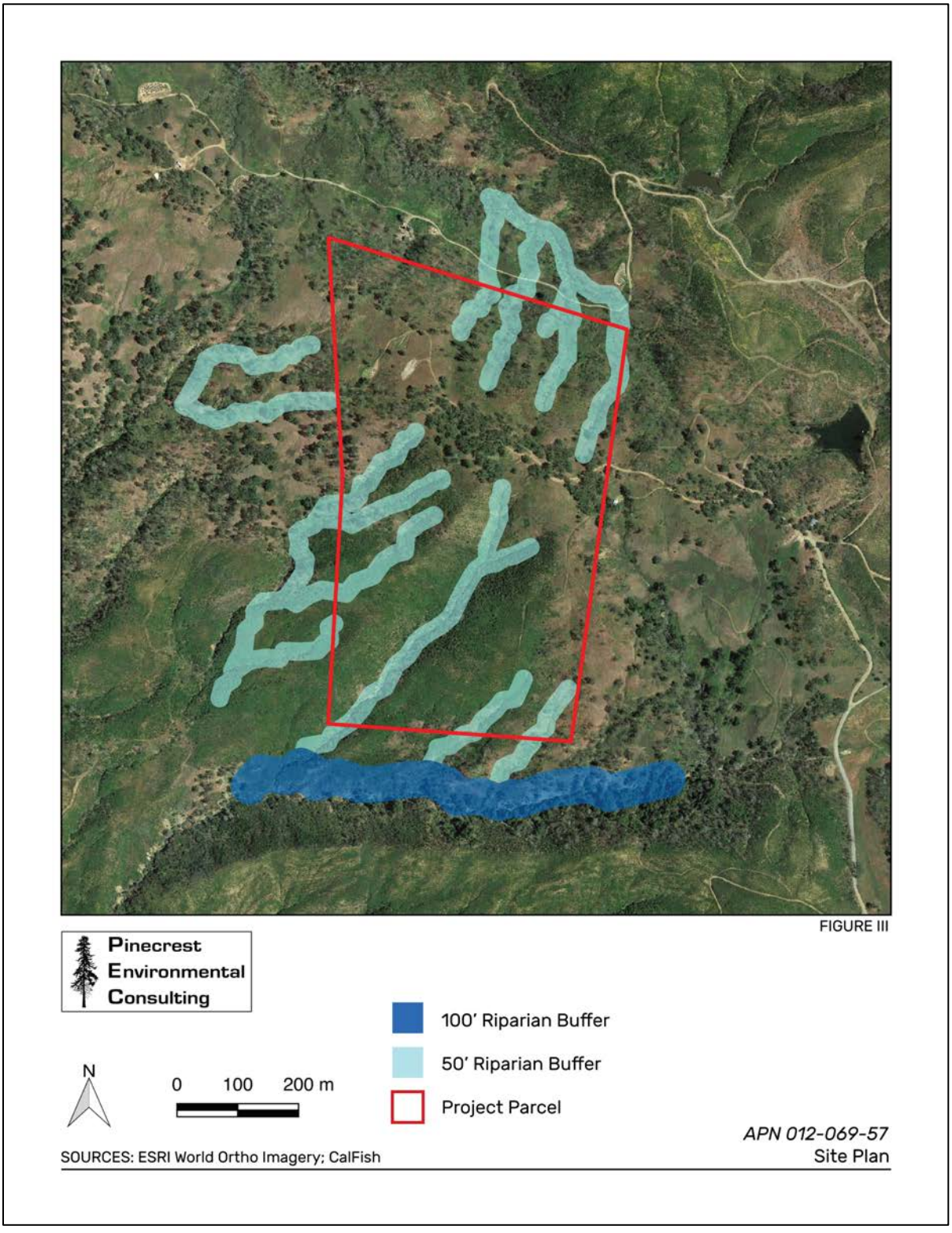

FIGURE 4: REGIONAL COMMUNITY TYPES

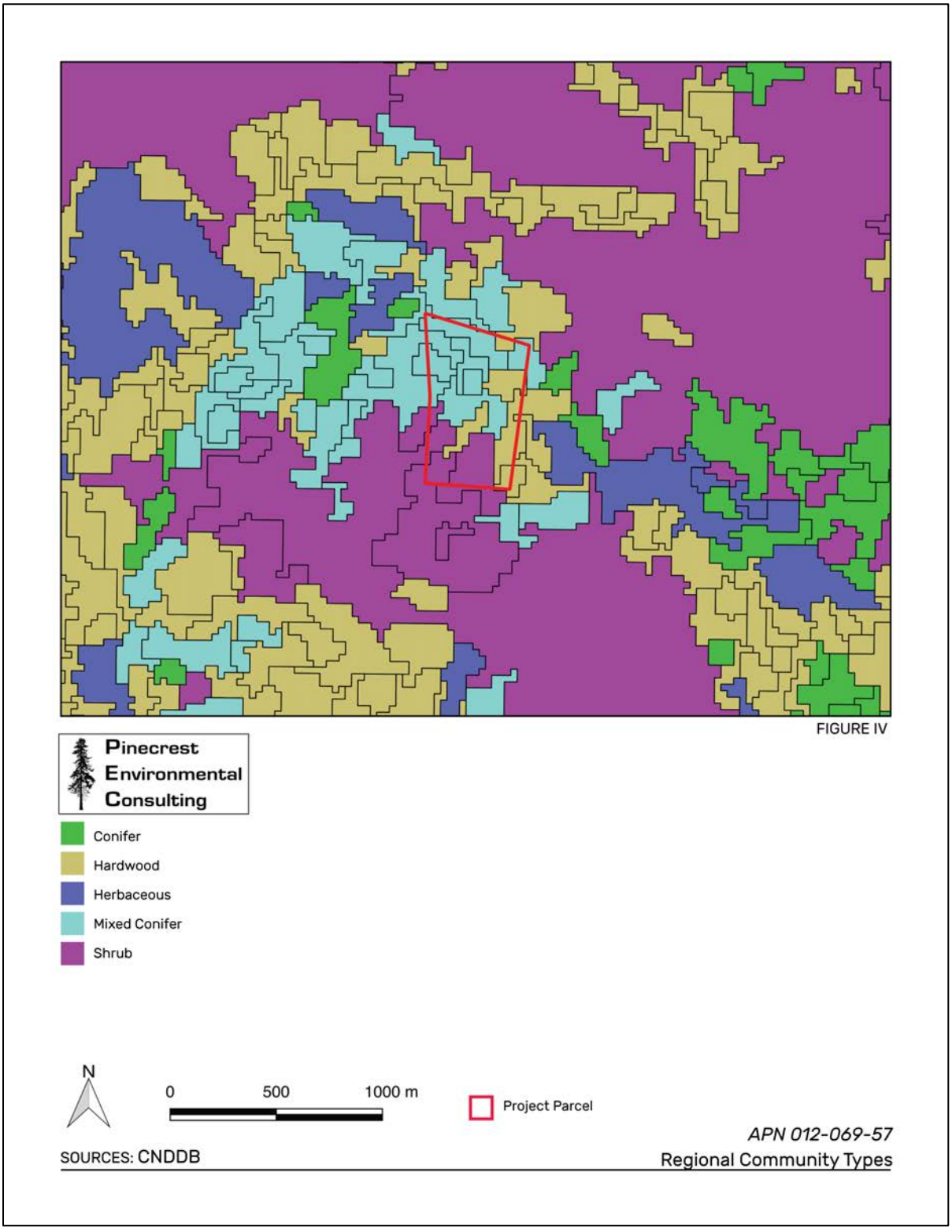

FIGURE 5: ONSITE PLANT COMMUNITIES

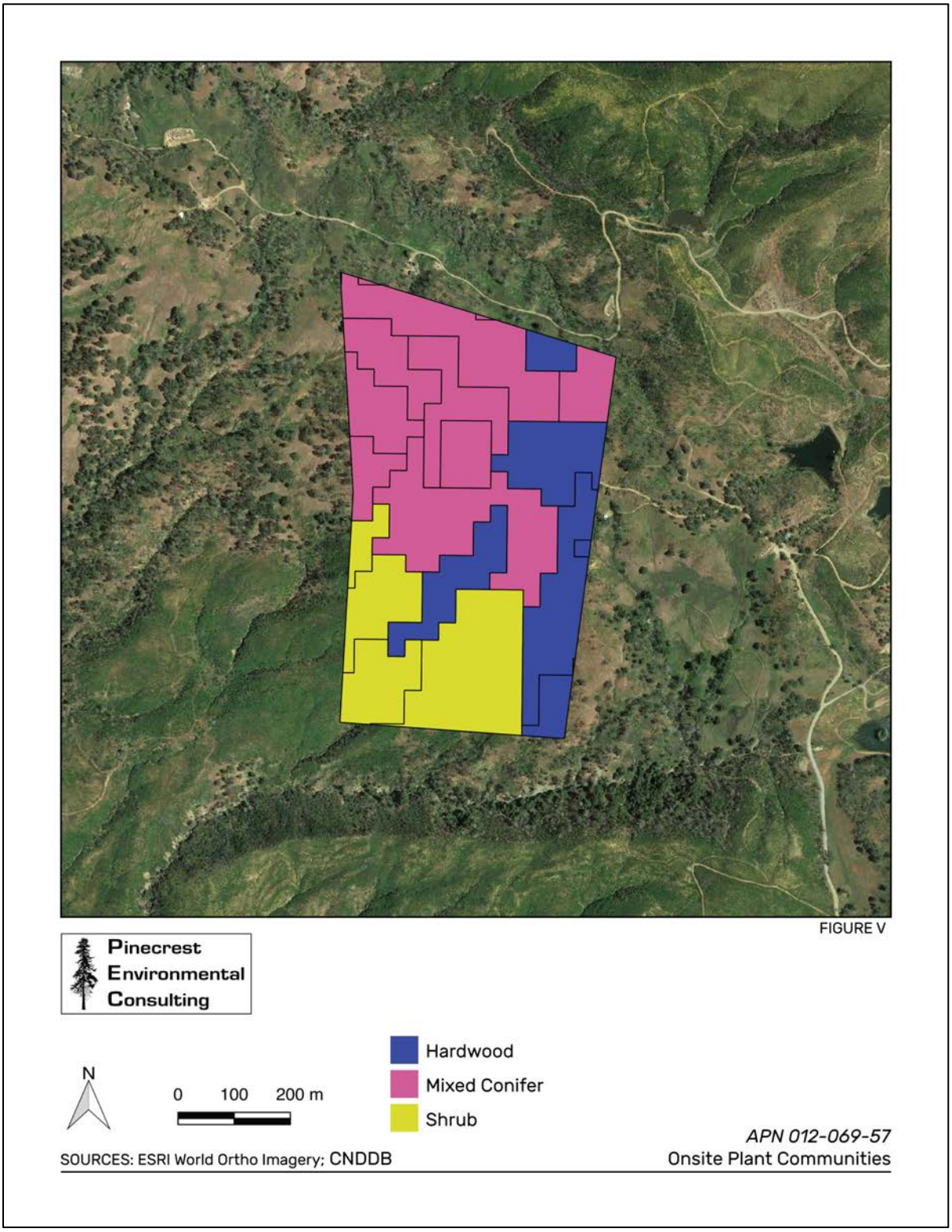

FIGURE 6: PHOTOGRAPH OF ACCESS ROAD

Pinecrest
Environmental
Consulting

(510) 881-3039 info@pinecrestenvironmental.org
6425 Telegraph Ave. #8 Oakland, CA 94609
105 Morris St. Suite 184 Sebastopol, CA 95472

APN 012-069-57
21258 Morgan Valley Road
Lower Lake, CA 95457

SOURCES: PEC Inc.

FIGURE 7: PHOTOGRAPH OF CLASS III WATERCOURSE

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SOURCES: PEC Inc.

FIGURE 8: PHOTOGRAPH OF WATER STORAGE A

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SOURCES: PEC Inc.

FIGURE 9: PHOTOGRAPH OF WATER STORAGE B

Pinecrest
Environmental
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SOURCES: PEC Inc.

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FIGURE 10: PHOTOGRAPH OF CULTIVATION AREA A

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SOURCES: PEC Inc.

FIGURE 11: PHOTOGRAPH OF CULTIVATION AREA B

Pinecrest
Environmental
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SOURCES: PEC Inc.

FIGURE 12: PHOTOGRAPH OF CULTIVATION AREA C

Pinecrest Environmental Consulting

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SOURCES: PEC Inc.

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FIGURE 13: PHOTOGRAPH OF BURNED HABITAT

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SOURCES: PEC Inc.

FIGURE 14: PHOTOGRAPH OF WELL

Pinecrest Environmental Consulting

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SOURCES: PEC Inc.

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 10 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, woodland**	**Low: Some grassland habitat exists onsite.**
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	Mixed evergreen forest	Low: Some forest habitat exists onsite.
Baker's goldfields (*Lasthenia californica* ssp. *bakeri*)	—/—/1B.2	Coastal grasslands	Low: Some grassland habitat exists onsite.
Baker's larkspur (*Delphinium bakeri*)	—/—/1B.1	Coastal scrub	None: No coastal scrub habitat exists onsite.
Baker's manzanita (*Arctostaphylos bakeri* ssp. *bakeri*)	—/—/1B.1	Serpentine chaparral, mixed evergreen forest	None: No serpentine habitat exists onsite.
Baker's meadowfoam (*Limnanthes bakeri*)	—/ST/1B.1	Vernal pools, freshwater wetland	None: No suitable wetland habitat onsite.
Baker's navarretia (*Navarretia leucocephala* ssp. *bakeri*)	**—/—/1B.1**	**Vernal pools, riparian woodland**	**None: No vernal pools exist onsite.**
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**	**Low: Some grassland habitat exists onsite.**

Taxon	Status[1] Fed/State/CNPS	Habitat	Potential to Occur Within the Project Area
Big scale balsamroot (*Balsamorhiza macrolepis*)	**—/—/1B.2**	**Valley grassland**	**Low: Some grassland habitat exists onsite.**
Big tarplant (*Blepharizonia plumosa*)	—/—/1B.1	Foothill woodland, chaparral	Low: Some grassland habitat exists onsite.
Blasdale's bent grass (*Agrostis blasdalei*)	—/—/1B.2	Coastal prairie	Low: Some grassland habitat exists onsite.
Blue coast gilia (*Gilia capitata* ssp. *chamissonis*)	—/—/1B.1	Coastal sand dunes	None: No sand dune habitat exists onsite.
Bogg's Lake hedge-hyssop (*Gratiola heterosepala*)	**—/—/1B.2**	**Freshwater marsh, riparian**	**None: No suitable wetland habitat exists onsite.**
Bolander's horkelia (*Horkelia bolanderi*)	**—/—/1B.2**	**Yellow pine forest, grassland**	**Low: Some suitable grassland habitat exists onsite.**
Brandegee's eriastrum (*Eriastrum brandegeeae*)	**—/—/1B.1**	**Chaparral**	**Low: Some chaparral habitat exists onsite.**
Bristly sedge (*Carex comosa*)	—/—/2B.1	Freshwater marsh, riparian	None: No suitable wetland habitat exists onsite.
Brownish beaked-rush (*Rhynchospora capitellata*)	—/—/2B.2	Freshwater marsh, riparian	None: No suitable wetland habitat exists onsite.
Burke's goldfields (*Lasthenia burkei*)	**FE/SE/1B.1**	**Vernal pools**	**None: No vernal pool habitat exists onsite.**
California alkalai grass (*Puccinellia simplex*)	**—/—/1B.2**	**Grassland, riparian**	**None: No alkalai wetland habitat exists onsite.**
California beaked-rush (*Rhynchospora californica*)	—/—/1B.1	Freshwater wetlands	None: No wetland habitat exists onsite.
California satintail (*Imperata brevifolia*)	**—/—/2B.1**	**Chaparral, wetlands**	**Low: No suitable habitat exists onsite.**
Calistoga ceanothus (*Ceanothus divergens*)	—/—/1B.2	Chaparral	Low: Some chaparral habitat exists onsite.
Caper-fruited tropidocarpum (*Tropidocarpum capparideum*)	—/—/1B.1	Valley grassland	Low: Some grassland habitat exists onsite.

Taxon	Status[1] Fed/State/CNPS	Habitat	Potential to Occur Within the Project Area
Cascade downingia (*Downingia willamettensis*)	**—/—/2B.2**	**Wetland, grassland**	**Low: Some grassland habitat exists onsite.**
Clara Hunt's milk vetch (*Astragalus claranus*)	—/—/1B.1	Chaparral, grassland	Low: Some chaparral habitat exists onsite.
Coastal bluff morning glory (*Calystegia purpurata* ssp. *saxicola*)	—/—/1B.2	Coastal prairie	Very Low: Some grassland habitat exists onsite, although species prefers the coast.
Cobb Mountain lupine (*Lupinus sericatus*)	—/—/1B.2	Chaparral, pine forest	Medium: Some chaparral habitat exists onsite.
Colusa layia (*Layia septentrionalis*)	**—/—/1B.2**	**Chaparral, valley grassland**	**Medium: Some suitable chaparral habitat exists onsite.**
Congdon's tarplant (*Centromadia parryi* ssp. *congdonii*)	—/—/1B.1	Valley grassland, wetlands	Low: Some grassland habitat exists onsite.
Congested-headed hayfield tarplant (*Hemizonia congesta* ssp. *congesta*)	**—/—/1B.2**	**Grassland, coastal scrub**	**Low: Some grassland habitat exists onsite.**
Contra Costa goldfields (*Lasthenia conjugens*)	FE/—/1B.1	Vernal pool	None: No vernal pool habitat exists onsite.
Deceiving sedge (*Carex saliniformis*)	—/—/1B.2	Coastal prairie	Low: Some grassland habitat exists onsite.
Deep scarred cryptantha (*Cryptantha excavata*)	—/—/1B.2	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 pool, freshwater wetland	None: No vernal pool habitat exists onsite.
Dwarf soaproot (*Chlorogalum pomeridianum* var. *minus*)	—/—/1B.2	Chaparral	Low: Some chaparral habitat exists onsite.
Eel-grass pondweed (*Potamogeton zosteriformis*)	**—/—/2B.2**	**Freshwater wetland, aquatic**	**None: No suitable wetlands exist onsite.**

Taxon	Status[1] Fed/State/CNPS	Habitat	Potential to Occur Within the Project Area
Fragrant fritillary (*Fritillaria liliacea*)	—/—/1B.2	Freshwater wetland, coastal prairie	None: No suitable wetlands exist onsite, and this species prefers coastal habitats.
Few-flowered navarretia (*Navarretia leucocephala* ssp. *pauciflora*)	**—/—/1B.1**	**Chaparral**	**Low: Some chaparral habitat exists onsite.**
Franciscan onion (*Allium peninsulare* var. *franciscanum*)	—/—/1B.2	Coastal prairie	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	Low: Some chaparral habitat exists onsite.
Glandular western flax (*Hesperolinon adenophyllum*)	—/—/1B.2	Chaparral	Low: Some chaparral habitat exists onsite.
Golden larkspur (*Delphinium luteum*)	FE/SR/1B.1	Chaparral, coastal prairie	Low: Some grassland habitat exists onsite.
Grassleaf water plantain (*Alisma gramineum*)	—/—/2B.2	Wetland, riparian	None: No suitable wetland habitat exists onsite.
Green jewelflower (*Streptanthus hesperidis*)	**—/—/1B.2**	**Serpentine outcrops**	**None: No serpentine outcrop habitat exists onsite.**
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**	**Medium: Some chaparral habitat exists onsite.**
Hoffman's bristly jewelflower (*Streptanthus glandulosus* spp. *hoffmanii*)	—/—/1B.3	Chaparral, foothill woodland	Low: Some chaparral habitat exists onsite.
Holly-leaved ceanothus (*Ceanothus purpureus*)	—/—/1B.2	Chaparral	Low: Some chaparral habitat exists onsite.
Hospital Canyon larkspur (*Delphinium californicum* ssp. *interius*)	—/—/1B.2	Foothill woodland	Low: Some woodland habitat exists onsite.

Taxon	Status[1] Fed/State/CNPS	Habitat	Potential to Occur Within the Project Area
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: Some chaparral habitat exists onsite.**
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: Some chaparral habitat exists onsite.**
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**	**Low: Some rock outcrop habitat exists onsite.**
Lake County western flax (*Hesperolinon didymocarpum*)	**—/SE/1B.2**	**Serpentine grasslands**	**None: No suitable serpentine habitat exists onsite.**
Legenere (*Legenere limosa*)	**—/—/1B.1**	**Freshwater wetland, valley grassland**	**None: No suitable wetland habitat exists onsite.**
Loch Lomond button-celery (*Eryngium constancei*)	**FE/SE/1B.1**	**Freshwater wetland**	**None: No suitable wetland habitat exists onsite.**
Many-flowered navarretia (*Navarretia leucocephala* spp. *plieantha*)	**—/—/1B.2**	**Vernal pools**	**Very Low: No vernal pool habitat exists onsite.**
Marsh checkerbloom (*Sidalcea oregana* ssp. *hydrophila*)	**—/—/1B.2**	**Freshwater wetland, riparian**	**None: No suitable riparian habitat exists onsite.**
Marsh microseris (*Microseris paludosa*)	—/—/1B.2	Northern coastal scrub	None: No marsh habitat exists onsite.
Milo Baker's lupine (*Lupinus milo-bakeri*)	—/—/1B.1	Foothill woodland, valley grassland	None: No serpentine habitat exists onsite.
Morrison's jewelflower (*Streptanthus morrisonii* ssp. *morrisonii*)	—/—/1B.2	Chaparral	Very Low: Some chaparral habitat exists onsite.

Taxon	Status[1] Fed/State/CNPS	Habitat	Potential to Occur Within the Project Area
Mt. St. Helena morning-glory (*Calystegia collina* ssp. *oxyphylla*)	**—/—/4.2**	**Serpentine chaparral**	**None: No serpentine habitat exists onsite.**
Napa checkerbloom (*Sidalcea hickmanii* ssp. *napensis*)	—/—/1B.1	Chaparral	Very 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	None: No suitable wetland or vernal pool habitat exists onsite.
North Coast semaphore grass (*Pleuropogon hooverianus*)	—/—/1B.1	Freshwater wetland, vernal pools	None: No suitable wetland or vernal pool habitat exists onsite.
Northern California black walnut (*Juglans hindsii*)	**—/—/1B.1**	**Riparian**	**None: No suitable riparian habitat exists onsite.**
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	Freshwater wetlands	None: No wetland or pond habitat exists onsite.
Oregon polemonium (*Polemonium carneum*)	—/—/2B.2	Coastal scrub, yellow pine forest	None: No coastal scrub habitat exists onsite.
Oval-leaved viburnum (*Viburnum ellipticum*)	**—/—/2B.3**	**Chaparral**	**Low: Some chaparral habitat exists onsite.**
Pappose tarplant (*Centromadia parryi* ssp. *parryi*)	**—/—/1B.2**	**Grassland, wetland**	**None: No wetland habitat exists onsite.**
Pennell's bird's beak (*Cordylanthus tenuis* ssp. *capillaris*)	—/—/1B.2	Chaparral	Low: Some chaparral habitat exists onsite.
Perennial goldfields (*Lasthenia californica* ssp. *macrantha*)	—/—/1B.2	Northern coastal scrub	Low: Some grassland 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.**

Taxon	Status[1] Fed/State/CNPS	Habitat	Potential to Occur Within the Project Area
Porter's navarretia (*Navarretia paradoxinota*)	**—/—/1B.3**	**Grasslands, wetlands**	**Very Low: No suitable wetland habitat exists onsite.**
Purple-stemmed checkerbloom (*Sidalcea malviflora* spp. *purpurea*)	—/—/1B.2	Wetlands	None: No suitable wetland habitat exists onsite.
Raiche's manzanita (*Arctostaphylos stanfordiana* ssp. *raichei*)	—/—/1B.1	Coastal scrub	None: No coastal scrub habitat exists onsite.
Raiche's red ribbons (*Clarkia concinna* spp. *raichei*)	—/—/1B.1	Coastal scrub	None: No coastal scrub habitat exists onsite.
Rincon Ridge ceanothus (*Ceanothus confusus*)	—/—/1B.1	Chaparral	Medium: Some chaparral habitat exists onsite.
Rincon Ridge manzanita (*Arctostaphylos stanfordiana* ssp. *decumbens*)	—/—/1B.1	Chaparral	Low: Some chaparral habitat exists onsite.
Round-headed beaked-rush (*Rhynchospora globularis*)	—/—/2B.1	Freshwater wetlands, riparian	None: No suitable wetland 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.**
San Joaquin spearscale (*Extriplex joaquinana*)	—/—/1B.2	Shadscale scrub, valley grassland	None: No alkalai scrub habitat exists.
Santa Cruz clover (*Trifolium buckwestiorum*)	—/—/1B.1	Coastal prairie	Very Low: Some grassland habitat onsite but species prefers the coast.
Santa Rosa horkelia (*Horkelia tenuiloba*)	—/—/1B.2	Freshwater wetland, vernal pools	Low: Some chaparral habitat exists onsite.
Sebastopol meadowfoam (*Limnanthes vinculans*)	FE/SE/1B.1	Freshwater wetland, vernal pools	None: No vernal pool habitat exists onsite.
Serpentine cryptantha (*Cryptantha dissita*)	—/—/1B.2	Serpentine chaparral	None: No serpentine habitat exists onsite.
Serpentine daisy (*Erigeron serpentinus*)	—/—/1B.3	Chaparral	Very Low: Some chaparral habitat exists onsite.

Taxon	Status[1] Fed/State/CNPS	Habitat	Potential to Occur Within the Project Area
Sharsmith's western flax (*Hesperolinon sharsmithiae*)	**—/—/1B.2**	**Chaparral**	**Low: Some chaparral habitat exists onsite.**
Slender Orcutt grass (*Orcuttia tenuis*)	**FT/SE/1B.1**	**Grassland, freshwater wetlands**	**None: No suitable grassland habitat exists onsite.**
Small-flowered calycadenia (*Calycadenia micrantha*)	—/—/1B.2	Foothill grassland	Low: Some suitable grassland habitat onsite.
Small groundcone (*Kopsiopsis hookeri*)	—/—/2B.3	Redwood forest	None: No redwood forest habitat exists onsite.
Snow Mountain buckwheat (*Eriogonum nervulosum*)	**—/—/1B.2**	**Serpentine outcrops**	**None: No salt marsh habitat exists onsite.**
Sonoma beardtongue (*Penstemon newberryi* var. *sonomensis*)	—/—/1B.3	Chaparral	Very Low: Some grassland habitat exists onsite.
Sonoma ceanothus (*Ceanothus sonomensis*)	—/—/1B.2	Chaparral	Low: Some chaparral habitat exists onsite.
Sonoma sunshine (*Blennosperma bakeri*)	FE/SE /1B.1	Valley grassland, freshwater wetland	None: No suitable wetland habitat exists onsite.
Supple daisy (*Erigeron supplex*)	—/—/1B.2	Coastal prairie	Low: Some grassland habitat exists onsite.
Swamp harebell (*Campanula californica*)	—/—/1B.2	Coastal prairie, freshwater wetlands	None: No wetlands exist on site, and this species prefers coastal habitats.
Thin-lobed horkelia (*Horkelia tenuiloba*)	—/—/1B.2	Chaparral	Low: Some chaparral habitat exists onsite.
Thurber's reed grass (*Calamagrostis crassiglumis*)	—/—/2B.1	Coastal scrub, freshwater wetland	None: No suitable wetland habitat exists onsite.
Two-carpellate Western flax (*Hesperolinon bicarpellatum*)	**—/—/1B.2**	**Chaparral**	**Medium: Some chaparral habitat exists onsite.**
Vine Hill ceanothus (*Ceanothus foliosus* var. *vineatus*)	—/—/1B.1	Chaparral	Low: Some chaparral habitat exists onsite.
Vine Hill manzanita (*Arctostaphylos densiflora*)	—/SE/1B.1	Chaparral	Very Low: Some chaparral habitat exists onsite.

Taxon	Status[1] Fed/State/CNPS	Habitat	Potential to Occur Within the Project Area
Watershield (*Brasenia schreberi*)	—/—/2B.3	Pond, wetland	None: No pond habitat exists in the project area.
White beaked-rush (*Rhynchospora alba*)	—/—/2B.2	Wetlands, riparian	None: No suitable wetland habitat exists onsite.
White flowered rein orchid (*Piperia candida*)	—/—/1B.2	Yellow pine forest	Very Low: 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 old growth forest habitat exists onsite.
Coastal triquetrella (*Triquetrella californica*)	—/—/1B.2	Forest, woodland	None: No suitable forest habitat exists onsite.
Methuselah's beard lichen (*Dolichousnea longissima*)	—/—/4.2	Old growth conifer and hardwood forests	Low: Some forest habitat exists onsite.
Slender silver moss (*Anomobryum julaceum*)	—/—/4.2	Rocky substrates in forests	None: No suitable forest 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 streams exist onsite.
Clear Lake hitch (*Lavinia exilicauda chi*)	**FE/SE/—**	**Freshwater lakes and streams**	**None: No suitable streams exist onsite.**

Taxon	Status[1] Fed/State/CNPS	Habitat	Potential to Occur Within the Project Area
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 onsite.**
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.
California glossy snake (*Arizona elegans occidentalis*)	—/SSC/—	Grasslands	Very Low: Some habitat exists onsite.
California red-legged frog (*Rana draytonii*)	FT/SSC/—	Vernal pools, seasonal pools, stock ponds, and associated grasslands	None: No suitable habitat exists onsite.
California tiger salamander (*Ambystoma californiense*)	FT/SSC/—	Ponds, streams, drainages, and associated uplands	None: No suitable habitat exists onsite.
Foothill yellow-legged frog (*Rana boylii*)	**—/SSC/—**	**Wetlands, riparian, streams and ponds**	**Low: No suitable breeding habitat onsite. Some very poor estivation habitat onsite. Nearest occurrence is in Dry Creek located 1.0 miles north of the project site.**
Red bellied newt (*Taricha rivularis*)	**—/SSC/—**	**Woodland streams, riparian corridors**	**None: No suitable stream or wetland habitat exists onsite. Nearest occurrence is in Dry Creek located 1.0 miles north of the project site.**
Western pond turtle (*Emys marmorata*)	**—/SSC/—**	**Slow-moving creeks, streams, ponds, rivers, ditches.**	**None: No pond habitat exists onsite.**

Taxon	Status[1] Fed/State/CNPS	Habitat	Potential to Occur Within the Project Area
INVERTEBRATES			
Behren's silverspot butterfly (*Speyeria zerene behrensii*)	FE/SSC/—	Coastal prairie	None: Requires blue violet to reproduce; none onsite.
Brownish dubiraphian riffle beetle (*Dubiraphia brunnescens*)	**—/SSC/—**	**Freshwater streams**	**None: No suitable wetland habitat exists onsite.**
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, streams	None: No suitable vernal pool habitat exists onsite.
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 and chaparral	Medium: Some grassland habitat exists onsite.
Leech's skyline diving beetle (*Hydroporus leechi*)	—/SSC/—	Freshwater ponds	None: No suitable 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.	None: No suitable trees for roosting onsite.
Obscure bumble bee (*Bombus caliginosus*)	—/SSC/—	Grassland, foothill woodland, chaparral	Medium: No grassland habitat exists onsite.
Opler's longhorn moth (*Adela oplerella*)	—/SSC/—	Usually associated with *Platystemon* (creamcups)	Very Low: No suitable host plants onsite.
Oregon floater (*Anodonta oregonensis*)	—/SSC/—	High order freshwater streams	None: No suitable stream habitat exists onsite.

Taxon	Status[1] Fed/State/CNPS	Habitat	Potential to Occur Within the Project Area
Ricksecker's water scavenger beetle (*Hydrochara rickseckeri*)	—/SSC/—	Freshwater ponds	None: No suitable pond habitat exists onsite.
Sonoma zerene fritillary (*Speyeria zerene sonomensis*)	—/SSC/—	Grasslands and meadows	None: Requires *Viola* for reproduction; none onsite.
Western bumblebee (*Bombus occidentalis*)	—/SSC/—	Grassland	Medium: Some grassland habitat exists onsite.
Wilbur Springs shorebug (*Saldula usingeri*)	**—/SSC/—**	**Ponds**	**None: No suitable pond habitat exists onsite.**
Vernal pool andrenid bee (*Andrena blennospermatis*)	—/SSC/—	Upland areas near vernal pools	None: No vernal pool habitat exists onsite.
BIRDS			
American perigrine falcon (*Falco peregrinus anatum*)	**—/SSC/—**	**Forages in open grasslands, nests in trees**	**Medium: Some suitable nesting habitat exists onsite.**
Bald eagle (*Haliaeetus leucocephalus*)	**—/SE/—**	**Forages and nests near large lakes and rivers**	**None: No suitable river or lake habitat exists onsite.**
Bank swallow (*Riparia riparia*)	FE/SE/—	Typically found near lakes and streams	None: No suitable stream 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	Very Low: Some poor quality 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 scrub or chaparral habitat exists onsite.
Cooper's hawk (*Accipiter cooperii*)	—/WL/—	Forages over open grassland.	Low: Some suitable foraging habitat exists onsite. No suitable nesting habitat.
Ferruginous hawk (*Buteo regalis*)	—/SSC/—	Forages over open grassland. Nests in old-growth trees.	Low: Some suitable foraging and nesting habitat exists onsite.

Taxon	Status[1] Fed/State/CNPS	Habitat	Potential to Occur Within the Project Area
Golden eagle (*Aquila chrysaetos*)	**—/SSC/—**	**Forages over open grassland. Nests in old-growth trees.**	**Low: Some suitable foraging and nesting habitat exists onsite.**
Grasshopper sparrow (*Ammodramus savannarum*)	—/SSC/—	Forages over open grassland.	Low: Some suitable foraging habitat exists onsite.
Great egret (*Ardea alba*)	FE/SE/—	Nests in trees, forages in wetlands and grasslands	None: No suitable foraging or nesting habitat exists onsite.
Marbled murrelet (*Brachyramphus marmoratus*)	FT/SE/—	Old growth forest	None: No suitable old growth forest habitat exists onsite.
Northern goshawk (*Accipiter gentilis*)	—/SSC/—	Old growth forest	None: No suitable coniferous forest habitat exists onsite.
Osprey (*Pandion haliaetus*)	—/WL/—	Areas with fish	None: No suitable habitat exists onsite. Species prefers to be near large lakes and rivers.
Prairie falcon (*Falco mexicanus*)	**—/SSC/—**	**Forages over grasslands**	**Low: Some suitable nesting and foraging habitat exists onsite.**
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	None: No suitable nesting or foraging habitat exists onsite.
San Pablo song sparrow (*Melospiza melodia samuelis*)	—/SSC/—	Forages in grasslands and nests in dense freshwater marshes	None: No suitable nesting or foraging habitat exists onsite.
Sharp-shinned hawk (*Accipiter striatus*)	—/SSC/—	Forest and woodland	Low: Some suitable nesting and foraging habitat exists onsite.
Tricolored blackbird (*Agelaius tricolor*)	—/SSC/—	Forages in grasslands and nests in dense freshwater marshes	Low: Some suitable nesting habitat exists onsite. Some suitable foraging habitat onsite.

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

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.**	**Very Low: Some foraging habitat exists. No suitable roosts in the project area.**
Silver haired bat (*Lasionycteris noctivagans*)	**—/SSC/—**	**Nocturnal, migratory, solitary, roosts in tree cavities.**	**Low: Some suitable trees exist for roosting. Some foraging habitat exists.**
Sonoma tree vole (*Arborimus pomo*)	—/SSC/—	Old growth Douglas fir canopies.	None: No suitable old-growth forest habitat exists onsite.
Townsend's big-eared bat (*Corynorhinus townsendii*)	**—/SSC/—**	**Hibernate in mines or caves, roost in man made structures and caves.**	**Very Low: No man-made structures exist suitable for roosting. Some habitat for foraging.**
Western red bat (*Lasiurus blossevillii*)	**—/SSC/—**	**Forages over open areas, roots in trees or caves.**	**Very Low: No 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, some suitable foraging habitat exists.
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.
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: SPECIES ENCOUNTERED

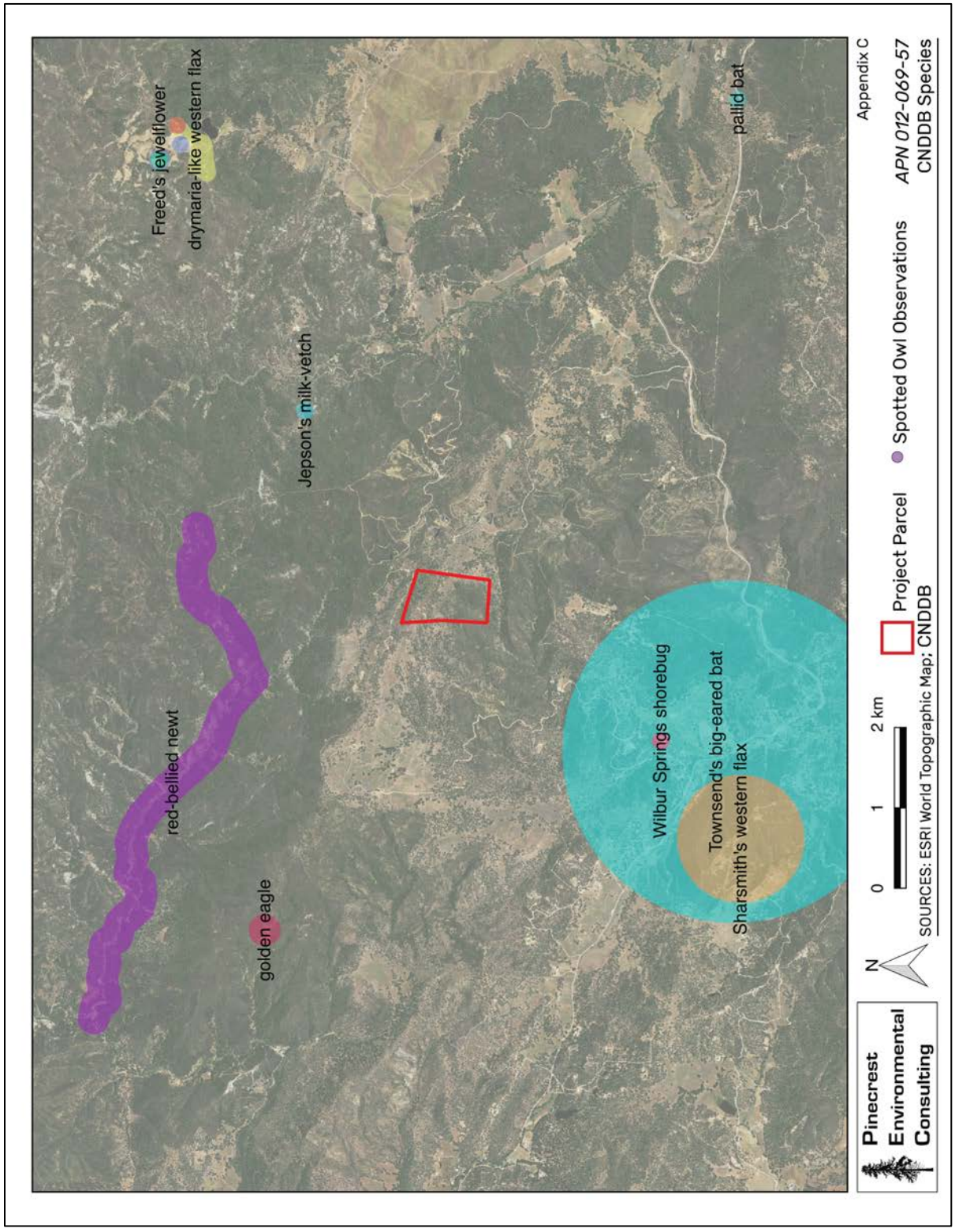
This list contains a list of all of the plants and animals observed onsite within the study area during the site visit on March 14, 2019. Any special-status species (SSS) are denoted in bold with an asterisk. No SSS species were directly observed at the time of the survey.

PLANTS
Achillea millefolium
Acmispon americanus
Adenostoma fasiculatum
Ansiocarpus madioides
Arctostaphylos canescens
Arctostaphylos manzanita
Avena barbata
Brassica nigra
Bromus diandrus
Bromus hordeaceous
Carduus pycnocephalus
Ceanothus integerrimus
Chlorogalum pomeridianum
Cirsium vulgare
Claytonia perfoliata
Croton setiger
Cynosurus echinatus
Deschampsia caespitosa
Digitalis purpurea
Elymus caput-medusae
Elymus glaucus
Eriodictyon californicum
Erodium botrys
Festuca myuros
Festuca perennis
Galium aparine
Galium californicum
Gastridium phleoides
Geranium dissectum
Geranium molle
Helminthotheca echioides
Holcus lanatus
Hypochaeris glabra
Lactuca serriola
Matricaria discoidea

Monardella villosa
Nemophila menziesii
Notholithocarpus densiflorus
Pinus sabiniana
Plantago lanceolata
Primula hendersonii
Pteridium aquilinum
Quercus dumosa
Quercus kelloggii
Quercus wislizeni
Ranunculus occidentalis
Rubus armeniacus
Rumex acetocella
Sonchus asper
Stellaria media
Torilis arvensis
Toxicodendron diversilobium
Trifolium hirtum
Urtica urens
Verbascum thapsus
Vicia sativa
Wyethia angustifolia

ANIMALS
Canis latrans
Cathartes aura
Corvus brachyrhynchos
Melanerpes formicivorus
Odocoileus hemionus
Sceloporous occidentalis
Thomomys bottae

APPENDIX C: CNDDB OCCURRENCES MAP


Freed's jewelflower
drymaria-like western flax
Jepson's milk-vetch
red-bellied newt
golden eagle
Wilbur Springs shorebug
Townsend's big-eared bat
Sharsmith's western flax
pallid bat
Pinecrest Environmental Consulting
N
0
1
2 km
Project Parcel
Spotted Owl Observations
SOURCES: ESRI World Topographic Map; CNDDB
Appendix C
APN 012-069-57
CNDDB Species

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).