BIOLOGICAL RESOURCES ASSESSMENT

22004 MORGAN VALLEY ROAD [APN 012-069-25]
LAKE COUNTY, CALIFORNIA

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TABLE OF CONTENTS

1.0 INTRODUCTION **3**
1.1 PURPOSE 3
1.2 LOCATION 3
1.2.1 Site Overview *3*
1.2.2 Federal Critical Habitat *3*
1.2.3 Special-Status Species Occurrences *3*
1.2.4 Landforms & Topography *5*
1.3 METHODS 5
1.3.1 Records Search & Literature Review *5*
1.3.2 Field Surveys *6*
2.0 RESULTS **7**
2.1 REGIONAL ECOLOGICAL SETTING 7
2.2 NATURAL COMMUNITIES WITHIN THE PROJECT SITE 7
2.2.1 Chamise Chaparral *7*
2.3 WILDLIFE 8
2.4 WATERCOURSES & POTENTIAL WETLANDS 8
2.5 SOILS & LOCAL GEOMORPHOLOGY 9
3.0 SUMMARY & CONCLUSIONS **10**
4.0 REGULATORY FRAMEWORK **11**
4.1 FEDERAL ENDANGERED SPECIES ACT 11
4.2 CALIFORNIA ENDANGERED SPECIES ACT 11
4.3 CALIFORNIA ENVIRONMENTAL QUALITY ACT 11
4.4 CLEAN WATER ACT 12
4.5 CALIFORNIA WATER QUALITY REGULATORY PROGRAMS 12
5.0 REFERENCES **13**

FIGURE 1: REGIONAL LOCATION 14

FIGURE 2: 40-FOOT CONTOURS 15

FIGURE 3: WATERCOURSES 16

FIGURE 4: PHOTOGRAPH OF CULTIVATION AREA A 17

FIGURE 5: PHOTOGRAPH OF CULTIVATION AREA B 18

FIGURE 6: PHOTOGRAPH OF CULTIVATION AREA C 19

FIGURE 7: PHOTOGRAPH OF CLASS III WATERCOURSE 20

FIGURE 8: PHOTOGRAPH OF SEPTIC SYSTEM 21

FIGURE 9: PHOTOGRAPH OF WATER STORAGE 22

FIGURE 10: PHOTOGRAPH OF RIPARIAN CORRIDOR 23

APPENDIX A: SPECIAL-STATUS SPECIES CONSIDERED 24

APPENDIX B: NSO OCCURRENCES MAP 39

APPENDIX C: CNDDB OCCURRENCES MAP 40

APPENDIX D: CRITICAL HABITAT MAP 41

APPENDIX E: CANNABIS CULTIVATION BEST MANAGEMENT PRACTICES 42

E.1 CANNABIS CULTIVATION 42

E.2 EROSION & SEDIMENT CONTROL 44

E.3 WATER USE & POLLUTION 46

E.4 ROAD MAINTENANCE & GENERAL CONSTRUCTION 48

E.5 SWALE & VEGETATION MANAGEMENT 49

E.6 IRRIGATION & CULTIVATION MANAGEMENT 50

E.7 SPECIAL-STATUS SPECIES AVOIDANCE MEASURES 52

APPENDIX F: STREAM CLASSIFICATION CRITERIA 54

1.0 INTRODUCTION

1.1 PURPOSE

The purpose of this reconnaissance-level Biological Assessment (BA) 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 BA also analyzes the potential for jurisdictional wetlands and other waters of the State to exist onsite, and classifies landforms that may potentially convey sediment to waters of the State 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 (SWRCB) *Cannabis* General Order No. WQ 2019-0001-DWQ and other state and local ordinances.

1.2 LOCATION

1.2.1 Site Overview

The project property is located at 22004 Morgan Valley Road in unincorporated Lake County, 5.0 miles east of Lower Lake, and 23 miles southeast of Lakeport (Figure 1). The property is designated Assessor's Parcel Number (APN) 012-069-25, is zoned "RL", and is deeded 37.81 acres. The parcel is located in Section 11, Township 12 North, Range 6 West, on the USGS Wilson Valley 7.5 minute quadrangle (Figure 2). The approximate latitude and longitude of the centroid of the property is 38.897 (N), -122.500 (W). All parcels are under the jurisdiction of the Central Valley Regional Water Quality Control Board (RWQCB), and the Northern Region (District 1) of the California Department of Fish & Wildlife (CDFW), and are not located in medium- or high-priority groundwater basins as designated by the California Department of Water Resources (DWR).

1.2.2 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 (Appendix E). The nearest Federal Critical Habitat is located 3.6 miles southwest of the parcel for Slender Orcutt Grass (*Orcuttia tenuis*). There is no other Federal Critical Habitat within 10 miles of the project parcel.

1.2.3 Special-Status Species 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 site based the CNDDB database, published scientific literature, and the expertise of PEC staff, is provided in Appendix A, with a description of the nearest locality of all SSS known from within a 5 mile radius around the project site. Additionally, map-based representation of all of the SSS within an approximately 5 mile radius around the project site is provided in Appendices B & C.

1.2.3.1 SSS Animals

All of the known special-status animal species from within 5 miles of the project parcel are highlighted in Appendix A. There are a total of 9 special-status animal species known from within 5 miles of the project parcel. There are no known special-status animal species known from the project parcel (Appendix C). The nearest known occurrence of special-status animal species is Townsend's big-eared bat (*Corynorhinus townsendii*) located approximately 0.4 miles southwest of the project parcel near Soda Creek. The next nearest known occurrence of special-status animal species is Wilbur Springs shorebug (*Saldula usingeri*) located approximately 0.9 miles southwest of the project parcel near Soda Creek. The next nearest known occurrences of special-status animal species are Foothill yellow-legged frog (*Rana boylii*; FYLF) and Red-bellied newt (*Taricha rivularis*) located approximately 1.4 miles north of the project parcel in Dry Creek. The next nearest known occurrence of special-status animal species is Golden eagle (*Aquila chrysaetos*) located approximately 2.0 miles northwest of the project parcel near Ferris Canyon. The next nearest known occurrences of special-status animal species is an indistinct locality of Prairie falcon (*Falco mexicanus*) observed somewhere in the USGS Jericho Valley 7.5 minute quad (Appendix C), that comes as close as 2.4 miles southeast of the project parcel. The next nearest known occurrence of special-status animal species is Western pond turtle (*Emys marmorata*) located approximately 3.0 miles south of the project parcel near Asbill Creek. The next nearest known occurrence of special-status animal species is Pallid bat (*Antrozous pallidus*) located approximately 3.5 miles southeast of the project parcel near Grizzly Peak. The next nearest known occurrence of special-status animal species is Clear Lake hitch (*Lavinia exilicauda chi*) located approximately 4.8 miles northwest of the project parcel near Anderson Flat. There are no other known occurrences of special-status animal species within 5 miles of the project parcel.

1.2.3.2 SSS Plants

All of the known special-status plant species from within 5 miles of the project parcel are highlighted in Appendix A. There are a total of 16 special-status plant species known from within 5 miles of the project parcel. There are no known special-status plant species known from the project parcel (Appendix C). The nearest known occurrence of special-status plant species is Sharsmith's Western flax (*Hesperolinon sharsmithiae*) located approximately 1.3 miles southwest of the project parcel near Soda Creek. The next nearest known occurrence of special-status plant species is Jepson's milk vetch (*Astragalus rattanii* var. *jepsonianus*) located approximately 1.9 miles northeast of the project parcel near Brushy Sky High. The next nearest known occurrence of special-status plant species is Colusa layia (*Layia septentrionalis*) located approximately 3.0 miles southeast of the project parcel near Palmer Creek. The next nearest known occurrence of special-status plant species is Drymaria-like western flax (*Hesperolinon drymarioides*) located approximately 3.3 miles northeast of the project parcel near Buck Mountain. The next nearest known occurrences of special-status plant species are Freed's jewelflower (*Streptanthus brachiatus* spp. *hoffmanii*) and Snow Mountain buckwheat (*Eriogonum nervulosum*) located approximately 3.5 miles northeast of the project parcel near Buck Mountain. The next nearest known occurrence of special-status plant species is Few-flowered navarretia (*Navarretia leucocephala* spp. *pauciflora*) located approximately 3.6 miles west of the project parcel near Herndon Creek.

The next nearest known occurrence of special-status plant species is Hall's harmonia (*Harmonia hallii*) located approximately 3.6 miles northeast of the project parcel near Buck Mountain. The next nearest known occurrences of special-status plant species are Bogg's Lake hedge-hyssop (*Gratiola heterosepala*), Many-flowered navarretia (*Navarretia leucocephala* spp. *plieantha*), and Slender Orcutt grass (*Orcuttia tenuis*) located approximately 4.1 miles southwest of the project parcel near Asbill Creek. The next nearest known occurrence of special-status plant species is Legenere (*Legenere limosa*) located approximately 4.2 miles southwest of the project parcel near Asbill Creek. The next nearest known occurrences of special-status plant species are Baker's navarretia (*Navarretia leucocephala* ssp. *bakeri*) and Burke's goldfields (*Lasthenia burkei*) located approximately 4.5 miles west of the project parcel near Excelsior Valley. The next nearest known occurrence of special-status plant species is Adobe lily (*Fritillaria pluriflora*) located approximately 4.6 miles northeast of the project parcel near Wilson Valley. The next nearest known occurrence of special-status plant species is Lake County stonecrop (*Sedella leiocarpa*) located approximately 4.7 miles southwest of the project parcel near Little High Valley. There are no other known occurrences of special-status plant species within 5 miles of the project parcel.

1.2.4 Landforms & Topography

The maximum elevation of the site is 2,484 feet above sea level at the center of the eastern property line. The minimum elevation is 2,130 feet above sea level near the southwest corner of the parcel where the unnamed Class II watercourse exits the parcel (Figure 2). The topography of the site is moderately to steeply sloped, with grades between 10% and 40%, as measured by Suunto PM5 handheld clinometer (Figure 2). Water passing offsite flows generally towards the southwest and eventually enters Soda Creek, that flows south for 7.6 miles before the confluence with Putah Creek, which in turn flows southeast for approximately 19 miles before emptying into Lake Berryessa. From the outlet of Lake Berryessa at Monticello Dam, Putah Creek continues east for 27 miles flowing into the Central Valley and past the City of Davis before emptying into a series of low-lying basins known as the Putah Creek Sinks. From there water flows into the Yolo Bypass and south into the Sacramento River which flows south for approximately 40 miles before emptying into Suisun Bay and the Pacific Ocean..

1.3 METHODS

1.3.1 Records Search & Literature Review

Based on a review of the literature and relevant databases, we compiled a list of special-status plant and animal species that are known to occur within Lake County, or that occupy habitats that are known to be present on or near the project site (Appendices A-C). Sources of information referenced include the California Department of Fish & Wildlife (CDFW) *California Natural Diversity Database* (CNDDB 2021), U.S. Fish and Wildlife Service Environmental Conservation Online System (USFWS 2021), the California Native Plants Society (CNPS) *Inventory of Rare and Endangered Vascular Plants of California* (CNPS 2021), 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 2021), and the County of Lake *Geographic Information System Portal* (Lake Co. 2021). Plant species included here are State or Federally Endangered or Threatened species, and/or considered rare by CDFW, and/or are recognized as special-status species (SSS) by CNPS and/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 & Game Code.

1.3.2 Field Surveys

A wildlife and botanical survey was conducted at the site on March 14, 2019 and also on April 15, 2021. The entire project site was surveyed on foot by PEC botanists Dr. Zoya Akulova and Dr. Christopher DiVittorio, recording the location and identity of all plant and animal species encountered. All plant species were able to be identified between these two time points. Plant voucher specimens were taken of any species that were not identifiable in the field, and that were not likely to be special-status. Photographs and voucher specimens were taken of any plants that were identified solely based on vegetative characters.

2.0 RESULTS

2.1 REGIONAL ECOLOGICAL SETTING

The entirety of the parcel consists of burned chaparral and oak savannah, with higher proportions of oak trees in watercourses (Figure 3). The entire property was severely burned during the Rocky Fire in July 2015 and nearly all trees were killed, although chaparral shrubs have mostly resprouted. There are several Class III watercourses that run through the site, and one unnamed Class II watercourse. 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% burned chamise chaparral, and 10% riparian corridor (Figure 5).

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 in watercourses (Figure 3). The entire property was severely burned during the Rocky Fire in July 2015 and nearly all trees were killed, although chaparral shrubs have mostly resprouted (Figure 3).

2.2.1 Chamise Chaparral

Canopy tree species observed in this habitat include Black oak (*Quercus kelloggii*) to 18" diameter-at-breast-height (DBH), Interior live oak (*Quercus wislizeni*) to 14" DBH, Gray pine (*Pinus sabiniana*) to 18" DBH, and epiphytes of American mistletoe (*Phoradendron leucarpum*). Other woody species include chamise (*Adenostoma fasiculatum*), common manzanita (*Arctostaphylos manzanita*), hoary manzanita (*Arctostaphylos canescens*), deer brush (*Ceanothus integerrimus*), buck brush (*Ceanothus cuneatus*), poison oak (*Toxicodendron diversilobium*), tanoak (*Notholithocarpus densiflorus*), leather oak (*Quercus durata*), Yerba Santa (*Eriodictyon californicum*), toyon (*Heteromeles arbutifolia*), mountain mahogany (*Cercocarpus betuloides*), silver bush lupine (*Lupinus albifrons*), French broom (*Genista monspessulana*), and coyote mint (*Monardella villosa*). Native herbaceous species include purple needlegrass (*Stipa pulchra*), blue wildrye (*Elymus glaucus*), woodland madia (*Ansiocarpus madioides*), hayfield tarweed (*Hemizonia congesta*), harvest brodiaea (*Brodiaea elegans*), common bedstraw (*Galium aparine*), bird's foot trefoil (*Acmispon americanus*), Chilean trefoil (*Acmispon wrangelianus*), giant mountain dandelion (*Agoseris grandiflora*), narrow-leaved mule ears (*Wyethia angustifolia*), common yarrow (*Achillea millefolium*), soap plant (*Chlorogalum pomeridianum*), baby blue eyes (*Nemophila menziesii*), California bedstraw (*Galium californicum*), California cottonrose (*Logfia fialginoides*), Q-tips (*Micropus californicus*), ground iris (*Iris macrosiphon*), blue dicks (*Dichelostemma capitata*), narrow-leaved miner's lettuce (*Claytonia parviflora*), purple clarkia (*Clarkia purpurea*), common cryptantha (*Cryptantha affinis*), willow herb (*Epilobium brachycarpum*), Western buttercup (*Ranunculus occidentalis*), hill morning glory (*Calystegia subacaulis*), and California poppy (*Eschscholzia californica*).

Non-native herbaceous species include hairgrass (*Aira caryophyllea*), wild oats (*Avena barbata*), ripgut brome (*Bromus diandrus*), soft chess (*Bromus hordeaceous*), red brome (*Bromus madritensis*), dogstail grass (*Cynosurus echinatus*), medusahead (*Elymus caput-medusae*), Zorro fescue (*Festuca myuros*), Italian ryegrass (*Festuca perennis*), Italian thistle (*Carduus pycnocephalus*), big heron bill (*Erodium botrys*), sowthistle (*Sonchus asper*), chickweed (*Stellaria media*), Shepherd's purse (*Capsella bursa-pastoris*), yellow star thistle (*Centaurea solstitialis*), Tocalote (*Centaurea melitensis*), prickly lettuce (*Lactuca serriola*), bristly ox-tongue (*Helminthotheca echioides*), smooth cat's ear (*Hypochaeris glabra*), goatsbeard (*Tragopogon dubius*), pineapple weed (*Matricaria discoidea*), flax-leaved horseweed (*Erigeron bonariensis*), Queen Anne's lace (*Daucus carota*), bull thistle (*Cirsium vulgare*), black mustard (*Brassica nigra*), wild geranium (*Geranium dissectum*), ribwort (*Plantago lanceolata*), woolly mullein (*Verbascum thapsus*), field parsley (*Torilis arvensis*), rose clover (*Trifolium hirtum*), spring vetch (*Vicia sativa*), hairy vetch (*Vicia villosa*), Klamathweed (*Hypericum perforatum*), crane's bill geranium (*Geranium molle*), sheep sorrel (*Rumex acetocella*), and mouse ear chickweed (*Cerastium glomeratum*).

The habitat surrounding the unnamed Class II watercourses onsite contains some species indicative of higher soil moisture levels. Species unique to this habitat includes California bay (*Umbellularia californica*) to 14" DBH, California buckeye (*Aesculus californica*) to 10" DBH, bracken fern (*Pteridium aquilinum*), Himalayan blackberry (*Rubus armeniacus*), and coyote brush (*Baccharis pilularis*).

2.3 WILDLIFE

Animal species observed both directly and indirectly during the course of both site visits include turkey vulture (*Cathartes aura*), acorn woodpecker (*Melanerpes formicivorus*), crow (*Corvus brachyrhynchos*), Brewer's blackbird (*Euphagus cyanocephalus*), Western scrub jay (*Aphelocoma californica*), California quail (*Callipepla californica*), mourning dove (*Zenaida macroura*), red-tailed hawk (*Buteo jamaicensis*), savannah sparrow (*Passerculus sandwichensis*), Western fence lizard (*Sceloporous occidentalis*), California ground squirrel (*Otospermophilus beecheyi*), scat of black-tailed jackrabbit (*Lepus californicus*), and Mule deer (*Odocoileus hemionus*).

2.4 WATERCOURSES & POTENTIAL WETLANDS

Jurisdictional 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. All onsite jurisdictional streamcourses are mapped in Figure 3. According to these criteria, there is one unnamed seasonal Class II watercourse onsite, and a number of ephemeral Class III watercourses. The Class II watercourse contains some hardwood species not found in upland habitats, but in general it does not exhibit a well-developed riparian corridor. Class III watercourses contain only upland vegetation.

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), however a protocol-level wetland delineation was not performed. For this BA, we identified potential wetlands in Figure 3 based on the presence of one of the three ACOE criteria, usually hydrophytic vegetation cover but sometimes soil indicators or hydrology or a combination of these. Based on these criteria there are no potentially jurisdictional wetlands onsite (Figure 3).

2.5 SOILS & LOCAL GEOMORPHOLOGY

The parent materials on the project parcel are typical of southwestern Lake County, with easily erodible sediments of the Franciscan Formation dissected by highly seasonal rivers (USGS 1985). The entirety of the project parcel is mapped as Skyhigh-Millsholm loams (#209), 15% to 50% slopes, with lesser proportions of Bressa (10%), Etsel (4%), Asbill (4%), and Sleeper (4%) soils. This soil type is designated "Not Prime Farmland". Parent materials are residuum weathered from sedimentary rock. There are no serpentine or other ultramafic rock types onsite and no serpentine derived soils mapped or observed onsite. There are no alkalai or vernal pool soil types onsite.

3.0 SUMMARY & CONCLUSIONS

None of the special-status plant species listed in Appendix A were observed during the surveys performed at the site in 2019 and 2021. No impacts are predicted for any of the special-status plant species considered based on lack of actual sightings, and lack of suitable habitat in the proposed project areas. The entire proposed cultivation area was severely burned and the vegetation that grew back after 2015 now contains a low-diversity understory of mostly Yerba Santa and exotic grasses. There is no serpentine or chaparral barrens that are appropriate for special-status species such as *Hesperolinon*. There are several areas that are already previously cleared that are appropriate for cultivation that should not require additional removal of mature oak trees. The two site visits roughly covered the early and late flowering periods in two different years, thus there should be no impacts to special-status plant species or their habitats from cultivation on the project parcel.

No special-status animal species were observed during the surveys performed at the site in 2019 and 2021. No impacts are predicted for any of the 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 approximately 1 mile away in the Dry Creek drainage. Due to the numerous drainages and chaparral slopes that are between this locality and the project site, and due to the lack of perennial sources of moisture this far up in the hills, there is little chance FYLF would migrate onto the project parcel. There is no breeding habitat and limited estivating habitat on the project parcel. There are also no structures that would provide habitat for any of the special-status bat species, although tree removal (even dead trees) larger than 18" in diameter should be cleared by a biologist before removal in order to maintain potential nesting habitat for bats and migratory birds. As long as these measures are taken to avoid nesting birds, there should be no impacts to special-status animal species or their habitats from cultivation on the project parcel.

There is currently little risk of discharge of sediment to waters of the State due to the lack of developed areas onsite and lack of watercourse crossings at the present time. There are also no isolated wetland features such as ponds, bogs, springs, vernal pools, or wet meadows identified at the time of the survey, however a protocol-level wetland delineation was not performed. A slip that was observed in 2019 has since been remediated and the hillslope appears to be stable and has been seeded and straw wattles placed along the slope. Grass appears to be revegetating. As long as the BMPs in Appendix E are implemented to the greatest extent practicable, no sediment discharge to Waters of the State is anticipated. Anywhere revegetation after disturbance is required, only native vegetation should be used. A list of suitable species and nurseries/vendors can be provided by PEC on request. Sterile wheat is acceptable if no native species can be obtained.

4.0 REGULATORY FRAMEWORK

4.1 FEDERAL ENDANGERED SPECIES ACT

The U.S. Fish & 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 & Wildlife (CDFW) has jurisdiction over state-listed species (California Fish & Game 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 & Game 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 1601 to 1603 of the Fish & Game Code. The Fish & Game 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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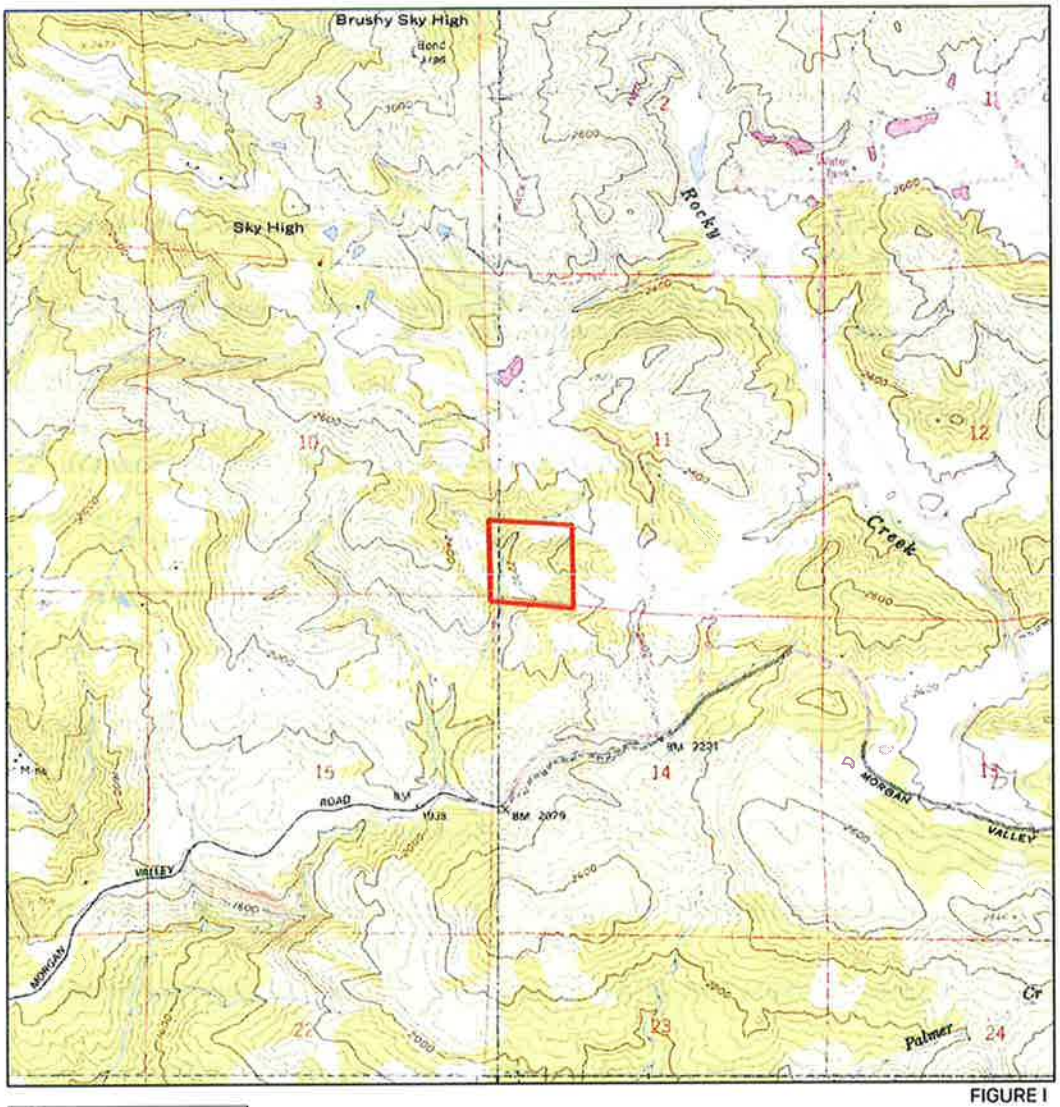
FIGURE 1: REGIONAL LOCATION



Pinecrest Environmental Consulting

N

0 500 1000 m

Project Parcel

SOURCES: USGS Topographic Map

APN 012-069-25
Regional Topography

FIGURE 2: 40-FOOT CONTOURS

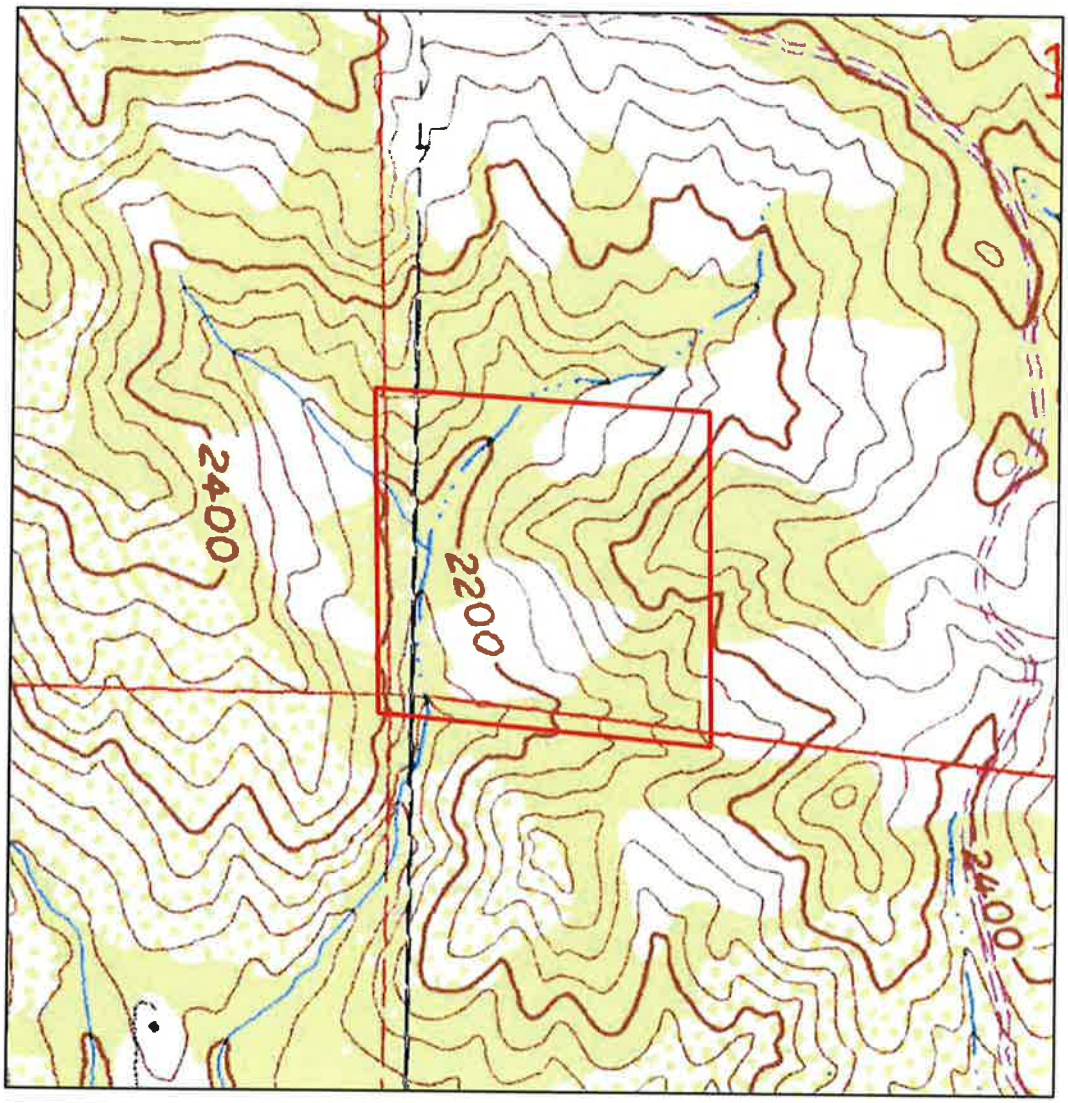


FIGURE II

Pinecrest Environmental Consulting

N

0 100 200 m

Project Parcel

SOURCES: USGS Topographic Map

APN 012-069-25
Local Topography

FIGURE 3: WATERCOURSES

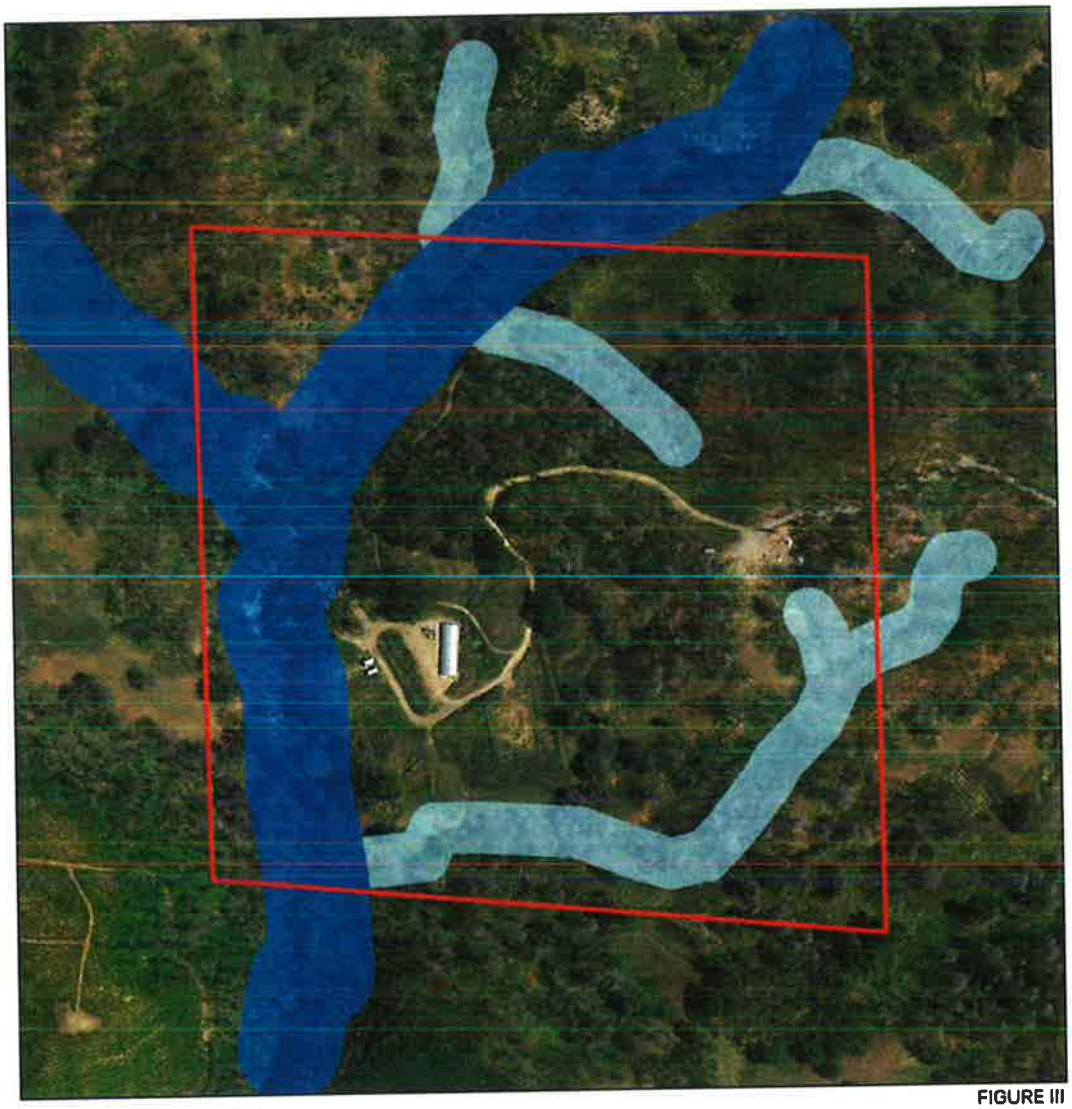


FIGURE 4: PHOTOGRAPH OF CULTIVATION AREA A

Pinecrest Environmental Consulting
www.pinecrestenvironmental.org

SOURCES: PEC Inc.

APN 012-069-25
22004 Morgan Valley Road, Lower Lake, CA 95457

FIGURE 5: PHOTOGRAPH OF CULTIVATION AREA B

Pinecrest Environmental Consulting
www.pinecrestenvironmental.org

SOURCES: PEC Inc.

APN 012-069-25
22004 Morgan Valley Road, Lower Lake, CA 95457

FIGURE 6: PHOTOGRAPH OF CULTIVATION AREA C

Pinecrest Environmental Consulting
www.pinecrestenvironmental.org

SOURCES: PEC Inc.

APN 012-069-25
22004 Morgan Valley Road, Lower Lake, CA 95457

FIGURE 7: PHOTOGRAPH OF CLASS III WATERCOURSE

Pinecrest Environmental Consulting
www.pinecrestenvironmental.org

SOURCES: PEC Inc.

APN 012-069-25
22004 Morgan Valley Road, Lower Lake, CA 95457

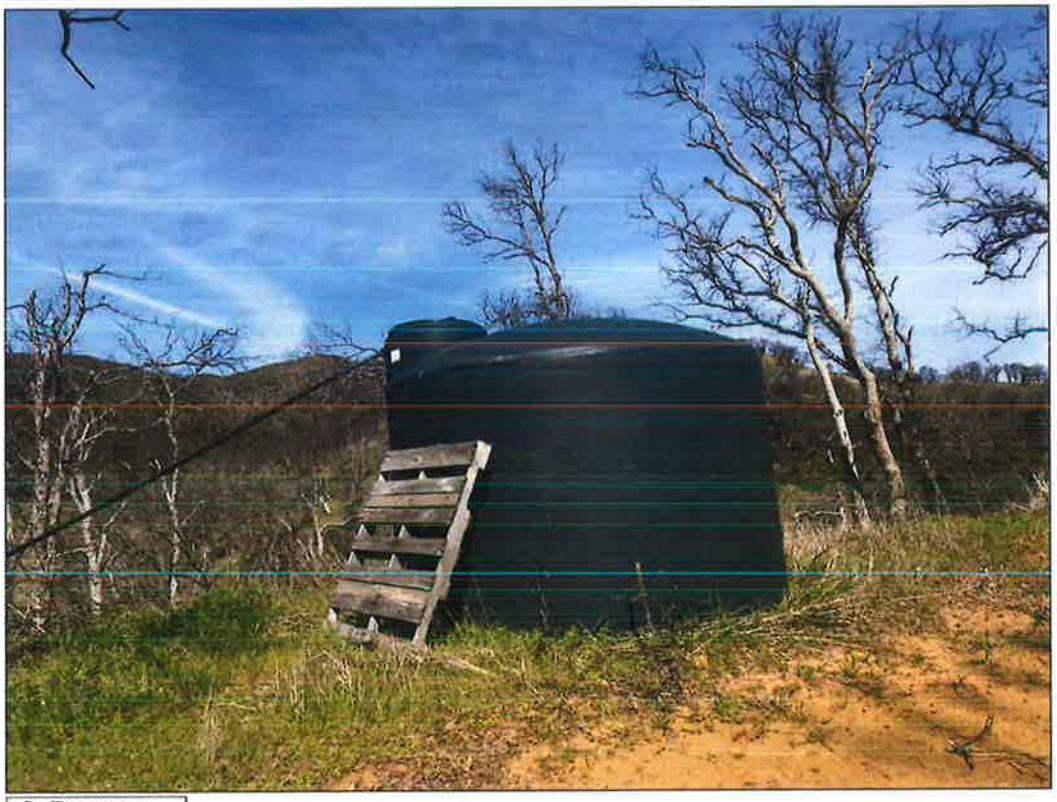
FIGURE 8: PHOTOGRAPH OF SEPTIC SYSTEM

Pinecrest Environmental Consulting
www.pinecrestenvironmental.org

SOURCES: PEC Inc.

APN 012-069-25
22004 Morgan Valley Road, Lower Lake, CA 95457

FIGURE 9: PHOTOGRAPH OF WATER STORAGE



Pinecrest Environmental Consulting
www.pinecrestenvironmental.org

SOURCES: PEC Inc.

APN 012-069-25
22004 Morgan Valley Road, Lower Lake, CA 95457

FIGURE 10: PHOTOGRAPH OF RIPARIAN CORRIDOR

Pinecrest Environmental Consulting
www.pinecrestenvironmental.org

SOURCES: PEC Inc.

APN 012-069-25
22004 Morgan Valley Road, Lower Lake, CA 95457

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). Known occurrences within 5 miles of the project site are shown in bold.

Taxon	Status[1] Fed/State/CNPS	Habitat	Potential to Occur Within the Project Area
PLANTS			
Adobe lily (*Fritillaria pluriflora*)	**—/—/1B.2**	**Valley grasslands, foothill woodland**	**Medium: A small amount of grassland habitat exists onsite. Nearest known occurrence is 4.6 miles NE of the parcel near Wilson Valley.**
Anthony peak lupine (*Lupinus antoninus*)	—/—/1B.2	Montane forest	None: No suitable montane habitat exists onsite.
Baker's manzanita (*Arctostaphylos bakeri* ssp. *bakeri*)	—/—/1B.1	Serpentine chaparral	None: No serpentine habitat exists onsite.
Baker's meadowfoam (*Limnanthes bakeri*)	—/ST/1B.1	Vernal pools, freshwater wetland	None: No suitable wetland habitat exists onsite.
Baker's navarretia (*Navarretia leucocephala* ssp. *bakeri*)	**—/—/1B.1**	**Vernal pools**	**Low: No vernal pool habitat exists onsite. Nearest known occurrence is 4.5 miles W of the parcel near Excelsior Valley.**
Beaked tracyina (*Tracyina rostrata*)	—/—/1B.2	Valley grassland, foothill woodland	Very Low: A small amount of grassland habitat exists onsite.
Bent flowered fiddleneck (*Amsinckia lunaris*)	—/—/1B.2	Valley grassland, foothill woodland	Very Low: A small amount of grassland habitat exists onsite.
Big scale balsamroot (*Balsamorhiza macrolepis*)	—/—/1B.2	Valley grassland, foothill woodland	Very Low: A small amount of grassland habitat exists onsite.
Bogg's Lake hedge-hyssop (*Gratiola heterosepala*)	**—/—/1B.2**	**Vernal pools, lake margins**	**Low: No suitable wetland habitat exists onsite. Nearest known occurrence is 4.1 miles SW of the parcel near Asbill Creek.**
Bolander's horkelia (*Horkelia bolanderi*)	—/—/1B.2	Yellow pine forest, grassland	Low: No suitable forest habitat exists onsite.

Taxon	Status[1] Fed/State/CNPS	Habitat	Potential to Occur Within the Project Area
Brandegee's eriastrum (*Eriastrum brandegeeae*)	—/—/1B.1	Clearings in chaparral	Medium: Some suitable chaparral habitat exists onsite.
Bristly sedge (*Carex comosa*)	—/—/2B.1	Freshwater marsh, riparian	Very Low: No suitable wetland habitat exists onsite.
Brownish beaked-rush (*Rhynchospora capitellata*)	—/—/2B.2	Freshwater marsh, riparian	Very Low: No suitable wetland habitat exists onsite.
Burke's goldfields (*Lasthenia burkei*)	**FE/SE/1B.1**	**Vernal pools**	**Low: No suitable vernal pool habitat exists onsite. Nearest known occurrence is 4.5 miles W of the parcel near Excelsior Valley.**
California alkalai grass (*Puccinellia simplex*)	—/—/1B.2	Alkalai sink	None: No alkalai wetland habitat exists onsite.
California satintail (*Imperata brevifolia*)	—/—/2B.1	Chaparral	Medium: Some suitable chaparral habitat exists onsite.
Calistoga ceanothus (*Ceanothus divergens*)	—/—/1B.2	Chaparral	Low: Some chaparral habitat exists onsite.
Cascade downingia (*Downingia willamettensis*)	—/—/2B.2	Vernal pool	None: No vernal pool habitat exists onsite.
Clara Hunt's milk vetch (*Astragalus claranus*)	—/—/1B.1	Chaparral, grassland	Low: Some chaparral habitat exists onsite.
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: A small amount of grassland habitat exists onsite. Nearest known occurrence is 3.0 miles SE of the parcel near Palmer Creek.**
Congested-headed hayfield tarplant (*Hemizonia congesta* ssp. *congesta*)	—/—/1B.2	Grassland, coastal scrub	Very Low: A small amount of grassland habitat exists onsite.
Deep scarred cryptantha (*Cryptantha excavata*)	—/—/1B.1	Foothill woodland	Very Low: A small amount of 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. Nearest known**

Taxon	Status[1] Fed/State/CNPS	Habitat	Potential to Occur Within the Project Area
			occurrence is 3.3 miles NE of the parcel near Buck Mountain.
Dwarf downingia (*Downingia pusilla*)	—/—/2B.2	Vernal pools, freshwater wetland	None: No vernal pool habitat exists onsite.
Dwarf soaproot (*Chlorogalum pomeridianum* var. *minus*)	—/—/1B.2	Serpentine chaparral	None: No serpentine chaparral habitat exists onsite.
Early jewelflower (*Streptanthus vernalis*)	—/—/1B.2	Serpentine outcrops	None: No suitable serpentine outcrop habitat exists onsite.
Eel-grass pondweed (*Potamogeton zosteriformis*)	—/—/2B.2	Freshwater lakes, ponds	Very Low: No suitable pond habitat exists onsite.
Few-flowered navarretia (*Navarretia leucocephala* ssp. *pauciflora*)	**FE/ST/1B.1**	**Vernal pools**	**Very Low: No suitable vernal pool habitat exists onsite. Nearest known occurrence is 3.6 miles W of the parcel near Herndon Creek.**
Franciscan onion (*Allium peninsulare* var. *franciscanum*)	—/—/1B.2	Grassland	Very Low: A small amount of grassland habitat exists onsite.
Freed's jewelflower (*Streptanthus brachiatus* ssp. *hoffmanii*)	**—/—/1B.2**	**Serpentine outcrops**	**None: No serpentine outcrop habitat exists onsite. Nearest known occurrence is 3.5 miles NE of the parcel near Buck Mountain.**
Geysers panicum (*Panicum acuminatum* var. *thermale*)	—/—/1B.2	Chaparral, wetlands	Low: Some chaparral seep habitat exists onsite.
Glandular western flax (*Hesperolinon adenophyllum*)	—/—/1B.2	Chaparral	High: Some suitable chaparral habitat exists onsite.
Grassleaf water plantain (*Alisma gramineum*)	—/—/2B.2	Wetland, riparian	None: No suitable riparian 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, grassland**	**Low: Some suitable habitat exists onsite. Nearest known occurrence is 3.6 miles NE of the parcel near Buck Mountain.**

Taxon	Status[1] Fed/State/CNPS	Habitat	Potential to Occur Within the Project Area
Hoffman's bristly jewelflower (*Streptanthus glandulosus* spp. *hoffmanii*)	—/—/1B.3	Chaparral, foothill woodland	Medium: Some suitable chaparral habitat exists onsite.
Holly-leaved ceanothus (*Ceanothus purpureus*)	—/—/1B.2	Chaparral	Low: Some suitable chaparral habitat exists onsite.
Hospital Canyon larkspur (*Delphinium californicum* ssp. *interius*)	—/—/1B.2	Foothill woodland	Low: Some woodland habitat exists onsite.
Indian Valley brodiaea (*Brodiaea rosea*)	—/SE/3.1	Serpentine chaparral	Very Low: No serpentine habitat exists onsite.
Jepson's coyote thistle (*Eryngium jepsonii*)	—/—/4.2	Wetlands and vernal pools	None: No vernal pool habitat exists onsite.
Jepson's dodder (*Cuscuta jepsonii*)	—/—/1B.2	Chaparral, grassland	Medium: Some chaparral 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**	**High: Some suitable chaparral habitat exists onsite. Nearest known occurrence is 1.9 miles NE of the parcel near Brushy Sky High.**
Keck's checkerbloom (*Sidalcea keckii*)	FE/—/1B.1	Valley grassland, serpentine	None: No suitable wetland 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	Medium: Some suitable 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: No rock outcrop habitat exists onsite. Nearest known occurrence is 4.7 miles SW of the parcel near Little High Valley.**
Lake County western flax (*Hesperolinon didymocarpum*)	—/SE/1B.2	Serpentine grasslands	Very Low: No suitable serpentine habitat exists onsite.

Taxon	Status[1] Fed/State/CNPS	Habitat	Potential to Occur Within the Project Area
Lake Pillsbury checkerbloom (*Sidalcea hickmanii* spp. *pillsburiensis*)	—/—/1B.2	Chaparral	Low: No suitable chaparral habitat exists onsite.
Legenere (*Legenere limosa*)	**—/—/1B.1**	**Vernal pool, freshwater wetland**	**Low: No suitable vernal pool habitat exists onsite. Nearest known occurrence is 4.2 miles SW of the parcel near Asbill Creek.**
Loch Lomond button-celery (*Eryngium constancei*)	FE/SE/1B.1	Vernal pool, freshwater wetland	None: No suitable vernal pool habitat exists onsite.
Many-flowered navarretia (*Navarretia leucocephala* spp. *plieantha*)	**FE/SE/1B.2**	**Vernal pools**	**Low: No vernal pool habitat exists onsite. Nearest known occurrence is 4.1 miles SW of the parcel near Asbill Creek.**
Marsh checkerbloom (*Sidalcea oregana* ssp. *hydrophila*)	—/—/1B.2	Freshwater wetland, riparian	Low: No suitable riparian habitat exists onsite.
Mayacamas popcornflower (*Plagiobothrys lithocaryus*)	—/—/A1	Foothill woodland, valley grassland	Very Low: Presumed extinct. Last observed in 1884 near present-day Lakeport.
Milo Baker's lupine (*Lupinus milo-bakeri*)	—/—/1B.1	Foothill woodland	None: No suitable woodland habitat exists onsite.
Morrison's jewelflower (*Streptanthus morrisonii* ssp. *morrisonii*)	—/—/1B.2	Serpentine outcrops	None: No serpentine outcrop habitat exists onsite.
Mt. St. Helena morning-glory (*Calystegia collina* ssp. *oxyphylla*)	—/—/4.2	Serpentine chaparral	Medium: Some serpentine habitat exists onsite.
Napa bluecurls (*Trichostema ruygtii*)	—/—/1B.2	Chaparral, grassland	Very Low: A small amount of grassland 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	Very Low: A small amount of grassland habitat exists onsite.
North Coast semaphore grass (*Pleuropogon hooveri*)	—/—/1B.1	Freshwater wetland, vernal pools	None: No suitable vernal pool habitat exists onsite.
Northern California black walnut (*Juglans hindsii*)	—/—/1B.1	Riparian	Medium: Some suitable riparian habitat exists onsite.

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

Taxon	Status[1] Fed/State/CNPS	Habitat	Potential to Occur Within the Project Area
Santa Rosa horkelia (*Horkelia tenuiloba*)	—/—/1B.2	Chaparral	Medium: Some suitable chaparral habitat exists onsite.
Sebastopol meadowfoam (*Limnanthes vinculans*)	FE/SE/1B.1	Freshwater wetland, vernal pools	None: No suitable vernal pool habitat exists onsite.
Serpentine cryptantha (*Cryptantha dissita*)	—/—/1B.2	Serpentine chaparral	Very Low: No serpentine habitat exists onsite.
Serpentine daisy (*Erigeron serpentinus*)	—/—/1B.3	Serpentine chaparral	None: No serpentine chaparral habitat exists onsite.
Sharsmith's western flax (*Hesperolinon sharsmithiae*)	**—/—/1B.2**	**Chaparral**	**Medium: Some suitable chaparral habitat exists onsite. Nearest known occurrence is 1.3 miles SW of the parcel near Soda Creek.**
Shining navarretia (*Navarretia nigelliformis* ssp. *radians*)	—/—/1B.2	Vernal pools	Very Low: No suitable vernal pool habitat exists onsite.
Slender Orcutt grass (*Orcuttia tenuis*)	**FT/SE/1B.1**	**Grassland, freshwater wetlands**	**Very Low: No suitable wet meadow habitat exists onsite. Nearest known occurrence is 4.1 miles SW of the parcel near Asbill Creek.**
Small-flowered calycadenia (*Calycadenia micrantha*)	—/—/1B.2	Foothill grassland	Very Low: A small amount of suitable grassland habitat onsite.
Small groundcone (*Kopsiopsis hookeri*)	—/—/2B.3	Redwood forest	None: No suitable forest habitat exists onsite.
Small pincushion navarretia (*Navarretia meyersii* ssp. *deminuta*)	—/—/1B.1	Wetlands	Very Low: No suitable wetland habitat exists onsite.
Snow Mountain buckwheat (*Eriogonum nervulosum*)	**—/—/1B.2**	**Serpentine outcrops**	**None: No serpentine outcrop habitat exists onsite. Nearest known occurrence is 3.5 miles NE of the parcel near Buck Mountain.**
Socrates Mine jewelflower (*Streptanthus brachiatus* ssp. *brachiatus*)	—/—/1B.2	Serpentine outcrops	None: No serpentine habitat exists onsite.
Sonoma beardtongue (*Penstemon newberryi* var. *sonomensis*)	—/—/1B.3	Chaparral	Medium: Some suitable chaparral habitat exists onsite.
Sonoma ceanothus (*Ceanothus sonomensis*)	—/—/1B.2	Chaparral	Low: Some suitable chaparral habitat exists onsite.

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

Taxon	Status[1] Fed/State/CNPS	Habitat	Potential to Occur Within the Project Area
Slender silver moss (*Anomobryum julaceum*)	—/—/4.2	Rocky substrates in forests, riparian	Very Low: No suitable riparian habitat exists onsite.
Torren's grimmia (*Grimmia torenii*)	—/—/1B.3	Forest, woodland	Very Low: Some woodland habitat exists onsite.
FISH			
Chinook Salmon Coastal California DPS (*Oncorhynchus kisutch*)	FT/SE/—	Freshwater streams, open ocean and estuaries	None: No suitable streams exist onsite.
Clear Lake Drainage Resident Rainbow trout (*Oncorhynchus mykiss*)	FE/SE/—	Freshwater streams, open ocean and estuaries	None: No suitable habitat exists in the project area.
Clear Lake hitch (*Lavinia exilicauda chi*)	**FE/SE/—**	**Freshwater lakes and streams**	**None: No suitable habitat exists in the project area. Nearest known occurrence is 4.8 miles NW of the parcel near Anderson Flat.**
Clear Lake tule perch (*Hysterocarpus traskii lagunae*)	—/SSC/—	Freshwater lakes and streams	None: No suitable habitat exists in 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 in the project area.
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	None: No suitable wetland habitat exists onsite.

Taxon	Status[1] Fed/State/CNPS	Habitat	Potential to Occur Within the Project Area
Foothill yellow-legged frog (*Rana boylii*)	**—/SSC/—**	**Wetlands, riparian, streams and ponds**	**Low: No suitable breeding habitat onsite. Some poor quality estivation habitat onsite. Nearest known occurrence is 1.4 miles N of the parcel in Dry Creek.**
Red bellied newt (*Taricha rivularis*)	**—/SSC/—**	**Woodland streams, riparian corridors**	**None: No suitable stream habitat exists onsite. Nearest known occurrence is 1.4 miles N of the parcel in Dry Creek.**
Western pond turtle (*Emys marmorata*)	**—/SSC/—**	**Slow-moving creeks, streams, ponds, rivers, ditches.**	**None: No suitable pond habitat exists onsite. Nearest known occurrence is 3.0 miles S of the parcel near Asbill Creek.**
INVERTEBRATES			
Behren's silverspot butterfly (*Speyeria zerene behrensii*)	FE/SSC/—	Coastal prairie	None: Requires blue violet to reproduce; none onsite.
Blennosperma vernal pool andrenid bee (*Andrena blennospermatis*)	—/SSC/—	Upland areas near vernal pools	None: No suitable vernal pool habitat exists onsite although there is some grassland habitat.
Borax Lake cuckoo wasp (*Hedychridium milleri*)	—/SSC/—	Lakes and streams	None: No suitable lake or stream habitat exists onsite.
Brownish dubiraphian riffle beetle (*Dubiraphia brunnescens*)	—/SSC/—	Freshwater lakes and streams	None: No suitable stream 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	None: No suitable pond 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, chaparral	Low: Some marginal grassland habitat exists onsite.

Taxon	Status[1] Fed/State/CNPS	Habitat	Potential to Occur Within the Project Area
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.	Low: Some suitable trees for roosting onsite.
Obscure bumble bee (*Bombus caliginosus*)	—/SSC/—	Grassland, foothill woodland, chaparral	Low: Some marginal grassland habitat exists onsite.
Opler's longhorn moth (*Adela oplerella*)	—/SSC/—	Usually associated with *Platystemon* (creamcups)	None: No suitable host plants onsite.
Oregon floater (*Anodonta oregonensis*)	—/SSC/—	Large freshwater streams	None: No suitable stream habitat exists onsite.
Ricksecker's water scavenger beetle (*Hydrochara rickseckeri*)	—/SSC/—	Freshwater lakes and ponds	None: No suitable pond habitat exists onsite.
Serpentine cypress wood-boring beetle (*Trachykele hartmani*)	—/SSC/—	Requires cypress trees in serpentine outcrops	None: No suitable host plants known from the project site.
Sonoma zerene fritillary (*Speyeria zerene sonomensis*)	—/SSC/—	Grasslands and meadows with *Viola* plants	None: Requires *Viola* for reproduction; none onsite.
Unnamed isopod (*Calasellus californicus*)	—/SSC/—	Freshwater wetlands	None: No suitable wetland habitat exists onsite.
Western bumblebee (*Bombus occidentalis*)	—/SSC/—	Grassland	Low: Some marginal grassland habitat exists onsite.
Wilbur Springs minute moss beetle (*Ochthebius recticulus*)	—/SSC/—	Shorelines of hot springs	None: No suitable hot spring habitat exists onsite.
Wilbur Springs shorebug (*Saldula usingeri*)	**—/SSC/—**	**Ponds**	**None: No suitable pond habitat exists onsite. Nearest known occurrence is 0.9 miles SW of the parcel near Soda Creek.**
BIRDS			
American perigrine falcon (*Falco peregrinus anatum*)	—/SSC/—	Forages in open grasslands, nests in trees	Low: Some suitable nesting and foraging habitat exists.

Taxon	Status[1] Fed/State/CNPS	Habitat	Potential to Occur Within the Project Area
Bank swallow (*Riparia riparia*)	FE/SE/—	Typically found near lakes and streams	None: No suitable stream habitat exists onsite.
Bald eagle (*Haliaeetus leucocephalus*)	—/SSC/—	Forages over open lakes and streams	Very Low: No suitable foraging or nesting habitat exists onsite.
Bell's sage sparrow (*Artemisiospiza belli belli*)	—/SSC/—	Chaparral	Medium: Some suitable chaparral habitat exists onsite.
Black swift (*Cypseloides niger*)	—/SSC/—	Cliff faces near water	None: No suitable stream habitat exists onsite.
Burrowing owl (*Athene cunicularia*)	—/SSC/—	Grasslands with ground squirrel burrows	None: No suitable grassland habitat exists onsite.
California black rail (*Laterallus jamaicensis coturniculus*)	FE/SE/—	Coastal salt marshes and mudflats	None: No suitable salt marsh habitat exists onsite.
California horned lark (*Eremophila alpestris actia*)	—/SSC/—	Herbaceous vegetation, chaparral	Low: Some suitable foraging and nesting habitat exists onsite.
Cooper's hawk (*Accipiter cooperii*)	—/WL/—	Forages over open grassland	Low: Some suitable foraging habitat exists onsite. No suitable nesting habitat exists onsite.
Double-crested cormorant (*Phalacrocorax auritus*)	—/SSC/—	Forages in open water. Nests in trees and cliffs.	None: No suitable foraging or nesting habitat exists onsite.
Ferruginous hawk (*Buteo regalis*)	—/SSC/—	Forages over open grassland. Nests in old-growth trees	Low: Some suitable foraging habitat exists onsite. No suitable nesting habitat exists onsite.
Golden eagle (*Aquila chrysaetos*)	**—/SSC/—**	**Forages over open grassland. Nests in old-growth trees**	**High: Some suitable foraging habitat. No suitable nesting habitat. Nearest known occurrence is 2.0 miles NW of the parcel near Ferris Canyon.**
Grasshopper sparrow (*Ammodramus savannarum*)	—/SSC/—	Forages over open grassland	Low: Some suitable foraging and nesting habitat exists onsite.
Great blue heron (*Ardea herodias*)	—/SSC/—	Nests in trees, forages in wetlands and grasslands	None: No suitable foraging or nesting habitat exists onsite.
Great egret (*Ardea alba*)	—/SSC/—	Nests in trees, forages in wetlands and grasslands	None: No suitable foraging or nesting habitat exists onsite.

Taxon	Status[1] Fed/State/CNPS	Habitat	Potential to Occur Within the Project Area
Marbled murrelet (*Brachyramphus marmoratus*)	FT/SE/—	Old growth coniferous forest	None: No suitable old-growth forest habitat exists onsite.
Northern goshawk (*Accipiter gentilis*)	—/SSC/—	Coniferous forest	None: No suitable forest habitat exists onsite.
Northern spotted owl (*Strix occidentalis*)	FT/ST/—	Nests primarily in old growth forests	Very Low: No suitable nesting habitat onsite. Some marginal foraging habitat onsite.
Osprey (*Pandion haliaetus*)	—/WL/—	Areas with fish	Very Low: No suitable foraging habitat onsite. Some poor quality nesting habitat onsite.
Prairie falcon (*Falco mexicanus*)	**—/SSC/—**	**Forages over grasslands**	**Medium: Some suitable nesting and foraging habitat exists onsite. Nearest known occurrence is 2.4 miles SE of the parcel somewhere in the USGS quad Jericho Valley.**
Purple martin (*Progne subis*)	FE/SE/—	Insectivorous, nests in cavities	Low: Some suitable nesting habitat onsite. Some suitable foraging habitat onsite.
Sharp-shinned hawk (*Accipiter striatus*)	—/SSC/—	Forest and woodland	Very Low: Some suitable nesting and foraging habitat exists onsite.
Tricolored blackbird (*Agelaius tricolor*)	—/SSC/—	Forages in grasslands and nests in freshwater marshes	Low: No suitable nesting habitat exists onsite. Some suitable foraging habitat.
Western yellow-billed cuckoo (*Coccyzus americanus occidentalis*)	—/SE/—	Woodland, riparian	Low: Some suitable nesting and foraging habitat exists onsite.
White-tailed kite (*Elanus leucurus*)	—/CFP/—	Prefers to nest in marshes next to deciduous forests.	Low: Some suitable nesting and foraging habitat exists onsite.
Yellow breasted chat (*Icteria virens*)	—/SSC/—	Dense shrubby growth, grasslands	Low: Some suitable grassland habitat exists onsite.
Yellow warbler (*Coturnicops noveboracensis*)	—/SSC/—	Riparian, shrubland, farmland	Low: Some suitable scrub habitat exists onsite.
MAMMALS			
American badger (*Taxidea taxus*)	—/SSC/—	Open grassland habitats with plenty of prey	Low: Some suitable den habitat exists onsite.
Big free-tailed bat (*Nyctinomops macrotis*)	—/SSC/—	Forages over open areas, roots in trees or caves	Low: Some suitable foraging habitat. Few suitable roosts in project area.

Taxon	Status[1] Fed/State/CNPS	Habitat	Potential to Occur Within the Project Area
Fisher (*Pekania pennanti*)	—/SSC/—	Forages and breeds primarily in forests	Very Low: No suitable forest habitat exists onsite.
Fringed myotis (*Myotis thysanodes*)	—/SSC/—	Roosts in caves or buildings and forages in open habitats	Very Low: Some suitable foraging habitat. Few suitable roosts in project area.
Hoary bat (*Lasiurus cinereus*)	—/SSC/—	Forages over open areas, roots in trees or caves at high altitude	Very Low: Few suitable roosts in the project area. Primarily forages at high altitude.
Humboldt marten (*Martes caurina humboldtensis*)	—/SSC/—	Forages and breeds in forests, typically near streams	Very Low: Some suitable den and foraging habitat exists onsite.
Long-eared myotis (*Myotis evotis*)	—/SSC/—	Roosts in caves or buildings and forages in open habitats	Low: Some suitable foraging habitat. Few suitable roosts in project area.
Long-legged myotis (*Myotis volans*)	—/SSC/—	Roosts in caves or buildings and forages in open habitats	Very Low: Some foraging habitat. Few suitable roosts in project area.
North American porcupine (*Erethizon dorsatum*)	—/SSC/—	Require rocky areas or trees for dens, abundant open space for foraging	Very Low: Some suitable foraging and den habitat exists onsite.
Pallid bat (*Antrozous pallidus*)	**—/SSC/—**	**Common in open dry habitats with rocky areas for roosting**	**Low: Some foraging habitat exists. Few suitable roosts in the project area. Nearest known occurrence is 3.5 miles SE of the parcel near Grizzly Peak.**
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 forest habitat exists onsite.
Townsend's big-eared bat (*Corynorhinus townsendii*)	**—/SSC/—**	**Hibernate in mines or caves, roost in man made structures and caves**	**Medium: Few man-made structures exist suitable for roosting. Some habitat for foraging. Nearest known occurrence is 0.4 miles SW of the parcel near Soda Creek.**
Western red bat (*Lasiurus blossevillii*)	—/SSC/—	Forages over open areas, roots in trees or caves	Very Low: Little suitable roosting habitat. Some suitable foraging habitat.
Yuma myotis (*Myotis yumanensis*)	—/SSC/—	Forages over open areas, roots in trees or caves	Very Low: No suitable nesting habitat exists onsite. Some suitable foraging habitat exists onsite.

Taxon	Status[1] Fed/State/CNPS	Habitat	Potential to Occur Within the Project Area
HABITATS			
Coastal & Valley Freshwater Marsh (CVFM)	—	—	None: No marsh habitat exists onsite.
Northern Basalt Flow Vernal Pool (NBFVP)	—	—	None: No basalt flow vernal pool 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:

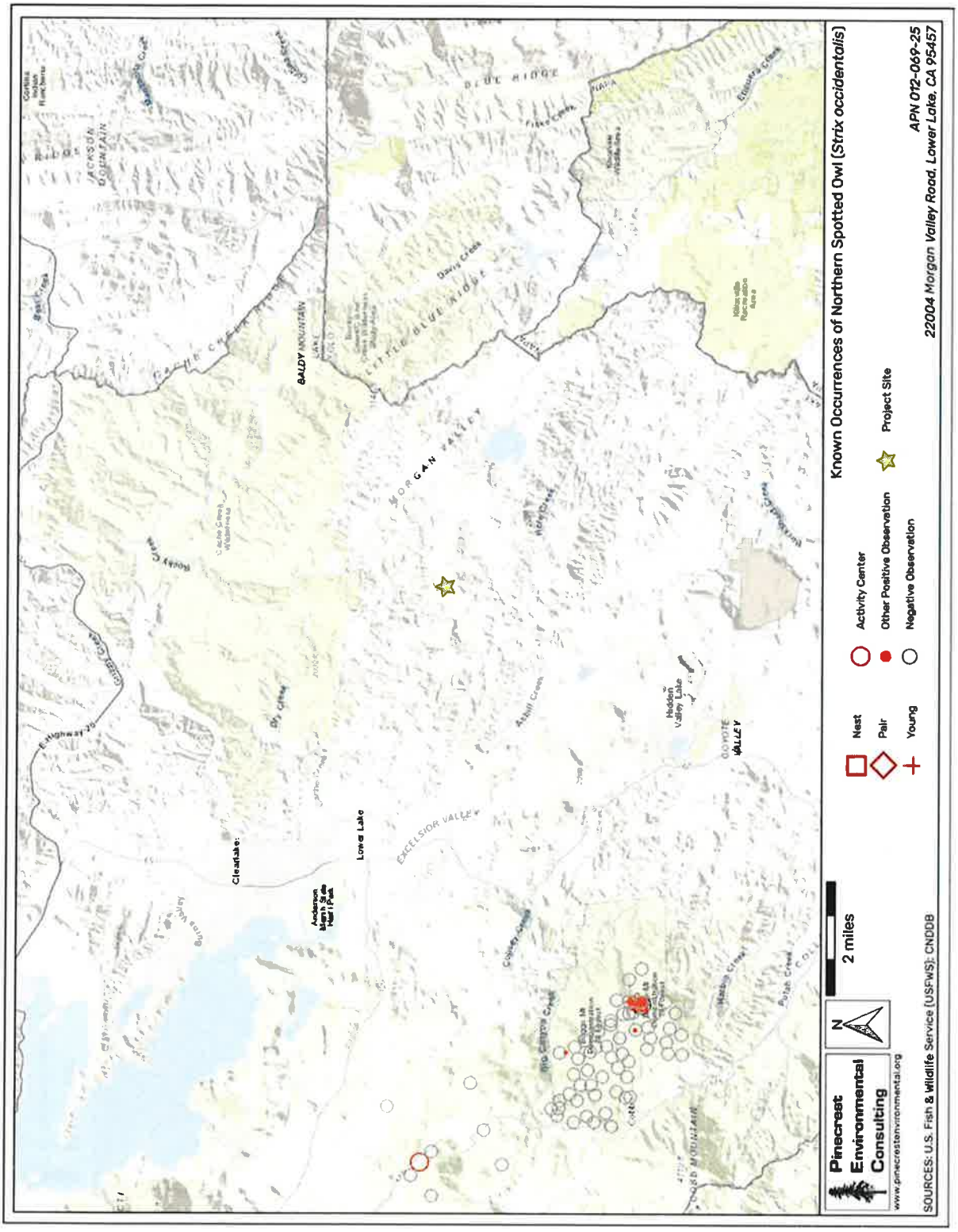
Federal
FE = Federally Endangered Species
FT = Federally Threatened Species

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

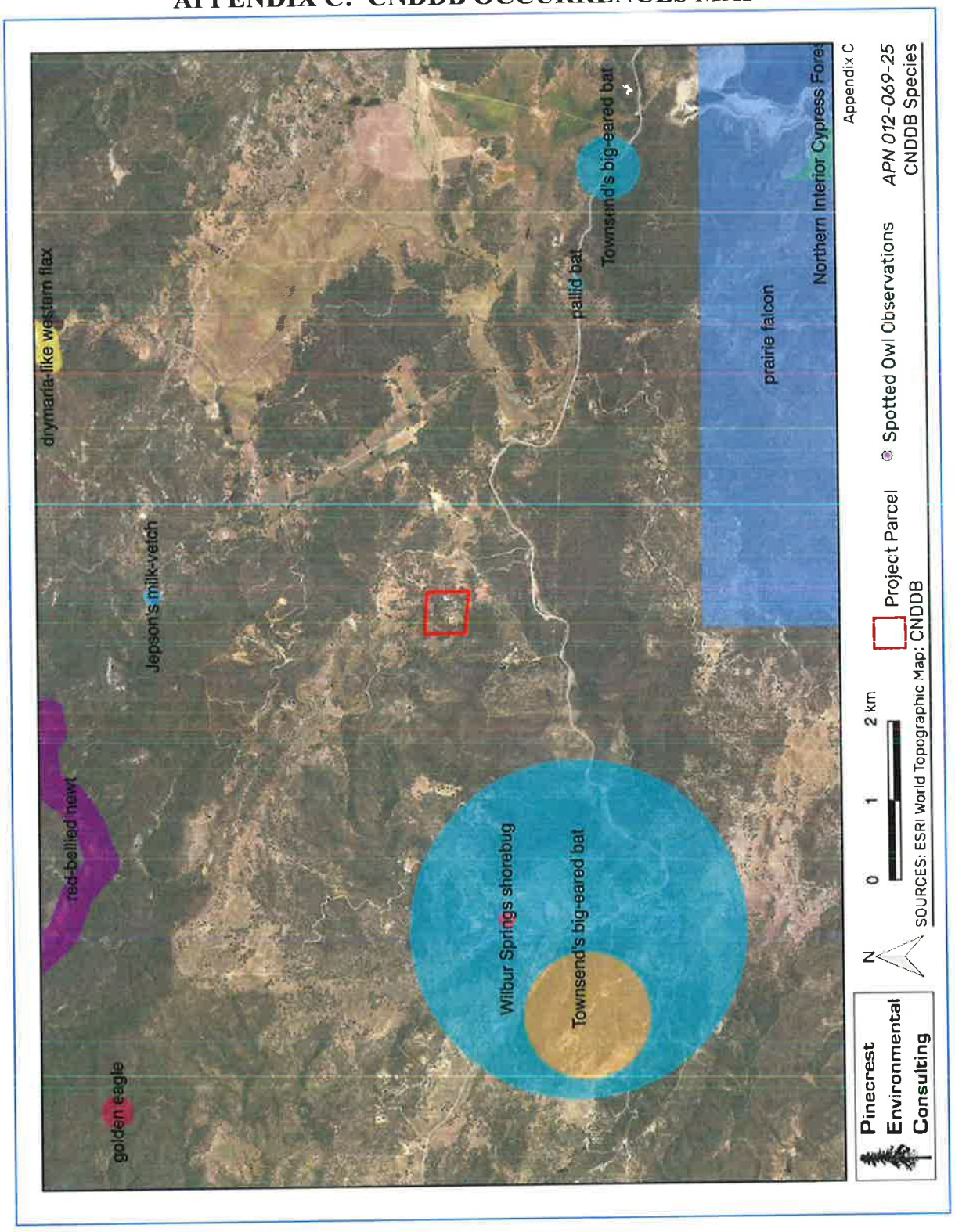
CNPS (applies to plants only)
List 1B = plants considered rare, threatened, or endangered in California and elsewhere
List 2B = plants rare, threatened or endangered in California, but more common elsewhere
List 3 = plant is likely rare but more information is required
List 4 = plants of limited distribution

[2] USFWS

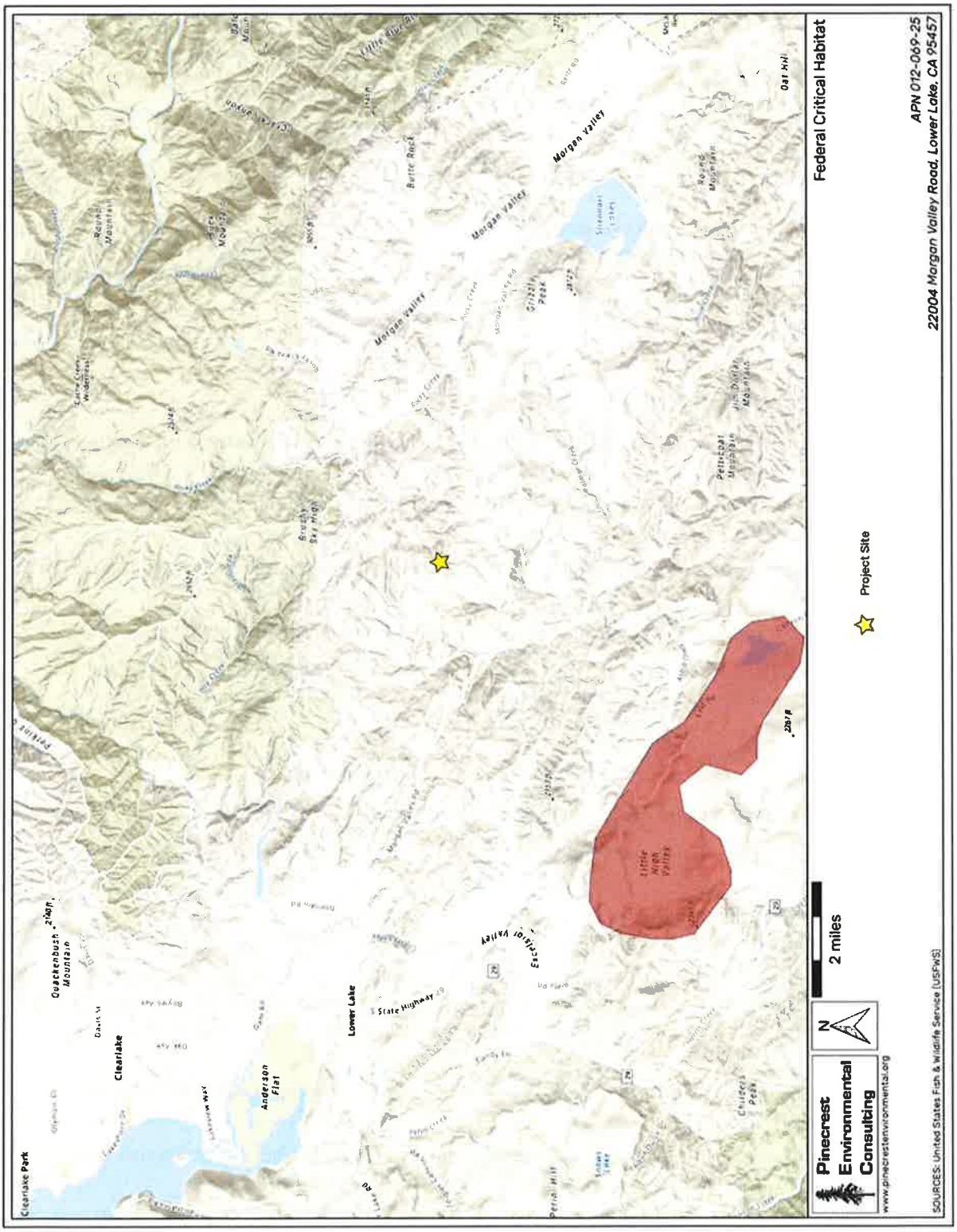
APPENDIX B: NSO OCCURRENCES MAP



APPENDIX C: CNDDB OCCURRENCES MAP



APPENDIX D: CRITICAL HABITAT MAP



APPENDIX E: 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 2019-0001-DWQ.

E.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.

E.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.

E.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.

E.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.

E.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.

E.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.

E.7 SPECIAL-STATUS SPECIES AVOIDANCE MEASURES

- All employees and contractors including one-time contractors and day-laborers should be distributed cards with visual identifications of all of the aforementioned special-status species, including both male and female, and juvenile and adult forms, and be briefed on all of the following AMMs contained herein. Species cards may be obtained from PEC on request.
- Observation of any of the aforementioned SSS onsite shall result in immediate stoppage of all work and notification of PEC and/or CDFW.
- All animals observed onsite shall be allowed to leave the premises voluntarily without being harassed.
- Vehicle speeds should be limited to 5 mph all year, with 3 mph limit during amphibian breeding and migration season from October 1-June 1, and for breeding bird season from February 1-September 1.
- No loud noises including unmuffled or non-street legal vehicles, heavy machinery, hammering, discharge of firearms, or unmuffled generators are allowed during the breeding and nesting

window to avoid impacts to NSO from February 1-September 1.

- Avoid ground disturbance including trenching, grading, or road scraping to a depth of greater than 10" without first clearing the site from a qualified biologist to avoid disturbing estivating amphibians.

- Access within 100 feet of nesting migratory bird should not be allowed, and a sign should be placed stating there is a sensitive habitat ahead and no entry is permitted.

- All roadways and culverts should be inspected once before major rain events and once after to ensure that all erosion control materials are effective and not discharging sediment to any jurisdictional watercourses.

- All containers and other vessels left outside unattended should be checked before use to ensure that no animals are inside.

- Vessels including buckets should be turned over on their sides to allow animals to escape.

- No holes greater than 6" deep should be left exposed and uncovered to avoid making "pitfall traps" into which animals can enter but cannot escape. If holes such as post holes must be left for more than 24 hours they should be checked daily to ensure no animals are inside.

- Clear areas within 100 feet of any watercourse by a biological monitor prior to disturbing the ground more than 6".

- Only native woody species should be planted wherever revegetation is required such as along the sides of roadcuts and bridge abutments.

- Preconstruction breeding bird surveys for NSO and other migratory birds should be performed if tree removal is to take place.

- No tree or vegetation removal should be conducted during breeding bird season from February 1 to September 1.

- No aerial wires or lines should be permitted that may impede the flight path of nesting birds.

- No upward pointed lights should be permitted during anytime during the year, and ambient outdoor night time lights should be prohibited during the breeding bird period from February 1 to September 1.

- Use of rodenticides should not be used under any circumstances due to the hazard of secondary ingestion by raptors.

APPENDIX F: 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)