

Biological Reconnaissance Assessment and Onsite Relocation: Environmental Superiority Analysis and Remediation Plan

APN: 210-072-009

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Executive Summary

The purpose of this report is to provide a preliminary reconnaissance assessment of the biological resources with potential to be affected by commercial cannabis cultivation and assess onsite relocation impacts for Cali’s Finest Gardens, LLC. The subject property is located at APN: 210-072-009 off Bear Bridge Road in Bridgeville (Section 25, Township 1 North, Range 4 East) of Humboldt County, California. Cali’s Finest Gardens, LLC currently holds an interim permit for 30,000 ft² of existing outdoor cultivation on subject parcel APN: 210-072-009 under Humboldt County’s Commercial Cannabis Land Use Ordinance (CMMLUO).

Jurisdictional resources considered for this report include wetlands and non-wetland “waters of the U.S.” regulated by the U.S. Army Corps of Engineers (USACE); “waters of the State” regulated by the North Coast Regional Water Quality Control Board (NCRWQCB); and the bed, bank, and channel of all lakes, rivers, and/or streams (and associated riparian vegetation), as regulated by the California Department of Fish and Wildlife (CDFW). “Streamside Management Areas” (SMAs) [section 3432(5) of the Humboldt County 1984 General Plan] are defined in the Humboldt County General Plan (Page G-8) and include, a natural resource area along both sides of streams containing the channel and adjacent land.

Mother Earth Engineering staff visited the site on 15 May 2019 to determine the extent of project impacts, assess potential habitat for sensitive species and develop guidelines and strategies for mitigation measures pursuant to Humboldt County EIR conditions.

On the day of assessment, the study area was walked and examined with emphasis on areas with direct impact from project activities. In general, the site was fairly well maintained and established. The existing project site is on open, grassy terraces surrounded by old stands of Oregon white oaks, ghost pines, and Douglas firs. The understory did not contain a well-developed shrub layer but was dominated by annual grassland. Solid waste pollution or other discharge into terrestrial habitats and further aquatic habitats were not observed. There are no perennial, fish bearing streams or watercourses within the study area.

The relocation site is adjacent to the existing footprint of the current cultivation area. Based on distance from watercourses, existing disturbance and species composition, and lack of mature coniferous forests, the relocation of the former site to the existing site proves to be an environmentally superior site and will not result in negative impacts to listed species. Existing activities are unlikely to negatively affect sensitive species or habitat. Relocation will result in relatively low impacts to existing drainage at the relocation site. With no trees proposed to be removed, no rare or sensitive biological communities will be impacted. The relocation site will not modify any existing spotted owl (*Strix occidentalis caurina*) habitat as it occurs in an existing meadow.

Additional consultation with agency staff including the California Department of Fish and Wildlife (CDFW), U.S. Army Corps of Engineers (USACE), Humboldt County and US Fish and Wildlife Service (USFW) will continue throughout the project application



1. Introduction

This document was prepared to evaluate and assess any potential project impacts to biological resources on site and provide an onsite relocation analysis under the jurisdiction of the U.S. Army Corps of Engineers (USACE), California Department of Fish and Wildlife (CDFW), the Regional Water Quality Board (RWQCB), and the Humboldt County Streamside Management Area guidance (SMA) for the 296-acre property on which Kurt Moffitt of Cali’s Finest Gardens, LLC operates a cannabis cultivation business. All cannabis related activities are referred to as “projects” throughout the duration of this assessment.

2. Environmental Setting

2.1 Project Location

The 269.50-acre site is located in the Butte Creek subwatershed in southeastern Humboldt County approximately 9 miles southeast of Bridgeville. The Lower Van Duzen watershed is within the Van Duzen hydrologic area and Eel River Hydrologic Unit. To reach the Site from Eureka, take US-101 S to CA-36 E and continue for 34 miles. Turn right onto China Mine Camp Road and after 0.87 miles, turn right again on Bear Ridge Road. Property is on the right with a southeastern aspect. The site is located in Section 25, Township 1N, Range 4E, Humboldt Basin Meridian. The property is located on the Larabee Valley USGS 7.5-minute quadrangle map.

2.2 Project Description

The applicant currently obtains an interim permit for 30,000 ft² of existing outdoor cultivation on subject parcel APN: 210-072-009 under Humboldt County’s Commercial Cannabis Land Use Ordinance (CMMLUO). A former project area on the eastern side of the parcel has been relocated to an environmentally superior location adjacent to existing project areas on the western side of the property (*Appendix A, Figure 2*).

The project area contains greenhouses with aide of efficient artificial lighting. To minimize impacts, the applicant will comply with International Dark Sky Association Standards to prevent nocturnal light emission and pollution. All greenhouses are to be covered with blackout tarps at least half an hour before sunset and after sunrise.

Water for this site is provided by a permitted groundwater well (Permit No. 16/17-0426). Currently, there is a 300,000-gallon rainwater catchment pond for water storage (40.4358, -123.6788). The applicant proposes to build an additional 300,000 gallon rainwater catchment pond for further water storage and use (40.4353, -123.6831). Energy for the projects are sourced by two (2) Honda EU7000is generators. The manufacturing specifications rate these generators to be 60 dBA at a 7 meter distance. No trees are proposed to be removed.

2.3 Soil, Topography, Hydrology

Soils

Two (2) soil types are mapped in the project areas on the Web Soil Survey¹. Soil complexes include the Pasturerock-Coyoterock-Maneze complex, 15 to 50 percent slopes, dry (4426), and the Highyork-Elkcamp-Airstrip complex, 15 to 30 percent slopes (4421). These soils are considered deep, well-drained soils that formed in colluvium derived from sandstone, mudstone and material weathered from chloristic schist. They are not considered hydric soils (*Appendix D*).

The Pasturerock series consists of very deep, well drained soils formed in colluvium derived from sandstone and mudstone. Pasturerock soils are on mountains and have slopes of 15 to 50 percent. The mean annual

¹ Soil Survey Staff, Natural Resources Conservation Service, United States Department of Agriculture. Web Soil Survey. Available online at the following link: <https://websoilsurvey.sc.egov.usda.gov/>.



precipitation is about 2290 millimeters (90 inches) and the mean annual temperature is about 13 degrees C (55 degrees F). Other geographically associated soils include the Coyoterock and Manzene soils. Coyoterock soils are in moist locations on poorly incised drainages, hillslope hollows, and earthflows. Maneze soils lack an argillic horizon and greater than 35 percent rock fragments in the particle-size control section. Maneze soils are on convex slopes and spur ridges alongside Pasturerock soils.

The Highyork series consists of very deep, somewhat poorly drained soils that formed in material weathered from chloritic schist and other metasedimentary rocks. Highyork soils are on mountains and have slopes of 15 to 50 percent. The mean annual precipitation is about 2160 millimeters and the mean annual temperature is about 11 degrees C. Other geographically associated soils include Elkcamp and Airstrip. Elkcamp soils contain less than 35 percent clay and are on hummocky slopes. Airstrip soils are on convex positions, contain more than 35 percent coarse fragments, and have lithic contact below 50 centimeters.

Topography

The maximum elevation found on the Cali’s Finest Garden’s parcel is 2,920 feet above sea level while the lowest elevations found on-site are at 2,450 feet. The project area is approximately between 2,830 to 2,860 ft. The property is mapped as possessing high levels of instability, sloping at 15-30%.

Hydrology

Mule Creek, a Class I watercourse, flows across the southern portion of the parcel approximately 1,550 feet south of the nearest cultivation area from the creek’s streamside management area. Butte Creek, another Class I watercourse, runs outside the property’s parcel approximately 2,270 feet to the east. The average annual precipitation for the site is 71.64 inches².

3. Methods

Mother Earth Engineering staff conducted a field visit on 15 May 2019 to inspect and survey the proposed relocation site, evaluate potential habitat, record biological resources observed. The study area includes areas of direct and indirect impact of current cultivation and potential habitat for special status plant and wildlife species. (*Appendix A, Figure 1*).

Approximately three (3) field hours were spent conducting a habitat assessment for listed species and species of concern. With wandering transects, the study area was scanned for rare plants and wildlife signs including tracks, scat, tree habitat (cavities, nest scrapes or accumulated vegetation).

Before field visits occurred, the site was remotely evaluated for potential habitat value to protected, endangered, threatened, rare, and sensitive species by Geographic Information Systems (GIS), the California Natural Diversity Database (CNDDDB) RareFind and BIOS, and the California Native Plant Society Rare Plant Inventory (CNPS). Within one (1) mile of property project areas, the following species have been historically observed in the CNDDDB database (*Table 1 / Appendix A, Figure 3*). The localized CNDDDB 9-Quad area of Larabee Valley was queried to generate occurrences of special-status animal species (*Appendix C, Table 4*).

Table 1. CNDDDB list of historically observed species within 1 mile of subject property boundaries.

Scientific Name	Common Name	Date Surveyed	Federal / State Listing
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² Caltrans Water Quality Planning Tool available at: <http://svctenvims.dot.ca.gov/wqpt/wqpt.aspx>



<i>Rana boylei</i>	Foothill yellow-legged frog	2018, 2019	State – Species of Special Concern
<i>Falco peregrinus anatum</i>	American peregrine falcon	1995	Federal – Delisted State – Delisted and Fully Protected
<i>Gilia capitata ssp. pacifica</i>	Pacific gilia	2002	State – Rare Plant Rank 1B.2*
<i>Strix occidentalis caurina</i>	Northern spotted owl	1983	Federal – Threatened State – Threatened / Species of Special Concern

*California Rare Plant Ranks:

- 1A – Plant species presumed extirpated in California and either rare or extinct elsewhere
- 1B – Plant species considered rare or endangered in California and elsewhere
- 2A – Plant species presumed extirpated in California but common elsewhere
- 2B – Plant species considered rare or endangered in California but more common elsewhere
- 3 – Plant species that need more information
- 4 – Plant species of limited distribution

*Threat Ranks:

- 0.1 – Seriously threatened
- 0.2 – Moderately threatened
- 0.3 – Not very threatened

3.1 Limitations

All plant species growing within the study area may not have been observed due to varying flowering phenologies and life forms, such as bulbs, biennials, and annuals. Other potentially dominant species within vegetation communities on site may be present during other times of the year. Therefore, the present study is not floristic in nature. Some of the plant species identified in this report are tentative due to the absence of morphological characters, resulting from immature reproductive structures or seasonal desiccation, which is required to make species-level determinations.

4. Results and Discussion

4.1 Vegetation

The USDA Forest Service CALVEG (“Classification and Assessment with Landsat of Visible Ecological Groupings”) system classifies the property and project area as Annual Grassland (AGS) and Montane Hardwood (MWH). The Annual Grassland habitat type occurs on gently rolling foothills and flat plains composed primarily of introduced annual plant species. Species composition and structure varies with precipitation and livestock grazing. Typical species found in this habitat includes wild oats, ripgut brome, wild barley, foxtail fescue, bur clover, popcorn flower and red brome. Perennial grasses found in more moist sites include Idaho fescue and purple needlegrass³.

Montane Hardwood habitat type can be described as a composition dominated by canyon live oaks with scattered associations of Douglas-fir, tanoak, Pacific madrone, California laurel, California black oak, and bristlecone fir. A typical montane hardwood structure is composed of a pronounced hardwood tree layer, with an infrequent and poorly developed shrub stratum and a sparse herbaceous layer. This habitat type is found on a wide range of slopes on soils that are mostly part rocky, alluvial, coarse textured, poorly developed and well drained⁴.

³ CalVeg habitat description (AGS) at: <https://nrm.dfg.ca.gov/FileHandler.ashx?DocumentID=67384>

⁴ CalVeg habitat description (AGS) at: <https://nrm.dfg.ca.gov/FileHandler.ashx?DocumentID=67338>



On the day of assessment, 15 May 2019, the study area contained old stands of Oregon white oak (*Quercus garryana*), a few ghost pine (*Pinus sabiniana*) and patches of Douglas fir (*Pseudotsuga menziesii*) encroaching the oak woodland. The understory of the study area lacked a well-developed shrub layer and was dominated with typical disturbed annual and perennial grassland species. On the day of assessment, no special status plants were observed within the study area.

4.1.1 Sensitive Natural Community

During the site assessment, one (1) sensitive natural community was identified in the project area of the study area. The Oregon white oak (*Quercus garryana*) community dominated the project areas. The Oregon white oak forest alliance has a state rarity ranking S3 (Vulnerable) and a global rarity ranking G4 (Uncommon but not rare). All alliances of this community are considered sensitive⁵. This community is described in CalVeg as Coastal mixed hardwood, and as Montane Hardwood in the California Wildlife Habitat Relationships⁶. Both native and non-native grasses make up the understory on most sites (Sawyer 2006).

4.2 Wetlands and SMA areas

All project areas are outside SMA setbacks. The study area does not appear to contain sufficient hydrology or hydrophytic vegetation to support wetland features. The existing project site and adjacent relocation area is situated at the top of a hill at least 1,550 ft north of the Mule Creek Streamside Management Area.

4.3 Special Status Species

The CNDDDB BIOS and RareFind, as well as California Native Plant Society (CNPS) databases, were scoped both before and after the field visit to search for reference sites or known occurrences in or around the project area. Scoping results for the nine (9) USGS 7.5 min quads surrounding Larabee Valley are included in Appendix C of this report. Other literature and databases used for consultation to evaluate potential unique biological communities and special-status species include but not limited to:

- USDA's Ecoregion Classification system
- California's Vegetation Classification and Mapping Program (VegCamp)
- U.S. Fish and Wildlife Service's Information for Planning and Consultation (IpaC)
- National Marine Fisheries Service California Species List Tool (NOAA 2019)
- CalFlora database
- CNPS Inventory of Rare and Endangered Vascular Plants of California online inventory (CNPS)
- CDFW CNDDDB/Spotted Owl Viewer online database
- *The Jepson Manual, Vascular Plants of California* Second Edition (Baldwin et al. 2012)
- NRCS Websoil Survey
- *A Manual of California Vegetation* Second Edition (Sawyer et al. 2009)

The following Humboldt County listed EIR special status wildlife species have the potential to occur in the study area^{7,8}. Impacts to special status animals, including the Northern Spotted Owl, are evaluated in this section based on their likelihood to occur in the area due to habitat needs and natural life history.

Table 2. Humboldt County listed EIR special status wildlife species have the potential to occur in the study area

⁵ California Natural Community List accessed at: <https://nrm.dfg.ca.gov/FileHandler.ashx?DocumentID=153398&inline>

⁶ <https://www.wildlife.ca.gov/Data/CWHR/Wildlife-Habitats>

⁷ California Natural Diversity Database (CNDDDB) Rarefind and Bios Commercial Subscription (Accessed via <http://https://www.wildlife.ca.gov/data/cnddb/maps-and-data>)

⁸ California Native Plant Society (CNPS) Inventory of Rare or Endangered Plants (Accessed via <http://www.rareplants.cnps.org/advanced.html>)



Scientific Name	Common Name	Taxon Group	Regulatory Status
<i>Accipiter gentilis</i>	northern goshawk	Bird	State – Species of Special Concern
<i>Aquila chrysaetos</i>	golden eagle	Bird	State – Fully Protected
<i>Falco peregrinus anatum</i>	American peregrine falcon	Bird	Federal – Delisted State – Delisted / Fully Protected

4.3.1 Mammals

Special-status wildlife species such as *Pekania pennanti* (west coast fisher), *Martes caurina humboldtensis* (Humboldt marten), *Arborimus pomo* (Sonoma tree vole) and *Lasiurus blossevilli* (western red bat) require mature forests and canopy for suitable habitat. Project areas on the property are on altered grassland areas and open oak woodland areas, or young conifer forests with no suitable habitat for mature forest wildlife species. On the day of the assessment, no species or evidence of special status wildlife species were observed. However in order to prevent negative impacts, the applicant shall implement best management practices and not use rodenticides, keep generator noise at a minimum, prevent light from escaping greenhouses at night and ensure that any and all fuel, fertilizer, pesticide, fungicide or other toxic substances are securely stored and locked in a structure or device.

4.3.2 Birds

***Accipiter gentilis* (northern goshawk)**

Species description: The northern goshawk is a medium sized raptor with short, broad wings and a long, rounded tail. Adults re brown-gray to slate-gray on top with a black cap and a pronounced white superciliary line. Underparts are light gray with some black streaking. The northern goshawk is a species on the CDFW Watch List and is considered a California Bird Species of Special Concern. This species breeds in coniferous forests throughout the North Coast ranges and hunts in wooded areas, using tree snags for perching and observation. Northern goshawks build nests in both deciduous and coniferous trees and typically use the largest tree in a nest stand. They generally avoid developed areas, so are impacted by new development in forests.

Potential impact: Potential nesting habitat for these hawks exists near the project area, but no new development is proposed that would disturb potential nesting sites. The CNDDDB shows no documented observations of northern goshawk within the property study area. Current cultivation within the project areas do not take place within potential habitat and have a low probability of negatively affecting the species. Should development of wooded areas become necessary, Mitigation Measure 3.4-1d of the CCLUO MMRP.

***Aquila chrysaetos* (golden eagle)**

Species description: The golden eagle is one of the largest and fastest raptors of North America and are fully protected by the state of California. Habitat ranges widely from open mountains, foothills, coastal prairie, cismontane woodland, coniferous forests, tundra, desert and grasslands. Nesting sites include cliff ledges and large, open trees in open areas. The golden eagles are known to nest in Humboldt County, including near the Mad, Eel, Bear and Mattole Rivers.

Potential impact: Low. Potential nesting habitat for the golden eagle exists within the project area, but no new development is proposed that would disturb potential nesting sites. Current cultivation activities within the project areas do not take place within potential habitat and have a low probability of negatively affecting the



species. Proposed expansion of the sites does not include tree removal. Should development of wooded areas become necessary, Mitigation Measure 3.4-1d of the CCLUO MMRP.

***Strix occidentalis caurina* (Northern spotted owl)**

Species description: The Northern Spotted Owl (NSO) is a medium-sized dark brown owl with a barred tail, irregular white spots on head, neck, back, and underparts. The NSOs are Federally listed under the Endangered Species Act in 1990 and State listed as threatened in California and Oregon. NSOs are relatively long-lived owls living 20 years or more and extend from southwest British Columbia through the Cascade Range, to coastal ranges of California. They do not build their own nest, but instead seek naturally occurring nest sites such as broken-top trees, large snags, tree cavities, debris accumulations or nests built by other wildlife. Nesting and roosting habitat consists of structurally complex forests that also include variable-aged stands and hardwood forest components. Foraging habitat is composed of a variety of vegetation types and dispersal habitat consists of stands with adequate tree size and canopy to provide protection and foraging opportunities.

Potential impact: Low. While several historical occurrences have been observed within one (1) mile of property boundaries in the CNDDDB BIOS database, the project area is an open area with no dense canopy cover to suit NSO habitat. The nearest positive observation occurred in 1983, is approximately 4,000 ft southeast from the existing project area and is associated with the activity center HUM0013. On site investigation did not yield in a positive sighting or evidence of NSO habitation in the area. Due to lack of preferred mature forest habitat, the current project activities do not take place within potential habitat and have a low probability of negatively affecting the species. Relocation of the former site will not modify any existing spotted owl habitat as it will occur in an existing, open meadow area.

4.3.3 Fish

No fish bearing water courses flow through the study area. According to the UC Davis Center for Watershed Sciences PISCES database, The Butte Creek watershed (hydrologic unit 180101050901) is known to host fish species such as *Oncorhynchus mykiss irideus* (Northern California coast summer and winter steelhead). These species are a California Species of Special Concern. Declines in fish populations have been linked to habitat degradation from poor timber harvest practices, mining operations, excessive sport harvesting, road construction and increased sedimentation from poor land management practices.

Potential impact: Low. There is no habitat within the study area. Suitable habitat for state and federally listed anadromous salmonids is likely present within the flowing waters of Mule Creek. To prevent impacts to watercourses tributary to Mule Creek, the applicant shall implement sediment and erosion control measures surrounding project areas to prevent sediment discharge to nearby watercourses.

4.3.4 Reptiles and Amphibians

No perennial watercourses exist within the study area. While observations of the foothill yellow-legged frog (*Rana boylei*) were observed within 1 mile of the project area, no riparian habitat exists within the study area. Therefore, impacts to riparian habitat based special status amphibians and reptiles are low.

The existing rainwater catchment pond was visually inspected for any observations of listed special status amphibians and reptiles. On the day of assessment, the water level was very low, and none were observed. No American Bullfrogs were observed. To prevent impacts to watercourses tributary to Mule Creek, the applicant shall implement sediment and erosion control measures surrounding project areas to prevent sediment discharge to nearby watercourses such as Mule and Butte Creek.

4.3.5 Plants



Table 3. List of potential plants that have potential to be present in the study area

Scientific Name	Common Name	CRPR	Habitat
<i>Astragalus agnicidus</i>	Humboldt County milk-vetch	1B.1	Broadleafed upland forest, North Coast coniferous forest, openings, disturbed areas, sometimes roadsides
<i>Astragalus umbraticus</i>	Bald Mountain milk-vetch	2B.3	Cismontane woodland, Lower montane coniferous forest, sometimes roadsides
<i>Carex praticola</i>	northern meadow sedge	2B.2	Meadows and seeps (mesic)
<i>Epilobium oregonum</i>	Oregon fireweed	1B.2	Bogs and fens, Lower montane coniferous forest, Meadows and seeps, Upper montane coniferous forest, mesic
<i>Erythronium oregonum</i>	giant fawn lily	2B.2	Cismontane woodland, Meadows and seeps, sometimes serpentinite, rocky, openings
<i>Gilia capitata ssp. pacifica</i>	Pacific gilia	1B.2	Coastal bluff scrub, Chaparral (openings), Coastal prairie, Valley and foothill grassland
<i>Kopsiopsis hookeri</i>	small groundcone	1B.1	North Coast coniferous forest
<i>Lupinus elmeri</i>	South Fork Mountain lupine	1B.2	Lower montane coniferous forest
<i>Sidalcea malviflora ssp. patula</i>	Siskiyou checkerbloom	1B.2	Coastal bluff scrub, Coastal prairie, North Coast coniferous forest
<i>Thermopsis robusta</i>	robust false lupine	1B.2	Broadleafed upland forest, North Coast coniferous forest

5. Regulatory Background

5.1 U.S. Army Corps of Engineers (USACE)

The USACE Regulatory Branch regulates activities that may discharge dredged or fill materials into “waters of the U.S.” under Section 404 of the Federal Clean Water Act (CWA) and Section 10 of the Rivers and Harbors Act. This permitting authority applies to all “waters of the U.S.” where the material (1) replaces any portion of a “waters of the U.S.” with dry land or (2) changes the bottom elevation of any portion of any “waters of the U.S.”. These fill materials include sand, rock, clay, construction debris, wood chips, and materials used to create any structure or infrastructure in these waters. The selection of disposal sites for dredged or fill material is done in accordance with guidelines specified in Section 404(b)(1) of the CWA, which were developed by the U.S. Environmental Protection Agency (USEPA).

5.2 Regional Water Quality Control Board (RWQCB)

The RWQCB is the primary agency responsible for protecting water quality in California through the regulation of discharges to surface waters under the CWA and the California Porter-Cologne Water Quality Control Act (Porter-Cologne Act). The RWQCB’s jurisdiction extends to all “waters of the State” and to all “waters of the U.S.,” including wetlands (isolated and non-isolated).

Section 401 of the CWA provides the RWQCB with the authority to regulate, through a Water Quality Certification, any proposed, federally permitted activity that may affect water quality. Among such activities are discharges of dredged or fill material permitted by the USACE pursuant to Section 404 of the CWA. Section 401 requires the RWQCB to provide certification that there is reasonable assurance an activity with the potential for discharge into navigable waters will not violate water quality standards. Water Quality Certification must be



based on findings that the proposed discharge will comply with water quality standards, which contain numeric and narrative objectives found in each of the nine RWQCBs’ Basin Plans.

5.3 California Department of Fish and Wildlife

The CDFW has jurisdictional authority over wetland resources associated with rivers, streams, and lakes pursuant to the California Fish and Game Code (§§1600–1616). Activities of state and local agencies, as well as public utilities that are project proponents, are regulated by the CDFW under Section 1602 of the California Fish and Game Code.

Because the CDFW includes streamside habitats under its jurisdiction that, under the federal definition, may not qualify as wetlands on a project site, its jurisdiction may be broader than that of the USACE. Riparian forests in California often lie outside the plain of ordinary high water regulated under Section 404 of the CWA, and often do not have all three parameters (wetland hydrology, hydrophytic vegetation, and hydric soils) sufficiently present to be regulated as a wetland.

However, riparian forests are frequently included within CDFW regulatory jurisdiction under Section 1602 of the California Fish and Game Code.

The CDFW jurisdictional limits are not as clearly defined by regulation as those of the USACE. While they closely resemble the limits described by USACE regulations, they include riparian habitat supported by a river, stream, or lake regardless of the presence or absence of hydric and saturated soils conditions. In general, the CDFW extends jurisdiction from the top of a stream bank or to the outer limits of the adjacent riparian vegetation (outer drip line), whichever is greater. Notification is generally required for any project that will take place within or near a river, stream, lake, or their tributaries. This includes rivers or streams that flow at least periodically or permanently through a bed or channel with banks that support fish and other aquatic plant and/or wildlife species. It also includes watercourses that have a surface or subsurface flow that support or have supported riparian vegetation.

5.4 Humboldt County-Streamside Management Area

“Streamside Management Areas” (SMAs) [Section 3432(5) of the Humboldt County 1984 General Plan] are defined in the Humboldt County General Plan (Page G-8) and include a natural resource area along both sides of streams containing the channel and adjacent land. Updates to the SMA guidance for cannabis activities are defined in the Environmental Impact Assessment Biological Resources Section⁹.

Project applicants proposing development activities within a SMA or wetland areas are required to include a site-specific biological report prepared consistent with these regulations. The written report prepared by a qualified biologist is subsequently referred to CDFW for review and comment. If required, after agency review of the preliminary habitat assessment, protocol level surveys will be completed per recommendations by the Final Environmental Impact Report (FEIR) amendments to the Humboldt County Code Regulating Commercial Cannabis Activities¹⁰.

5.5 Additional Laws and Policies

In addition to the above-mentioned policies, numerous other policies exist to protect wetlands, waters and biological resources including the California Environmental Quality Act (CEQA), California Endangered Species Act (CESA) and the Z’berg-Nejedly Forest Practice Act.

⁹ <https://humboldt.gov/DocumentCenter/View/58840/Section-311-Biological-Resources-Revised-DEIRPDF>

¹⁰ Final Environmental Impact Report :Amendments to the Humboldt County Code Regulating Commercial Cannabis Activities. January 2018. Prepared by Ascent Environmental. Accessed via <https://humboldt.gov/DocumentCenter/View/62689/Humboldt-County-Cannabis-Program-Final-EIR60mb-PDF>. Accessed [November 2019]



6. Environmental Superiority of the Relocation Site

Based on the 15 May 2019 site investigation, the relocation site was found to be environmentally superior to the former cultivation site. This is primarily due to reduced road impacts, superior solar access, and increased distance from watercourses that reduce overall impacts to water quality. The sections below summarize the key areas of environmental superiority with respect to the relocation sites.

6.1 Reduced Water Quality Impacts

The former project site was upslope and adjacent to the headwaters of an ephemeral watercourse flowing east. It was measured to be within the 50 ft SMA setbacks and had high potential to deposit sediments into the watercourse. Sediment deposition impairs waterways and increases water temperatures affecting the health of riparian species. The relocation site adjacent to the existing project area significantly reduces the potential for sediment transport and delivery to nearby watercourses.

6.2 Improved Solar Access and Superior Energy Efficiency

The relocation site is on an established, open grassland area with full access to the sun. The former cultivation area is partially shaded throughout the day during certain times of the year due to tall canopy coverage from the oak trees grown on the eastern side. This creates sub-optimal growing conditions and requires more energy. The relocation site does not have any shading issues. The improved solar aspect of the relocation sites will allow for more efficient cultivation thus reducing energy impacts and reduced overall carbon footprint. Without any increase to the amount of fertilizers/amendments, there will be an increased yield (pounds) of cannabis per square foot, simply due to the relocation site's increased access to solar radiation.

The consolidation of cultivation areas into two (2) closer areas provides superior efficiency and reduces overall energy impact. Relocating cultivation areas into the established site require less energy for maintenance and monitoring. The consolidation also reduces the energy required to transport water for irrigation purposes. The consolidated areas are also closer to cultivation operations and services. Therefore, the relocation site is an environmentally superior alternative compared to the former grow site considering its potential to reduce overall energy use.

6.3 Reduced Road Impacts

Reducing road use to the former project site minimizes road disturbance and erosion caused by vehicular transportation. Accessing a site through a dirt road can cause accelerated erosion that can increase slope gradients, decrease the integrity of the road, and create sedimentation that may create excessive damage to downstream cultural and ecological values. Relocating and consolidating the former site provides reduced impacts to road disturbance and erosion in the southeastern portion of the property.

7. Remediation and Monitoring Protocol

7.1 Best Management Practices (BMPs)

Best Management Practices for operations, work, construction, erosion control and other elements will be followed at all times as stipulated by:

1. Regional Water Board – Order R1-2015-0023
2. California Department of Fish and Wildlife
3. State Water Board Cannabis General Order

7.2 Remediation of Former Grow Sites

During the site visit, the former grow site was observed to have been decommissioned with only greenhouse structures and tarps remaining. Once all structures and debris are removed from site, erosion control and



revegetation measures shall be implemented. Ongoing remediation requires monitoring of erosion control and revegetation measures, with additional installation of erosion control and seeding/plantings on an as-needed basis per regular self-inspections. Applicant shall follow BMP installation and monitoring protocols. Applicants shall remove any remaining debris from all areas and have a qualified professional verify completion of debris removal and submit evidence to the county.

7.3 Revegetation of Relocation Site

The former cultivation sites shall be revegetated with native species to achieve at least 70% revegetation. Ongoing revegetation and erosion control protocols should be followed, and the area should be monitored per the protocol outlined in the section below.

7.4 Monitoring and Criteria for Success

Additional to routine monitoring required by the Water Board, the following ongoing monitoring protocol shall continue for a minimum of three (3) years. Both the relocation sites and remediated former grow sites shall be monitored. The following monitoring and implementation schedule shall be followed annually:

1. One month prior to commencing season's cultivation activities
 - a. Self-Inspection with Documentation
2. After self-inspection and before commencing season's cultivation activities
 - a. Implementation of additional corrective as needed per self-inspection
 - b. Document all measures installed per item 2.a above.
3. Mid-season
 - a. Self-Inspection with Documentation
4. October 1st
 - a. Self-Inspection with Documentation
5. October 1st- 15th
 - a. Implementation of additional corrective as needed per self-inspection.
 - b. Document all measures installed per item 2.a above.
6. By December 15th
 - a. Self-Inspection with Documentation
7. Winter wet weather monitoring
 - a. Self-Inspection with Documentation following any rainfall event with an intensity of 3 inches of precipitation or greater in 24hours.

The following success criteria shall be utilized:

- Revegetation at 70% coverage or better.
- No evidence of significant sediment transport during post wet-weather event monitoring.

8. Conclusion and Discussion

On 15 May 2019, Mother Earth Engineering staff conducted a biological reconnaissance assessment for potential listed species of concern and provide an onsite relocation analysis on subject property APN: 210-071-009. Parcel and project areas were scoped using the CDFW's California Natural Diversity Database (CNDDB) and California Native Plant Society (CNPS) Rare Plant Inventory to determine the extent of project impacts, assess potential habitat for sensitive species.

On the day of assessment, the study area was walked and examined with emphasis on areas with direct impact from project activities. In general, the site was fairly well maintained and established. The existing project site is on open, grassy terraces surrounded by old stands of Oregon white oaks, ghost pines, and Douglas firs. The



understory did not contain a well-developed shrub layer but was dominated by annual grassland. One (1) sensitive natural community (*Quercus garryana* community) was observed. Solid waste pollution or other discharge into terrestrial habitats and further aquatic habitats were not observed. There are no perennial, fish bearing streams or watercourses within the study area.

The applicant proposes to expand the existing footprint of the cultivation area to compile and include the square footage of the former project site. The former project site had all cannabis removed with only the greenhouse structure remaining. By visual inspection, the nearby existing rainwater catchment pond did not contain evidence of sensitive aquatic species. The water levels were low, and no American bullfrogs were observed.

Based on distance from watercourses, existing disturbance and species composition, and lack of mature coniferous forests, the relocation of the former site to the existing site proves to be an environmentally superior site and will not result in negative impacts to listed species. Relocation will result in relatively low impacts to existing drainage at the relocation site. With no trees proposed to be removed, no rare or sensitive biological communities will be impacted. The relocation site will not modify any existing spotted owl (*Strix occidentalis caurina*) habitat as it occurs in an existing meadow.

8.1 Recommendations

- All generators shall be contained in insulated shelters and secondary catchment to further attenuate noise and prevent leakage.
- All greenhouses shall comply with International Dark Sky Association Standards to prevent nocturnal light emission and pollution. All greenhouses are to be covered with blackout tarps at least half an hour before sunset and after sunrise.
- It is recommended that all water storage ponds are drawn down completely by the end of summer (August/September) to prevent them from becoming breeding habitat that facilitates American Bullfrog invasion. If ponds cannot be feasibly drawn down each year, bullfrog monitoring and eradication according to CDFW guidelines may be a suitable alternative. Management for bullfrogs must be reported to CDFW by the end of each year.
- Current project activities, including relocation, appear to pose a low threat to the observed sensitive natural Oregon white oak community with no trees proposed to be removed. If any oak trees are damaged, the applicant shall plant three (3) oak trees for every one (1) oak tree damaged or removed, per State Water Resources Control Board (SWRCB) Cannabis Cultivation Policy Attachment A.
- Remediation efforts shall be monitored and maintained at the former cultivation site.

Additional consultation with agency staff including the California Department of Fish and Wildlife (CDFW), U.S. Army Corps of Engineers (USACE), Humboldt County and US Fish and Wildlife Service (USFW) will continue throughout the project application, if necessary.

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Appendix

A



Maps

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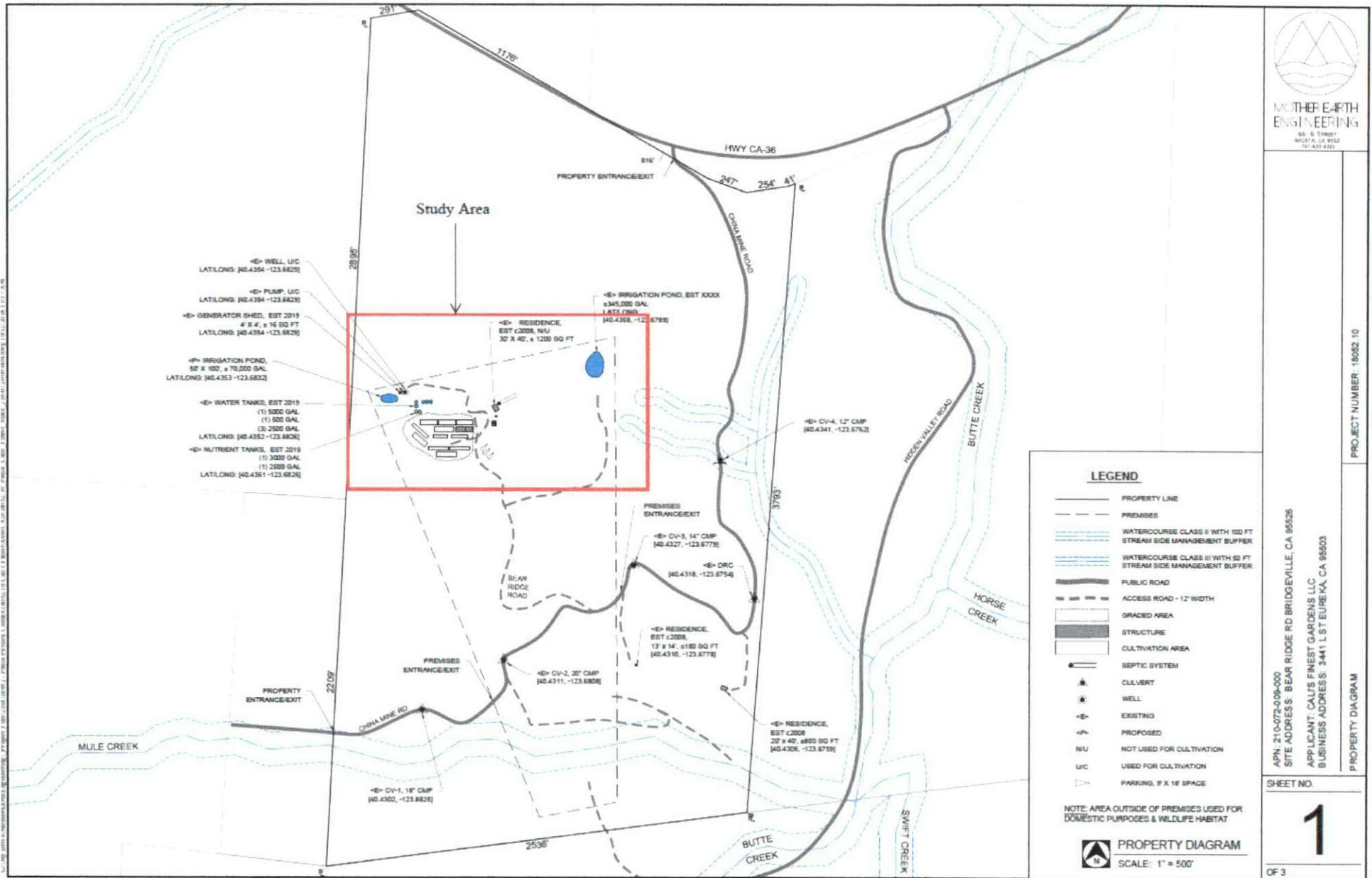


Figure 1 – Aerial Overview of subject property.



Figure 2 – ArcGIS Web Map of the subject property with SMA buffers and NWI layers. Red polygon shows area of remediation and the green polygon shows area of existing cultivation and additional area of relocation. All projects are outside SMA setbacks.

CNDDDB 1-Mile Radius of Project Area Map

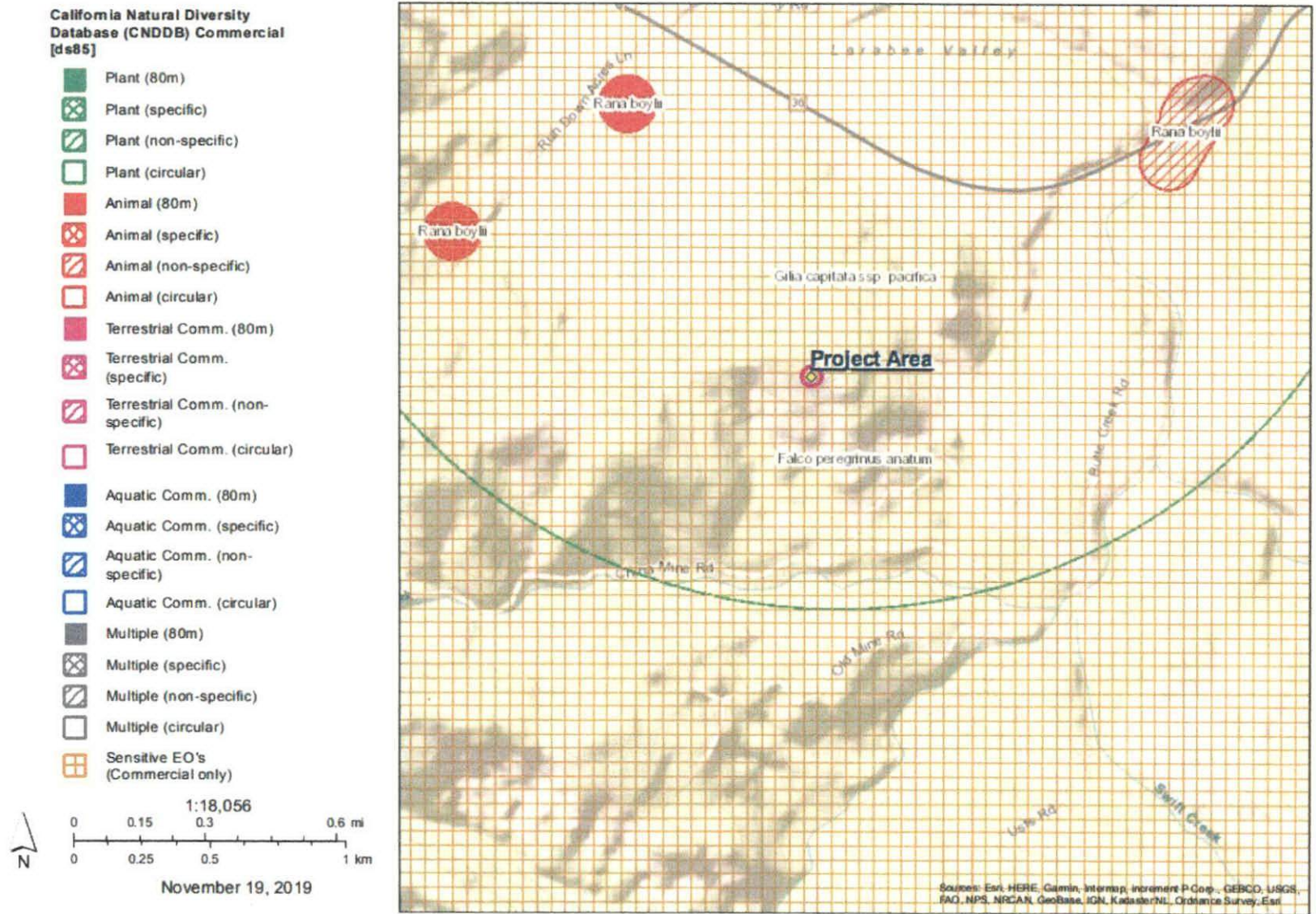


Figure 3 – Map of the CNDDDB observations within 1 mile of project areas.

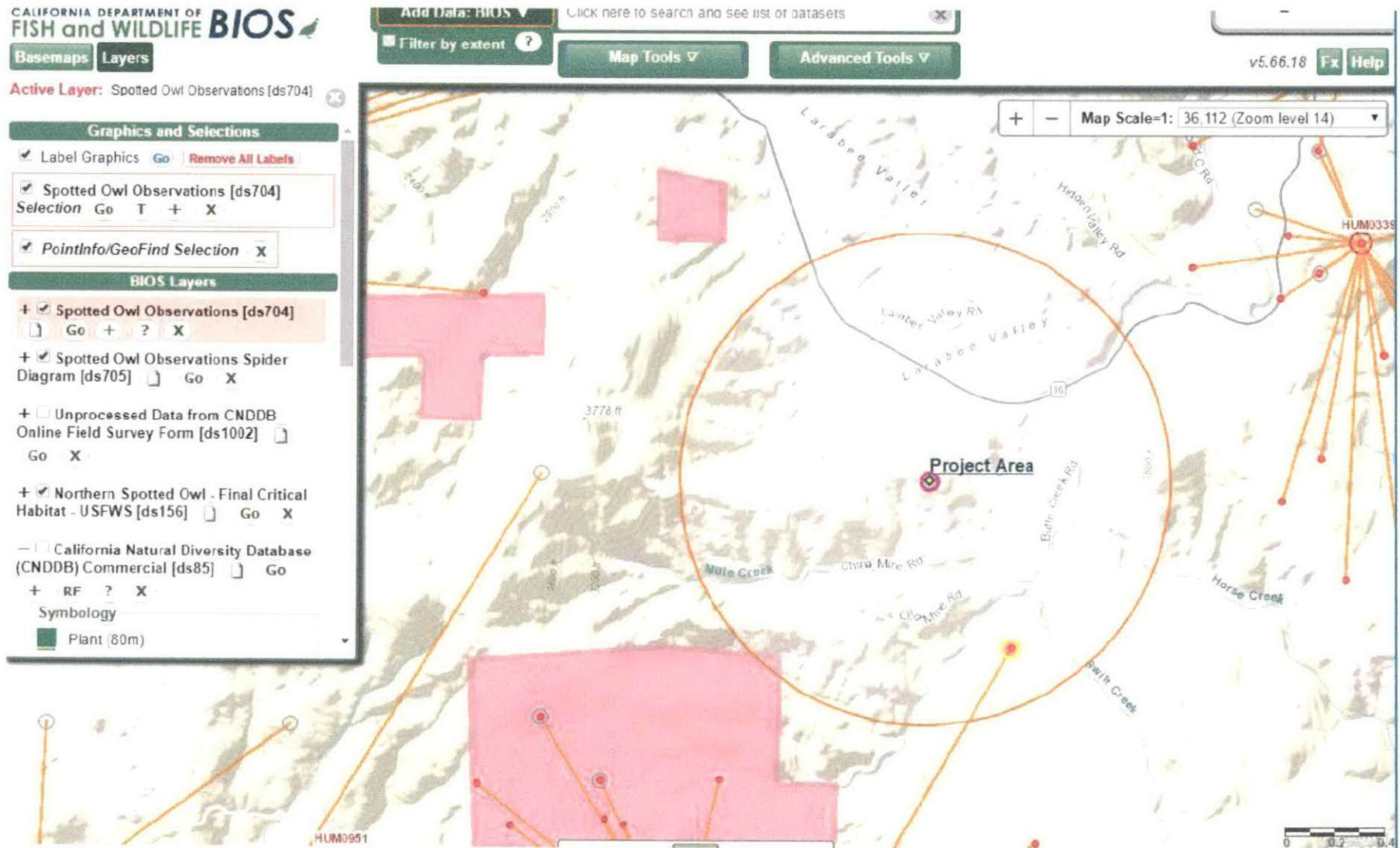


Figure 4 – Map of the NSO (*Strix occidentalis caurina*) observations within 1 mile of project areas.

Appendix B



Site Pictures

Picture No. 1	
May 15, 2019	
Description: View of the former cultivation site to be remediated looking south.	

Picture No. 2	
May 15, 2019	
Description: Headwaters of an ephemeral watercourse flowing downslope of the former cultivation area looking east.	


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Picture No. 3	
May 15, 2019	
Description: Existing pond used for project activities.	

Picture No. 4	
May 15, 2019	
Description: View of the representative vegetation adjacent to existing project area and site of relocation looking north.	

<p>Picture No. 5</p>	
<p>May 15, 2019</p>	
<p>Description:</p> <p>View of the proposed rainwater catchment pond site looking west.</p>	

<p>Picture No. 6</p>	
<p>May 15, 2019</p>	
<p>Description:</p> <p>Another view of the relocation site adjacent to existing project sites.</p>	

Database Results



Appendix C

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Table 4-CNDDDB and CNPS nine-quad database results for the Larabee Valley USGS 7.5' quadrangle

Animals

Scientific Name	Common Name	Taxon Group	Federal	State	General Habitat	Micro Habitat	Potential for Species Occurrence in Study Area
<i>Ascaphus truei</i>	Pacific tailed frog	Amphibians	None	None	Occurs in montane hardwood-conifer, redwood, Douglas-fir & ponderosa pine habitats.	Restricted to perennial montane streams. Tadpoles require water below 15 degrees C.	Unlikely – no perennial streams in study area. Potential habitat exists along Mule Creek.
<i>Rana aurora</i>	northern red-legged frog	Amphibians	None	None	Humid forests, woodlands, grasslands, and streamside in northwestern California, usually near dense riparian cover.	Generally near permanent water, but can be found far from water, in damp woods and meadows, during non-breeding season.	Unlikely – no perennial streams in study area. Potential habitat exists along Mule Creek.
<i>Rana boylei</i>	foothill yellow-legged frog	Amphibians	None	Candidate Threatened	Partly-shaded, shallow streams and riffles with a rocky substrate in a variety of habitats.	Needs at least some cobble-sized substrate for egg-laying. Needs at least 15 weeks to attain metamorphosis.	Unlikely – no perennial streams in study area. Potential habitat exists along Mule Creek.
<i>Rhyacotriton variegatus</i>	southern torrent salamander	Amphibians	None	None	Coastal redwood, Douglas-fir, mixed conifer, montane riparian, and montane hardwood-conifer habitats. Old growth forest.	Cold, well-shaded, permanent streams and seepages, or within splash zone or on moss-covered rocks within trickling water.	Unlikely – no perennial streams in study area. Potential habitat exists along Mule Creek.
<i>Accipiter cooperii</i>	Cooper's hawk	Birds	None	None	Woodland, chiefly of open, interrupted or marginal type.	Nest sites mainly in riparian growths of deciduous trees, as in canyon bottoms on river flood-plains; also, live oaks.	Potentially present
<i>Accipiter gentilis</i>	northern goshawk	Birds	None	None	Within, and in vicinity of, coniferous forest. Uses old nests, and maintains alternate sites.	Usually nests on north slopes, near water. Red fir, lodgepole pine, Jeffrey pine, and aspens are typical nest trees.	Potentially present

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Scientific Name	Common Name	Taxon Group	Federal	State	General Habitat	Micro Habitat	Potential for Species Occurrence in Study Area
<i>Aquila chrysaetos</i>	golden eagle	Birds	None	None	Rolling foothills, mountain areas, sage-juniper flats, and desert.	Cliff-walled canyons provide nesting habitat in most parts of range; also, large trees in open areas.	Potentially present
<i>Falco peregrinus anatum</i>	American peregrine falcon	Birds	Delisted	Delisted	Near wetlands, lakes, rivers, or other water; on cliffs, banks, dunes, mounds; also, human-made structures.	Nest consists of a scrape or a depression or ledge in an open site.	Potentially present
<i>Pandion haliaetus</i>	osprey	Birds	None	None	Ocean shore, bays, freshwater lakes, and larger streams.	Large nests built in tree-tops within 15 miles of a good fish-producing body of water.	Potentially present
<i>Oncorhynchus mykiss irideus</i> pop. 36	summer-run steelhead trout	Fish	None	Candidate Endangered	No. Calif coastal streams south to Middle Fork Eel River. Within range of Klamath Mtns province DPS & No. Calif DPS.	Cool, swift, shallow water & clean loose gravel for spawning, & suitably large pools in which to spend the summer.	Unlikely – no perennial streams in study area. Potential habitat exists along Mule Creek.
<i>Atractelmis wawona</i>	Wawona riffle beetle	Insects	None	None	Aquatic; found in riffles of rapid, small to medium clear mountain streams; 2000-5000 ft elev.	Strong preference for inhabiting submerged aquatic mosses	Unlikely – no perennial streams in study area. Potential habitat exists along Mule Creek.
<i>Bombus caliginosus</i>	obscure bumble bee	Insects	None	None	Coastal areas from Santa Barbara county to north to Washington state.	Food plant genera include Baccharis, Cirsium, Lupinus, Lotus, Grindelia and Phacelia.	Potentially present
<i>Bombus occidentalis</i>	western bumble bee	Insects	None	Candidate Endangered	Once common & widespread, species has declined precipitously from central CA to southern B.C., perhaps from disease.		Potentially present
<i>Arborimus pomo</i>	Sonoma tree vole	Mammals	None	None	North coast fog belt from Oregon border to Sonoma County. In Douglas-fir, redwood & montane hardwood-conifer forests.	Feeds almost exclusively on Douglas-fir needles. Will occasionally take needles of grand fir, hemlock or spruce.	Potentially present
<i>Corynorhinus townsendii</i>	Townsend's big-eared bat	Mammals	None	None	Throughout California in a wide variety of habitats.	Roosts in the open, hanging from walls and	Unlikely – no roost sites

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Scientific Name	Common Name	Taxon Group	Federal	State	General Habitat	Micro Habitat	Potential for Species Occurrence in Study Area
					Most common in mesic sites.	ceilings. Roosting sites limiting. Extremely sensitive to human disturbance.	available in study area
<i>Erethizon dorsatum</i>	North American porcupine	Mammals	None	None	Forested habitats in the Sierra Nevada, Cascade, and Coast ranges, with scattered observations from forested areas in the Transverse Ranges.	Wide variety of coniferous and mixed woodland habitat.	Potentially present
<i>Martes caurina humboldtensis</i>	Humboldt marten	Mammals	None	Endangered	Occurs only in the coastal redwood zone from the Oregon border south to Sonoma County.	Associated with late-successional coniferous forests, prefer forests with low, overhead cover.	Unlikely – no large areas of mature forest in study area
<i>Myotis evotis</i>	long-eared myotis	Mammals	None	None	Found in all brush, woodland and forest habitats from sea level to about 9000 ft. Prefers coniferous woodlands and forests.	Nursery colonies in buildings, crevices, spaces under bark, and snags. Caves used primarily as night roosts.	Potentially present
<i>Myotis volans</i>	long-legged myotis	Mammals	None	None	Most common in woodland and forest habitats above 4000 ft. Trees are important day roosts; caves and mines are night roosts.	Nursery colonies usually under bark or in hollow trees, but occasionally in crevices or buildings.	Potentially present
<i>Pekania pennanti</i>	fisher - West Coast DPS	Mammals	None	Threatened	Intermediate to large-tree stages of coniferous forests and deciduous-riparian areas with high percent canopy closure.	Uses cavities, snags, logs and rocky areas for cover and denning. Needs large areas of mature, dense forest.	Unlikely – no large areas of mature forest in study area
<i>Noyo intersessa</i>	Ten Mile shoulderband	Mollusks	None	None	Found in coastal dunes, coastal scrub, and riparian redwood forest habitats.		Unlikely - no preferred habitat in study area
<i>Emys marmorata</i>	western pond turtle	Reptiles	None	None	A thoroughly aquatic turtle of ponds, marshes, rivers, streams and irrigation ditches, usually with aquatic vegetation, below 6000 ft elevation.	Needs basking sites and suitable (sandy banks or grassy open fields) upland habitat up to 0.5 km from water for egg-laying.	Unlikely – no aquatic habitat in study area. Potential habitat exists along Mule Creek.

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Biological Reconnaissance and Onsite Relocation: Environmental Superiority Analysis

Plants

Scientific Name	Common Name	Family	Lifeform	CRPR	GRank	SRank	Habitat	Micro Habitat	Habitat present in study area
<i>Allium hoffmanii</i>	Beegum onion	Alliaceae	perennial bulbiferous herb	4.3	G4	S4	Lower montane coniferous forest (serpentinite)		No, outside elevation range
<i>Anisocarpus scabridus</i>	scabrid alpine tarplant	Asteraceae	perennial herb	1B.3	G3	S3	Upper montane coniferous forest (metamorphic, rocky)		No, outside elevation range
<i>Arctostaphylos hispidula</i>	Howell's manzanita	Ericaceae	perennial evergreen shrub	4.2	G4	S3	Chaparral (serpentinite or sandstone)		No
<i>Arctostaphylos manzanita</i> ssp. <i>elegans</i>	Konocti manzanita	Ericaceae	perennial evergreen shrub	1B.3	G5T3	S3	Chaparral, Cismontane woodland, Lower montane coniferous forest	volcanic	No
<i>Arnica spathulata</i>	Klamath arnica	Asteraceae	perennial rhizomatous herb	4.3	G3?	S3	Lower montane coniferous forest (serpentinite)		No serpentine
<i>Astragalus agnicidus</i>	Humboldt County milk-vetch	Fabaceae	perennial herb	1B.1	G2	S2	Broadleafed upland forest, North Coast coniferous forest	openings, disturbed areas, sometimes roadsides	Potentially present
<i>Astragalus rattanii</i> var. <i>rattanii</i>	Rattan's milk-vetch	Fabaceae	perennial herb	4.3	G4T4	S4	Chaparral, Cismontane woodland, Lower montane coniferous forest	gravelly streambanks	No
<i>Astragalus umbraticus</i>	Bald Mountain milk-vetch	Fabaceae	perennial herb	2B.3	G4	S2	Cismontane woodland, Lower montane coniferous forest	sometimes roadside	Potentially present
<i>Calycadenia micrantha</i>	small-flowered calycadenia	Asteraceae	annual herb	1B.2	G2	S2	Chaparral, Meadows and seeps (volcanic), Valley and foothill grassland	Roadsides, rocky, talus, scree, sometimes serpentinite, sparsely vegetated areas	No
<i>Carex praticola</i>	northern meadow sedge	Cyperaceae	perennial herb	2B.2	G5	S2	Meadows and seeps (mesic)		Potentially present
<i>Collomia tracyi</i>	Tracy's collomia	Polemoniaceae	annual herb	4.3	G4	S4	Broadleafed upland forest, Lower montane coniferous forest	rocky, sometimes serpentinite	Potentially present

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Scientific Name	Common Name	Family	Lifeform	CRPR	GRank	SRank	Habitat	Micro Habitat	Habitat present in study area
<i>Coptis laciniata</i>	Oregon goldthread	Ranunculaceae	perennial rhizomatous herb	4.2	G4?	S3?	Meadows and seeps, North Coast coniferous forest (streambanks)	Mesic	Unlikely, no streams in study area
<i>Cypripedium fasciculatum</i>	clustered lady's-slipper	Orchidaceae	perennial rhizomatous herb	4.2	G4	S4	Lower montane coniferous forest, North Coast coniferous forest	usually serpentinite seeps and streambanks	Unlikely, no streams in study area
<i>Cypripedium montanum</i>	mountain lady's-slipper	Orchidaceae	perennial rhizomatous herb	4.2	G4	S4	Broadleafed upland forest, Cismontane woodland, Lower montane coniferous forest, North Coast coniferous forest		Potentially present
<i>Epilobium oregonum</i>	Oregon fireweed	Onagraceae	perennial herb	1B.2	G2	S2	Bogs and fens, Lower montane coniferous forest, Meadows and seeps, Upper montane coniferous forest	mesic	Potentially present
<i>Epilobium septentrionale</i>	Humboldt County fuchsia	Onagraceae	perennial herb	4.3	G4	S4	Broadleafed upland forest, North Coast coniferous forest	sandy or rocky	Unlikely
<i>Erigeron maniopotamicus</i>	Mad River fleabane daisy	Asteraceae	perennial herb	1B.2	G2?	S2?	Lower montane coniferous forest, Meadows and seeps (open, dry)	open, disturbed areas (road cuts); rocky	No, outside elevation range
<i>Erythronium oregonum</i>	giant fawn lily	Liliaceae	perennial bulbiferous herb	2B.2	G4G5	S2	Cismontane woodland, Meadows and seeps	sometimes serpentinite, rocky, openings	Potentially present
<i>Erythronium revolutum</i>	coast fawn lily	Liliaceae	perennial bulbiferous herb	2B.2	G4G5	S3	Bogs and fens, Broadleafed upland forest, North Coast coniferous forest	Mesic, streambanks	Unlikely, no streams in study area
<i>Eucephalus glabratus</i>	Siskiyou aster	Asteraceae	perennial herb	4.3	G4	S3	Lower montane coniferous forest, Upper montane coniferous forest	rocky openings	Unlikely
<i>Gilia capitata</i> ssp. <i>pacifica</i>	Pacific gilia	Polemoniaceae	annual herb	1B.2	G5T3	S2	Coastal bluff scrub, Chaparral (openings), Coastal prairie, Valley and foothill grassland		Potentially present
<i>Hosackia yollabolliensis</i>	Yolla Bolly Mtns. bird's-foot trefoil	Fabaceae	perennial herb	1B.2	G2	S2	Meadows and seeps, Upper montane coniferous forest (openings)	dry barren exposed slopes, often gravelly	No, outside elevation range
<i>Howellia</i>	water howellia	Campanulaceae	annual herb	2B.2	G3	S2	Marshes and swamps		No,

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Biological Reconnaissance and Onsite Relocation: Environmental Superiority Analysis

Scientific Name	Common Name	Family	Lifeform	CRPR	GRank	SRank	Habitat	Micro Habitat	Habitat present in study area
aquaticus			(aquatic)				(freshwater)		outside elevation range
Kopsiopsis hookeri	small groundcone	Orobanchaceae	perennial rhizomatous herb (parasitic)	2B.3	G4?	S1S2	North Coast coniferous forest		Potentially present
Lathyrus biflorus	two-flowered pea	Fabaceae	perennial herb	1B.1	G1	S1	Lower montane coniferous forest (serpentinite)		No, outside elevation range
Lilium rubescens	redwood lily	Liliaceae	perennial bulbiferous herb	4.2	G3	S3	Broadleaved upland forest, Chaparral, Lower montane coniferous forest, North Coast coniferous forest, Upper montane coniferous forest	Sometimes serpentinite, sometimes roadsides	Potentially present
Listera cordata	heart-leaved twayblade	Orchidaceae	perennial herb	4.2	G5	S4	Bogs and fens, Lower montane coniferous forest, North Coast coniferous forest		Potentially present
Lupinus constancei	The Lassics lupine	Fabaceae	perennial herb	1B.1	G1	S1	Lower montane coniferous forest (serpentinite)		No, outside elevation range
Lupinus elmeri	South Fork Mountain lupine	Fabaceae	perennial herb	1B.2	G2	S2	Lower montane coniferous forest		Potentially present
Lycopodium clavatum	running-pine	Lycopodiaceae	perennial rhizomatous herb	4.1	G5	S3	Lower montane coniferous forest (mesic), Marshes and swamps, North Coast coniferous forest (mesic)	often edges, openings, and roadsides	Potentially present
Meesia triquetra	three-ranked hump moss	Meesiaceae	moss	4.2	G5	S4	Bogs and fens, Meadows and seeps, Subalpine coniferous forest, Upper montane coniferous forest (mesic)	soil	No, outside elevation range
Mitellastruca caulescens	leafy-stemmed mitrewort	Saxifragaceae	perennial rhizomatous herb	4.2	G5	S4	Broadleaved upland forest, Lower montane coniferous forest, Meadows and seeps, North Coast coniferous forest	mesic, sometimes roadsides	Potentially present
Montia howellii	Howell's montia	Montiaceae	annual herb	2B.2	G3G4	S2	Meadows and seeps, North Coast coniferous forest, Vernal pools	vernally mesic, sometimes roadsides	No vernal pools
Packera	seacoast	Asteraceae	perennial	2B.2	G4T4	S2S3	Coastal scrub, North Coast	Sometimes	No,

Mother Earth Engineering

Biological Reconnaissance and Onsite Relocation: Environmental Superiority Analysis

Scientific Name	Common Name	Family	Lifeform	CRPR	GRank	SRank	Habitat	Micro Habitat	Habitat present in study area
bolanderi var. bolanderi	ragwort		rhizomatous herb				coniferous forest	roadsides	outside elevation range
Piperia candida	white-flowered rein orchid	Orchidaceae	perennial herb	1B.2	G3	S3	Broadleaved upland forest, Lower montane coniferous forest, North Coast coniferous forest	sometimes serpentinite	Unlikely
Pityopus californicus	California pinefoot	Ericaceae	perennial herb (achlorophyllous)	4.2	G4G5	S4	Broadleaved upland forest, Lower montane coniferous forest, North Coast coniferous forest, Upper montane coniferous forest	mesic	Potentially present
Platanthera stricta	slender bog-orchid	Orchidaceae	perennial herb	4.2	G5	S3	Lower montane coniferous forest, Meadows and seeps	mesic	No, outside elevation range
Ptilidium californicum	Pacific fuzz wort	Ptilidiaceae	liverwort	4.3	G4G5	S3S4	Lower montane coniferous forest, Upper montane coniferous forest	Usually epiphytic on trees, fallen and decaying logs, and stumps; rarely on humus over boulders	No, outside elevation range
Ribes laxiflorum	trailing black currant	Grossulariaceae	perennial deciduous shrub	4.3	G5?	S3	North Coast coniferous forest	sometimes roadside	Potentially present
Sabulina decumbens	The Lassics sandwort	Caryophyllaceae	perennial herb	1B.2	G1	S1	Lower montane coniferous forest, Upper montane coniferous forest	serpentinite	No, outside elevation range
Sanicula tracyi	Tracy's sanicle	Apiaceae	perennial herb	4.2	G4	S4	Cismontane woodland, Lower montane coniferous forest, Upper montane coniferous forest	openings	Potentially present
Sedum laxum ssp. flavidum	pale yellow stonecrop	Crassulaceae	perennial herb	4.3	G5T3Q	S3	Broadleaved upland forest, Chaparral, Cismontane woodland, Lower montane coniferous forest, Upper montane coniferous forest	Serpentinite or volcanic	No serpentine
Sidalcea malachroides	maple-leaved checkerbloom	Malvaceae	perennial herb	4.2	G3	S3	Broadleaved upland forest, Coastal prairie, Coastal scrub,	Often in disturbed	No, outside

Mother Earth Engineering

Biological Reconnaissance and Onsite Relocation: Environmental Superiority Analysis

Scientific Name	Common Name	Family	Lifeform	CRPR	GRank	SRank	Habitat	Micro Habitat	Habitat present in study area
							North Coast coniferous forest, Riparian woodland	areas	elevation range
<i>Sidalcea malviflora</i> ssp. <i>patula</i>	Siskiyou checkerbloom	Malvaceae	perennial rhizomatous herb	1B.2	G5T2	S2	Coastal bluff scrub, Coastal prairie, North Coast coniferous forest	often roadcuts	Potentially present
<i>Thermopsis robusta</i>	robust false lupine	Fabaceae	perennial rhizomatous herb	1B.2	G2	S2	Broadleafed upland forest, North Coast coniferous forest		Potentially present
<i>Usnea longissima</i>	Methuselah's beard lichen	Parmeliaceae	fruticose lichen (epiphytic)	4.2	G4	S4	Broadleafed upland forest, North Coast coniferous forest	On tree branches; usually on old growth hardwoods and conifers	Potentially present
<i>Wyethia longicaulis</i>	Humboldt County wyethia	Asteraceae	perennial herb	4.3	G4	S4	Broadleafed upland forest, Coastal prairie, Lower montane coniferous forest	sometimes roadsides	Potentially present

Appendix D



Web Soil Survey

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Soil Map—Humboldt County, Central Part, California







































Map Scale: 1:7,900 if printed on A portrait (8.5" x 11") sheet.



Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 10N WGS84



MAP LEGEND

- Area of Interest (AOI)**
-  Area of Interest (AOI)
- Soils**
-  Soil Map Unit Polygons
-  Soil Map Unit Lines
-  Soil Map Unit Points
- Special Point Features**
-  Blowout
-  Borrow Pit
-  Clay Spot
-  Closed Depression
-  Gravel Pit
-  Gravelly Spot
-  Landfill
-  Lava Flow
-  Marsh or swamp
-  Mine or Quarry
-  Miscellaneous Water
-  Perennial Water
-  Rock Outcrop
-  Saline Spot
-  Sandy Spot
-  Severely Eroded Spot
-  Sinkhole
-  Slide or Slip
-  Sodic Spot
-  Spoil Area
-  Stony Spot
-  Very Stony Spot
-  Wet Spot
-  Other
-  Special Line Features
- Water Features**
-  Streams and Canals
- Transportation**
-  Rails
-  Interstate Highways
-  US Routes
-  Major Roads
-  Local Roads
- Background**
-  Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:24,000.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
 Web Soil Survey URL:
 Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Humboldt County, Central Part, California
 Survey Area Data: Version 4, Sep 13, 2018

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Jul 30, 2014—Nov 6, 2017

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
1001	Frostvalley, 0 to 2 percent slopes	1.1	0.4%
1002	Frostvalley-Mulecreek complex, 2 to 9 percent slopes	18.5	7.3%
4421	Highyork-Elkcamp-Airstrip complex, 15 to 30 percent slopes	24.9	9.9%
4426	Pasturerock-Coyoterock-Maneze complex, 15 to 50 percent slopes, dry	207.9	82.4%
Totals for Area of Interest		252.4	100.0%