

TECHNICAL MEMORANDUM



Biological Survey

Pacific Roots Cannabis, LLC
631 Chambers Road, Petrolia, California
Assessor's Parcel Numbers (APN) 105-141-001

Date: May 31, 2019
Project No.: 9358.00

Prepared For: Alex Roney

Prepared By: Gary Lester
Senior Environmental Scientist

Reviewed By: Beth Burks
AICP/Planning Director

Attachments:	Appendix 1:	Figures
	Appendix 2:	Site Photos
	Appendix 3:	Observed Plant Species List
	Appendix 4:	Observed Wildlife Species List

1.0 INTRODUCTION

The Pacific Roots Cannabis, LLC is applying for an outdoor cannabis cultivation permit on the property known as Assessor's Parcel Number (APN) 105-141-001, located at 631 Chambers Road (Site), approximately 0.5 miles east of the unincorporated community of Petrolia in Humboldt County, California. Location and site maps are included as Figures 1 and 2 in Appendix 1, with photos of the properties included in Appendix 2 (Site Photos).

The purpose of the Biological Survey was twofold, to characterize the existing habitats on the Site and to determine the potential for presence of special status species and sensitive habitats.

2.0 METHODS

To characterize existing biological conditions, identify potential impacts to sensitive habitats resulting from implementation of the project, and evaluate the potential presence of rare, threatened, or endangered

21 W. Fourth Street Eureka, CA 95501 707 443-5054 – Fax 707 443-0553	776 S. State Street, Suite 102A Ukiah, CA 95482 707 462-0222 – Fax 707 462-0223	3450 Regional Parkway, Suite B Santa Rosa, CA 95403 707 525-1222 – Fax 707 545-7821	932 B W. Eighth Avenue Chico, CA 95926 530 801-6170 – Fax 707 462-0223
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plant and wildlife species at the processing and quarry sites, LACO's Senior Environmental Scientist, Gary Lester, conducted a biological survey of the Site on April 17, 2019. Mr. Lester is qualified to conduct biological surveys, having earned an undergraduate degree in Botany and received training in recognition of the local flora and fauna and in rare plant identification and survey protocol. Additionally, Mr. Lester has conducted sensitive plant surveys, biological site investigations, and wildlife surveys for over 25 years.

Prior to and during the survey, several resources were consulted to determine potential areas of sensitive plant and wildlife species occurrence in the vicinity of the project area: CDFW Natural Diversity Database (CNDDB) – Petrolia Quad, California Native Plant Society (CNPS) rare plant inventory, USGS 7.5-minute Petrolia quadrangle topographic map, and aerial photography. Special habitat areas, such as habitat edges and creeks, were assessed at interval cross sections to gain a representational sampling of habitat classification and structure. Plants were identified to the taxonomic level (genus or species) necessary for rare plant identification. Plant species names follow the scientific nomenclature of the Jepson Manual (Baldwin, et. al., 2012). Photos taken at the Site are included in Appendix 2.

A complete observed plant species list is provided in Appendix 3 and an observed wildlife list is provided in Appendix 4.

3.0 ENVIRONMENTAL SETTING

The Site is primarily composed of pasture habitats, with a small cluster of long-established Monterey cypress (*Hesperocyparis macrocarpa*) on the Site and an adjacent large stand of blue gum (*Eucalyptus globosa*) trees immediately across Chambers Road. The Site also includes an existing barn, residence, water tanks and widespread network of livestock fencing. The proposed cultivation area of 10,000 square feet is within a field historically used for grazing livestock (Appendix 1, Figure 2, Appendix 2, Photo 1). The proposed greenhouse and compost bins are located immediately east of the proposed cultivation site (Appendix 2, Photo 2). Existing water storage tanks are directly below the mature Monterey cypress trees, just south of the existing barn (Appendix 1, Figure 2, Appendix 2, Photo 3). A proposed ~2,160 square foot building would be located just east of the Monterey cypress trees (Appendix 1, Figure 2, Appendix 2, Photo 4). A proposed water storage pond is planned to be constructed west of the cultivation area (Appendix 1, Figure 2, Appendix 2, Photo 5). An intermittent seasonal drainage (Appendix 1, Figure 2, Appendix 2, Photo 6) is located between the proposed cultivation area and proposed pond location and will require a setback of a minimum distance of 50 feet (in accordance with Streamside Management Area (SMA) Ordinance, and associated setback distances established in the 2017 Humboldt County General Plan).

The seasonal drainage is shown in Appendix 1, Figure 2 with the minimum 50 feet setback buffer.

A general survey of habitats was conducted during the April 17, 2019, site visit, in which three different habitat types were found in the project area. The primary habitat found on the Site is ruderal grassland. The dominant plant species found in the non-native grassland include sweet vernal grass (*Anthoxanthum odoratum*), perennial bluegrass (*Poa pratensis*), red stem filaree (*Erodium cicutarium*), and slender wild oat (*Avena barbata*). A small narrow strip of seasonal drainage is found on the east edge of the two parcels, with additional stream habitat found along central portion of the south parcel (Appendix 1, Figure 2). The dominant plant species found in the seasonal drainage include Scotch broom (*Cytisus scoparius*), bracken fern (*Pteridium aquilinum*), coyote brush (*Baccharis pilularis*), California blackberry (*Rubus ursinus*), and penny royal (*Mentha pulegium*). Mixed evergreen forest is the remaining habitat type, associated with slopes to the east of the open pastures. The dominant plant species found in the mixed evergreen forest include

Douglas-fir, California bay (*Umbellularia californica*), tan oak (*Notholithocarpus densiflorus*), and Pacific madrone (*Arbutus menziesii*).

4.0 POTENTIAL SENSITIVE SPECIES ANALYSIS

The following section discusses the sensitive plant species historically reported nearby and the sensitive wildlife species with the potential to occur at the processing and quarry sites. Federal laws have provided the USFWS with a mechanism for conserving and protecting the diversity of native plants and animals. A sizable number of native plants and animals have been formally designated as threatened or endangered under federal endangered species legislation. Others have been designated as "candidates" for such listing. Still, others have been designated as "species of special concern" by the USFWS. The CNPS has developed its own set of lists of native plants considered rare, threatened, or endangered (CNPS, 2019). Collectively, these plants and animals are referred to as "special status species." The information used in this assessment was compiled from public information research and field reconnaissance. Public sources of information were investigated with respect to the species of concern. These sources include current professional publications, professional communications, natural resource database inquiries, and current landowner contact.

The CNPS published the most recent edition of the Inventory of Rare and Endangered Vascular Plants of California. Plants listed in the Inventory are placed into one of five categories:

- 1A. Plants that are presumed extinct in California;
- 1B. Plants that are rare or endangered in California and elsewhere;
2. Plants that are rare or endangered in California but more common elsewhere;
3. Plants for which more information is needed for final listing to be undertaken; and,
4. Plants of limited distribution (a watch list) which are uncommon enough that their status needs monitoring.

The CDFW has primary responsibility for the protection of sensitive plant species at the State level. The Department acts in an advisory capacity to other State agencies, such as the Humboldt County Building and Planning Department, in matters relating to sensitive species and sensitive habitats. In this capacity, CDFW staff may request avoidance of sensitive species and/or mitigation for impacts on these species. California recognizes the following categories of sensitive plant species:

1. Endangered species;
2. Threatened species;
3. Rare species;
4. Candidate species (those which are under review by the Department for addition to the list of Threatened or Endangered species); and,
5. Species of Concern (those listed in the CNPS Inventory which are not included in any of the above categories).

The U.S. Fish and Wildlife Service (USFWS) functions in a manner similar to that of CDFW, but on a Federal level. This agency has primary responsibility for the protection of all species falling under the Endangered Species Act (ESA, 1973). The following are categories utilized under the ESA:

1. Endangered species;
2. Threatened species;

3. Listed species (those which have been the subject of a proposed and final rule or regulation published in the Federal Register);
4. Proposed species (those species for which a proposed regulation has been published in the Federal Register, but not a final rule);
5. Candidate species (those which USFWS is considering for listing as endangered or threatened but which have not been the subject of a proposed rule); and,
6. Non-candidate species (those species which have previously been considered candidates but have been dropped for one or more reasons).

4.1 Potential Plant Species

A list of sensitive plant species recorded as potentially present in the general vicinity of the subject sites was compiled. For this analysis, sensitive plant species include all of those which are protected by State and/or Federal law, plus those considered rare or endangered by the CNPS. Taxonomic details, as well as the general ecology of these species, were reviewed prior to the field exploration. Table 1, below, provides a list of plant species known to occur within the vicinity of the project area and an evaluation of each species' potential to occur on the two sites. Included in the table are State and Federal threatened, endangered, or State species of concern.

Table 1. Special Status Plant Species Occurring Within the Project Vicinity

Species	Status ²	Habitat	Occurrence in the Project Vicinity ¹
Pacific gilia (<i>Gilia capitata</i> ssp. <i>pacifica</i>)	CNPS 1B.2	Occurs in grasslands, coastal scrub communities.	Possible, although much of the project site is highly disturbed and altered.
Howell's montia (<i>Montia howellii</i>)	CNPS 2B.2	Requires seasonal wet bare soil & seeps as terrestrial habitat	Unlikely, recent record from 12 miles northeast. Suitable bare soil habitat for this species does not occur on Site.
White-flowered Rein Orchid (<i>Piperia candida</i>)	CNPS 1B.2	Mostly restricted to coastal scrub, prairie, and coniferous forest.	Unlikely. Undisturbed forest soils far removed from Site.
Oregon polemonium (<i>Polemonium carneum</i>)	CNPS 2B.2	This species requires dry stream beds & banks as terrestrial habitat	Possible. Nearest known population over 10 miles from the project area.
Maple-leaved checkerbloom (<i>Sidalcea malachroides</i>)	CNPS 4.2	Mostly restricted to coastal scrub, prairie, and coniferous forest.	Unlikely. Much of the project site is highly disturbed and altered.
Siskiyou checkerbloom (<i>Sidalcea malviflora</i> ssp. <i>patula</i>)	CNPS 1B.2	Mostly restricted to coastal scrub, prairie, and coniferous forest.	Possible, although much of the project site is highly disturbed and altered.

OCCURRENCE DESIGNATIONS:

Present: Species observed on the study area at time of field surveys or during recent past.

Likely: Species not observed on the study area, but it may reasonably be expected to occur there on a regular basis.

Possible: Species not observed in the study area, but it could occur there from time to time.

Unlikely: Species not observed in the study area, and would not be expected to occur there except, perhaps, as a transient.

Absent: Species not observed in the study area and precluded from occurring there because habitat requirements not met.

*STATUS CODES:

FE Federally Endangered
FT Federally Threatened
FPE Federally Endangered (Proposed)
FC Federal Candidate

CE California Endangered
CT California Threatened
CR California Rare
CSC California Species of Special Concern

Species	Status ²	Habitat	Occurrence in the Project Vicinity ¹
CNPS	California Native Plant Society Listing		
SCT	California Candidate Threatened		

Of the seven species listed above, three species have the potential to occur at the Site, including both checkerblooms and Pacific gilia. These species were searched for but not detected at the Site.

4.2 Potential Wildlife Species

A list of sensitive wildlife species known to occur within the project vicinity is provided in Table 2, with a list of migratory birds protected under the Migratory Bird Treaty Act (MBTA) provided in Table 3.

Table 2. Special Status Wildlife Species Occurring Within the Project Vicinity

Species	Status ²	Habitat	Occurrence in the Project Vicinity ¹
Invertebrates			
Western bumblebee (<i>Bombus occidentalis</i>)	None	Widespread	Possible. Suitable colonial habitat along the Mattole River.
Obscure bumblebee (<i>Bombus caliginosus</i>)	None	West coast	Possible. Suitable colonial habitat occurs along the Mattole River.
Fish			
Pacific lamprey (<i>Entosphenus tridentatus</i>)	CSC	California coastal streams and near ocean waters	Mattole River only.
Chinook Salmon (<i>Oncorhynchus tshawytscha</i>)	FT	California coastal ESU (evolutionarily significant unit).	Mattole River only.
Coho Salmon (<i>Oncorhynchus kisutch</i>)	FT/CT	Southern Oregon/Northern California ESU.	Mattole River only.
Steelhead (<i>Oncorhynchus mykiss</i>)	FT	Northern California ESU.	Mattole River only.
Amphibians and Reptiles			
Southern Torrent Salamander (<i>Rhyacotriton variegatus</i>)	CSC	Cold, freshwater streams	Unlikely. No suitable habitat.
Northern Red-legged Frog (<i>Rana aurora</i>)	None	North coast freshwaters	Possible. Suitable habitat for this species limited on the Site.
Foothill Yellow-legged frog (<i>Rana boylei</i>)	SCT	Rocky stream beds	Unlikely. No suitable habitat (gravel stream bed) for this species occurs on Site.
Western Pond Turtle (<i>Emys marmorata</i>)	None	North coast freshwaters	Possible, small temporary pond occurs on Site.
Birds			
Great Blue Heron (<i>Ardea herodias</i>)	None	North coast coniferous forest (nesting only), dependent on mature stands.	Possible. Suitable habitat (canopy trees) for this species occurs on the Site.
Northern Spotted Owl (<i>Strix occidentalis caudata</i>)	FT	Mature forest	Unlikely. No known pairs are in adjacent drainages or suitable habitat present.

Species	Status ²	Habitat	Occurrence in the Project Vicinity ¹
Western Yellow-billed Cuckoo (<i>Coccyzus americanus</i>)	FT	Open woodland, parks, deciduous riparian woodland.	Unlikely. Suitable habitat (expansive, multi-layered riparian forest) for this species is severely limited.
Mammals			
Pallid Bat (<i>Antrozous pallidus</i>)	None	North coast forests. Rock den sites.	Possible. Suitable roost and foraging habitat for this species occurs on the Site, no breeding habitat.
Hoary Bat (<i>Lasiurus cinereus</i>)	None	North coast forests.	Possible. Suitable roost habitat for this species occurs in the study area.
Sonoma tree vole (<i>Arborimus pomo</i>)	None	North coast coniferous forests.	Unlikely. No suitable habitat (mature Douglas-fir trees) for this species occurs in the project area.
American Badger (<i>Taxidea taxus</i>)	CSC	North coast grasslands. Depends on protected soil burrows for raising young.	Possible. Suitable habitat (open grassland) for this species occurs on Site. No evidence observed.
Pacific Fisher (<i>Pekania pennanti</i>)	FPT	North coast coniferous forests. Depends on sizable tree hollows for raising young.	Unlikely. Suitable habitat (mixed coniferous forest) for this species does not occur on Site.

OCCURRENCE DESIGNATIONS:

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Likely: Species not observed on the study area, but it may reasonably be expected to occur there on a regular basis.

Possible: Species not observed in the study area, but it could occur there from time to time.

Unlikely: Species not observed in the study area, and would not be expected to occur there except, perhaps, as a transient.

Absent: Species not observed in the study area and precluded from occurring there because habitat requirements not met.

***STATUS CODES:**

FE Federally Endangered

FT Federally Threatened

FPE Federally Endangered (Proposed)

FPT Federally Threatened (Proposed) CR

FC Federal Candidate

CNPS California Native Plant Society Listing

SCT California Candidate Threatened

CE California Endangered

CT California Threatened

California Rare

CSC California Species of Special Concern

Of the species known to be in and around the U.S.G.S. Petrolia Quad for the subject property, Pacific lamprey (California species of concern), coho salmon (both Federal and State threatened), chinook salmon (Federal threatened), and steelhead trout (Federal threatened), are known in the Mattole River. Additionally, there is the potential for the following special status species to be located within the project area:

- Two special status invertebrate species (western bumblebee and obscure bumblebee), but little flower foraging source on Site.
- One special status amphibian and one reptile species, northern red-legged frog, and western pond turtle, with limited and likely ephemeral pond habitat on Site.
- Two special status bird species (Great Blue Heron, and Grasshopper Sparrow).
- Two special status mammal species (hoary bat, American badger), none of which are expected to be impacted (bat) or was sign seen (badger).

4.2.1 Migratory Birds

The Migratory Bird Treaty Act (MBTA) of 1918, expressly forbids any party, unless permitted by regulations, to "pursue, hunt, take, capture, kill, attempt to take, capture or kill, possess, offer for sale, sell, offer to purchase, purchase, deliver for shipment, ship, cause to be shipped, deliver for transportation, transport, cause to be transported, carry, or cause to be carried by any means whatever, receive for shipment, transportation or

carriage, or export, at any time, or in any manner, any migratory bird, included in the terms of this Convention...for the protection of migratory birds...or any part, nest, or egg of any such bird" (16 U.S.C. 703). On March 1, 2010, the USFWS revised the MBTA adding additional species to the list. There are now 1007 bird species listed. The following MBTA species, provided in Table 3, are listed by the USFWS for the Buckeye Mountain Quad.

Table 3. Migratory Birds Listed on the Buckeye Mountain Quadrangle

Species	Status	Habitat	Occurrence in the Study Area ¹
Allen's Hummingbird (<i>Selasphorus sasin</i>)	Bird of Conservation Concern	Season, Breeding: Chaparral, thickets, brushy hillsides, open coniferous woodlands, and gardens near coast, often in ravines and canyons. Nests on twig or fork of tree or shrub, sometimes on stalk of plant, among in vines, occasionally in building.	Likely in the project area.
Golden Eagle (<i>Aquila chrysaetos</i>)	Bird of Conservation Concern	Year-round: Breeding habitat most commonly includes tall trees or on pinnacles or cliffs near water.	Unlikely. Project area appears much too close to active roads, traffic, human habitation.
Bald Eagle (<i>Haliaeetus leucocephalus</i>)	Bird of Conservation Concern	Year-round: Breeding habitat most commonly includes areas close to (within 4 km) coastal areas, bays, rivers, lakes, reservoirs, or other bodies of water that reflect the general availability of primary food sources including fish, waterfowl, or sea birds. Nests usually are in tall trees or on pinnacles or cliffs near water.	Unlikely. Suitable foraging habitat for this species does occur on the Mattole River.
Burrowing Owl (<i>Athene cunicularia</i>)	Bird of Conservation Concern	Year-round: Habitat includes open grasslands, especially prairie, plains, and savanna, sometimes other open areas such as vacant lots near human habitation or airports. This owl spends much time on the ground or on low perches such as fence posts or dirt mounds.	Absent. Suitable habitat for this species does not occur in the study area.
Loggerhead Shrike (<i>Lanius ludovicianus</i>)	Bird of Conservation Concern	Season, Wintering: Open country with scattered trees and shrubs, and, occasionally, open woodland; often perches on poles, wires or fence posts.	Unlikely. Suitable habitat for this species does occur in the study area, but it is an extremely rare migrant or wintering species in the region.
Peregrine Falcon (<i>Falco peregrinus</i>)	Bird of Conservation Concern	Year-round: Occurs in areas where prey concentrate, including farmlands, marshes, lakeshores, river mouths, tidal flats, dunes and beaches, broad river valleys, cities, and airports.	Absent. No suitable nesting habitat for this species occurs in the study area.
Short-eared Owl (<i>Asio flammeus</i>)	Bird of Conservation Concern	Season, Wintering: Broad expanses of open land with low vegetation for nesting and foraging are required. Habitat types frequently mentioned as suitable include fresh and saltwater marshes, bogs, dunes, prairies, grassy plains, old fields, tundra, moorlands, river valleys, meadows, savanna, open woodland, and heathland.	Unlikely. A broad expanse of grassland habitat for this species does not occur in the study area.
Willow Flycatcher (<i>Empidonax traillii</i>)	Bird of Conservation Concern	Season, Breeding: Strongly tied to brushy areas of willow (<i>Salix</i> spp.) and similar shrubs. Found in thickets, open	Absent. Suitable habitat for this species does not occur in the study area.

Species	Status	Habitat	Occurrence in the Study Area ¹
		second growth with brush, swamps, wetlands, streamsides, and open woodland. Common in mountain meadows and along streams; also, in brushy upland pastures (especially hawthorn) and orchards. The presence of water (running water, pools, or saturated soils) and willow, alder (<i>Alnus</i> spp), or other deciduous riparian shrubs are essential habitat elements.	
Yellow Warbler (<i>Dendroica petechia</i> ssp. <i>brewsteri</i>)	Bird of Conservation Concern	Season, Breeding: Habitat includes open scrub, second-growth woodland, thickets, farmlands, and gardens, especially near water; riparian woodlands, especially of willows, are typical habitat in the West.	Absent. Suitable habitat for this species does not occur in the study area.
Yellow-breasted Chat (<i>Icteria virens</i>)	Bird of Conservation Concern	Season, Breeding: Strongly tied to brushy areas of willow (<i>Salix</i> spp.) and similar shrubs. Found in thickets, open second growth with brush, swamps, wetlands, stream sides, and open woodland.	Absent. Suitable habitat for this species does not occur in the study area.

OCCURRENCE DESIGNATIONS:

Present: Species observed on the study area at time of field surveys or during recent past.

Likely: Species not observed on the study area, but it may be reasonably expected to occur there on a regular basis.

Possible: Species not observed in the study area, but it could occur there from time to time.

Unlikely: Species not observed in the study area, and would not be expected to occur there except, perhaps, as a transient.

Absent: Species not observed in the study area and precluded from occurring there because habitat requirements not met.

Of the 10 migratory birds listed above, one species, Allen's Hummingbird (*Selasphorus sasin*), is likely to occur at or within the vicinity of the Site.

5.0 SURVEY RESULTS

5.1 Plants

Of the seven special status plant species potentially occurring in the project area, three plant species, maple-leaved checkerbloom, Siskiyou checkerbloom, and Pacific gilia, are considered to have the potential to occur within the Site (CDFW, 2019; CNPS, 2019); however, no special status plant species were observed on the Site. Vegetation at the Sites has been highly altered and modified by past land use and development. These activities have altered the environmental conditions at the Sites so that common, non-native plant species dominate the Site. The ongoing disturbed nature of the Sites and regular impacts from human intrusion are factors that likely contribute to the absence of rare plants or their ability to colonize the Site over time, with the exception of species that can tolerate a high disturbance regime. Given the above information and the fact that no special status plant species were detected during the Site visit, the proposed project is not anticipated to directly or indirectly impact any listed or special status plant species. Approximately 30 acres were traversed with a special emphasis placed on the proposed areas to be disturbed by project activities. This survey did not indicate the need for a more in-depth analysis of criteria habitat or occurrence of special status species due to the lack of habitat of listed species.

5.2 Wildlife

Wildlife species that were observed in the project area include many species of birds such as Western bluebird (*Sialia mexicana*), American robin (*Turdus migratorius*), song sparrow (*Melospiza melodia*), black phoebe (*Sayornis nigricans*), white-crowned sparrow (*Zonotrichia leucophrys*), lesser goldfinch (*Carduelis psaltria*), and yellow-rumped warbler (*Setophaga coronata*). Black-tailed deer (*Odocoileus hemionus*) sign were found throughout as was Botta Valley pocket gopher (*Thomomys botte a*) sign. No special status wildlife species were observed.

6.0 EFFECTS ANALYSIS

No listed plant species were detected or would be expected on the property, that has long been in agricultural use. That said, based on the proximity of known Siskiyou checkerbloom and leafy reed grass populations to the west (CNDDDB, 2019), a thorough seasonally appropriate checkerbloom and reed grass survey is still outstanding. An extensive Scotch broom population (identified by the California Invasive Plant Council as high level of negative ecological impact plant species, Cal-IPC, 2019). occurs on the property, west of the proposed cultivation site and in proximity to the proposed water storage pond. Based on the Site survey, wildlife species utilizing the project area include common resident and wintering species, which utilize the upland habitats in the Mattole River basin. Although little habitat occurs on-site for any sensitive species, or project activities are located far enough from potential occurrence sites, a seasonally appropriate breeding Grasshopper Sparrow survey is outstanding. The closest occurring known Northern Spotted Owl (NSO) activity center (nest) is 1.13 miles away (CDFW, 2019). There is no NSO nesting habitat on-site. Pacific Fisher is reported 2.0 miles to the east (CNDDDB, 2019), but no fisher habitat is found on-site. Western Bumblebee is reported from the Mattole River (CNDDDB, 2019), but very little diverse flowers populations occur on-site and/or suitable bare soil for colonization. American Badger occurs in the Mattole River Valley, in open grasslands, but no sign of setts or burrow dens was detected. There are potential direct impacts to migratory bird species if construction occurs during the breeding season. If vegetation removal and other on-site work is to be completed during the migratory bird breeding season (March 1-August 15), a nesting bird survey of birds protected under the Migratory Bird Act should be conducted on the Site.

Based on CNDDDB and CalFish (CDFW, 2019) data, Western Pond Turtle, Foothill Yellow-legged Frog, Pacific lamprey, Chinook salmon, coho salmon, and steelhead trout are known to use the Mattole River channel. Although suitable spawning habitat and permanent ponds are absent from the Site, required stream setbacks and proper exposed soil Best Management Practices (BMPs) from site construction is recommended and stream bank protection and/or rehabilitation is encouraged. The presence of seasonal stream channels on the Site warrants enforcement of the Streamside Management Area Ordinance, in conjunction with the Humboldt County General Plan (2017), Section BR-S10 of Chapter 10 (setback of 50 feet from seasonal streams and wetlands).

7.0 CONCLUSIONS AND RECOMMENDATIONS

The required 50-foot setback for the proposed pond from the seasonal drainage is shown in Appendix 1, Figure 2. Vehicle crossing of the seasonal drainage should be restricted to the summer dry period. Consultation with the CDFW (Lake and Streambed Alteration Agreement) is recommended prior to developing construction plans to determine adequate seasonal creek setbacks and new water line facilities that would cross the drainage feature east of the proposed pond. Prior to construction, it is recommended that a seasonally appropriate sensitive plant (Siskiyou checkerbloom) and sensitive bird species (Grasshopper Sparrow) survey be conducted. Provided adequate stream setbacks (50 feet minimum), no established

sensitive plant populations are found, implementation of disturbed soil cover, and stormwater drainage control, no effects, directly or cumulatively for any observed species are expected from the development of this Site. Pursuant to the Migratory Bird Act, it is recommended that vegetation removal and other on-site work be prohibited during the breeding bird season (March 1- August 15), unless the applicant conducts a nesting bird survey of birds protected under the Migratory Bird Act, and utilizes appropriate mitigation measures, in consultation with Humboldt County and CDFW staff.

The landowner currently manages Scotch broom property-wide via livestock grazing, mowing, and hand-removal methods. Further information is included in the Applicant's commercial cannabis application. In order to minimize ground disturbance activities, removal of invasive species with pond excavation equipment is not recommended at this time. The Applicant prefers to work with and follow the recommendations of the Mattole Restoration Council - a local non-profit organization with extensive experience in the management of invasive species regarding broom management, and if possible, eradication. Although invasive species are present on the property, the historical presence of the species is not incidental to the cannabis operation, and it is not expected that Scotch broom would be established in the immediate areas surrounding the proposed cultivation area, storage pond or associated buildings. Awareness of the Scotch broom occurrence on the project parcel and potential to spread, should be cognizant to County officials during annual inspections.

8.0 TERMS AND CONDITIONS

The data and findings presented by LACO Associates are valid to the extent that they represent habitat analysis and/or actual sightings of the wildlife described within this Technical Memorandum. To the maximum extent permitted by law, all implied warranties and conditions in relation to the services provided by LACO Associates and the Technical Memorandum are excluded unless they are expressly stated to apply in this Technical Memorandum. The services undertaken by LACO Associates in connection with preparing this Technical Memorandum:

- Were limited to those specifically detailed in this Technical Memorandum;
- The opinions, conclusions and any recommendations in this Technical Memorandum are based on assumptions made by LACO Associates when undertaking services and preparing the Technical Memorandum;
- LACO Associates expressly disclaims responsibility for any error in, or omission from, this Technical Memorandum arising from or in connection with any of the assumptions being incorrect; and
- Subject to the paragraphs in this section of the Technical Memorandum, the opinions, conclusions and any recommendations in this Technical Memorandum are based on conditions encountered and information reviewed at the time of preparation and may be relied on until six months, after which time, LACO Associates expressly disclaims responsibility for any error in, or omission from, this Technical Memorandum arising from or in connection with those opinions, conclusions and any recommendations.

9.0 REFERENCES

- California Department of Fish and Wildlife, California Natural Diversity Data Base. November 2018. Special Animals List. Periodic publication. 67 pp.
- California Department of Fish and Wildlife. August 6, 2018. State & Federally Listed Endangered and Threatened Animals of California. California Department of Fish and Game, Wildlife and Habitat Data Analysis Branch. 14 pp.
- California Department of Fish and Wildlife, California Natural Diversity Data Base. April 2019. Petrolia Quad, Spotted Owl Observations Database, Spotted Owl Viewer.
- California Invasive Plant Council. 2019. <https://www.cal-ipc.org/plants/inventory/about-the-inventory/>.
- California Native Plant Society. April 2019. The CNPS Inventory of Rare and Endangered Plants. <http://www.cnps.org/cnps/rareplants/inventory/>.
- Humboldt County General Plan (2017). Section BR-S10 of Chapter 10 of the General Plan – Seasonal Stream and seasonal wetland Setbacks.

APPENDIX 1

Figure 1 Vicinity Map

Figure 2 Site Map

LACO

EUREKA • UKIAH • SANTA ROSA

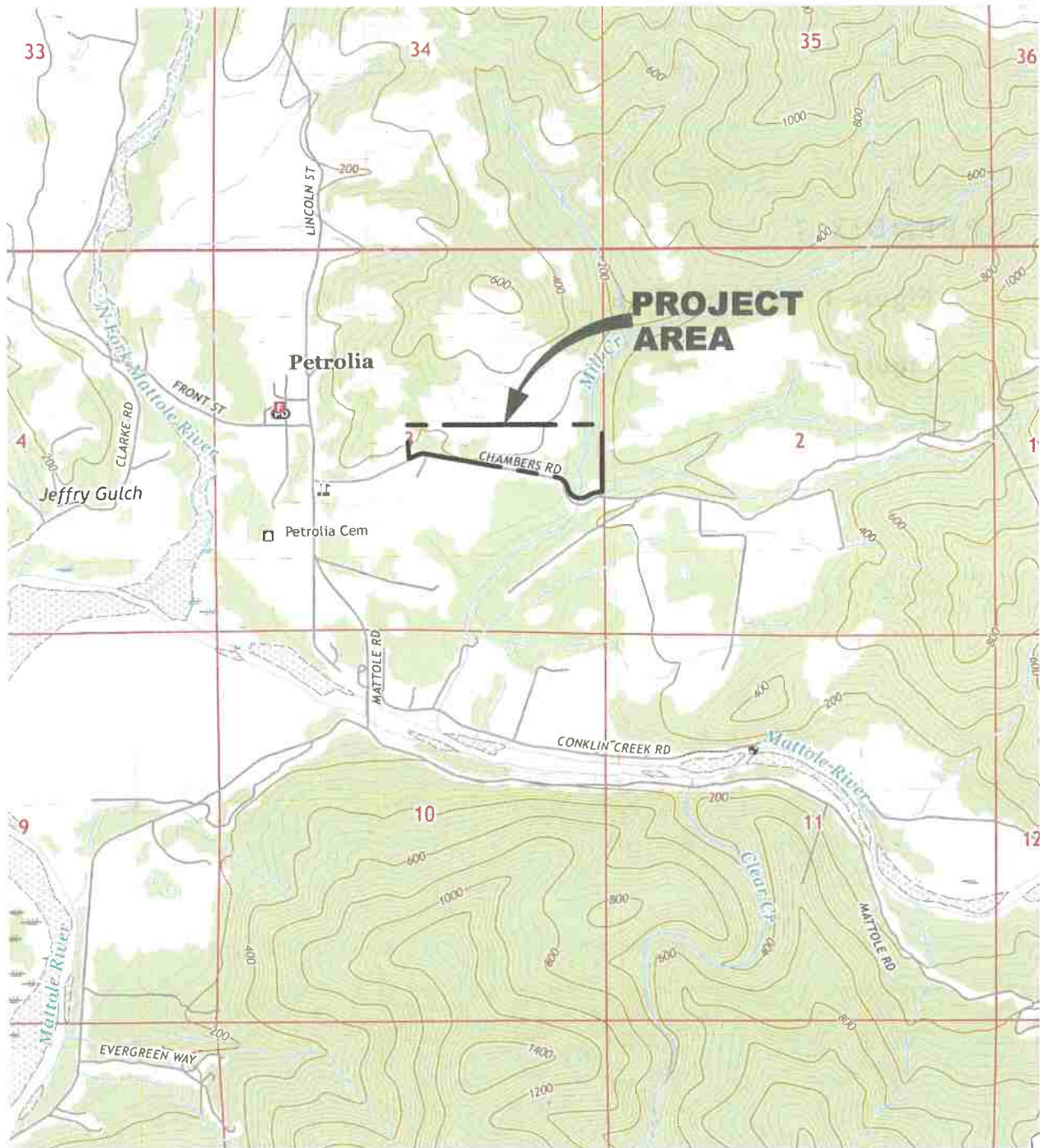
1-800-515-5054 WWW.LACOASSOCIATES.COM

PROJECT	PACIFIC ROOTS BIOLOGICAL SURVEY
CLIENT	PACIFIC ROOTS CANNABIS
LOCATION	PETROLIA, CA
	VICINITY MAP

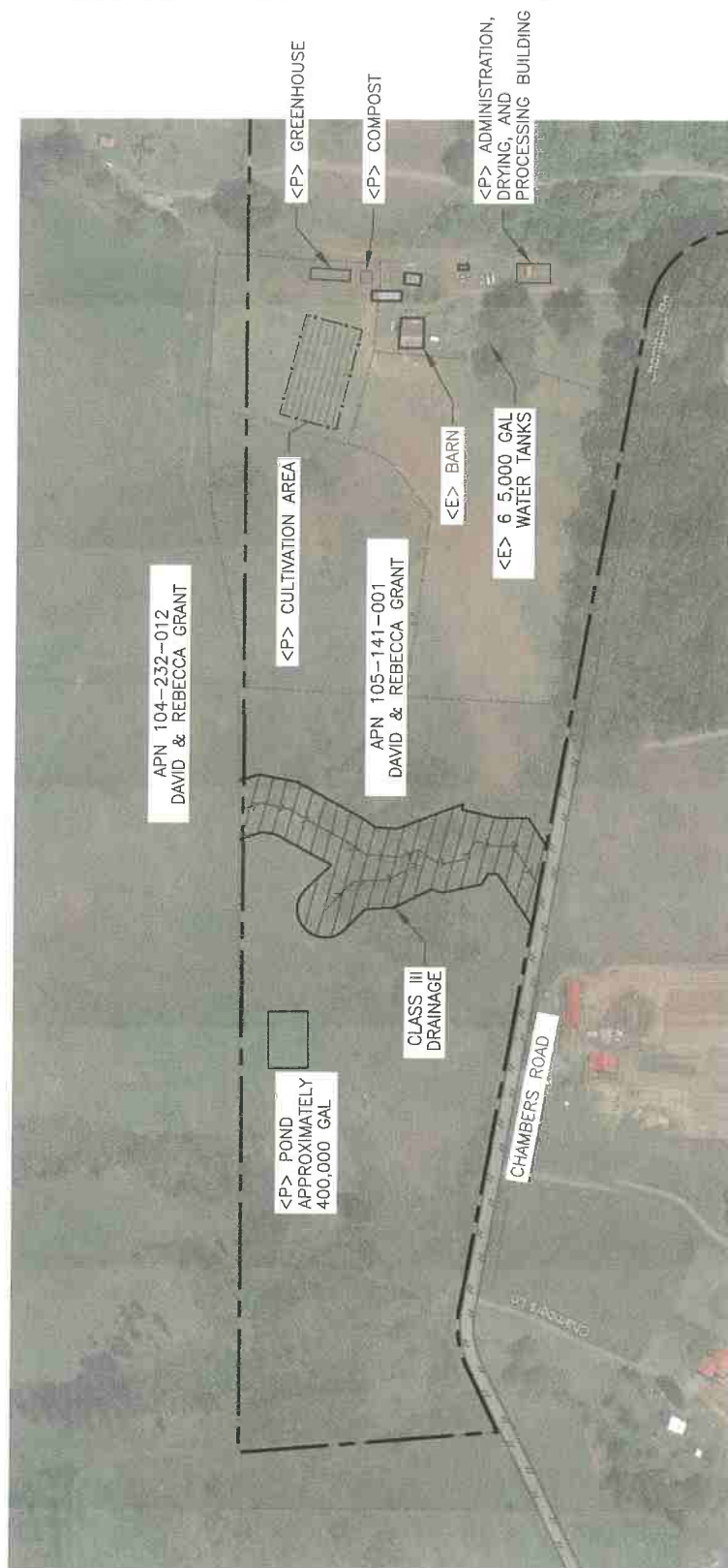
BY	ATW
DATE	5/2/2019
CHECK	GSL
SCALE	1"=2000'

FIGURE	1
JOB NO.	9358.00

REUSE OF DOCUMENTS: This document and the ideas and design incorporated herein, as an instrument of professional service, is the property of LACO Associates and shall not be reused in whole or part for any other project without Laco Associates express written authorization.



0' 1000' 2000'
SCALE: 1"=2000'



NOTES
THIS IS NOT A BOUNDARY SURVEY, PROPERTY LINES SHOWN HEREIN ARE APPROXIMATE.

LEGEND

-  x <E> FENCE LINE
 PROPERTY LINE
 DRAINAGE FLOW LINE
 50' DRAINAGE SETBACK
 PLANNED CULTIVATION AREA

0' 100' 200'



SCALE: 1"=200'

GRAPHIC SCALE MEASURES 1 INCH
ON FULL-SIZE PLANS.

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APPENDIX 2

Site Photos

Site Photos

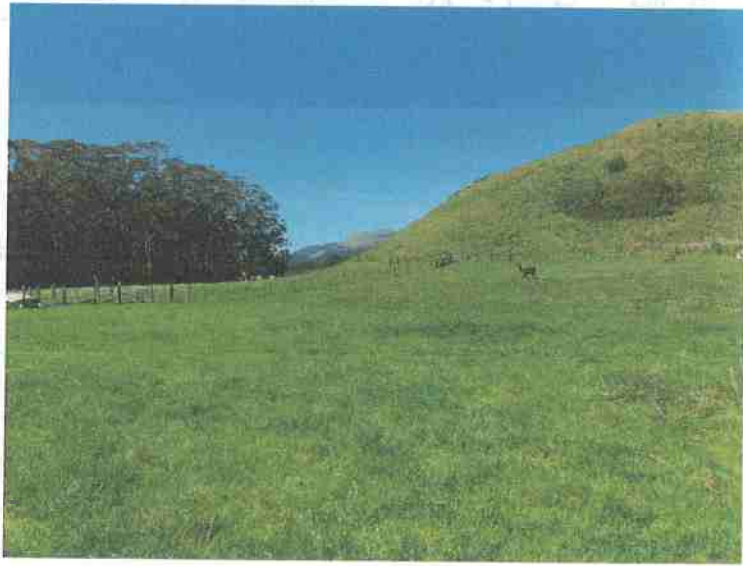


Photo 1: Proposed cultivation site



Photo 2: Proposed greenhouse/compost site, east and immediately adjacent to Photo 1



Photo 3: Existing water storage tanks

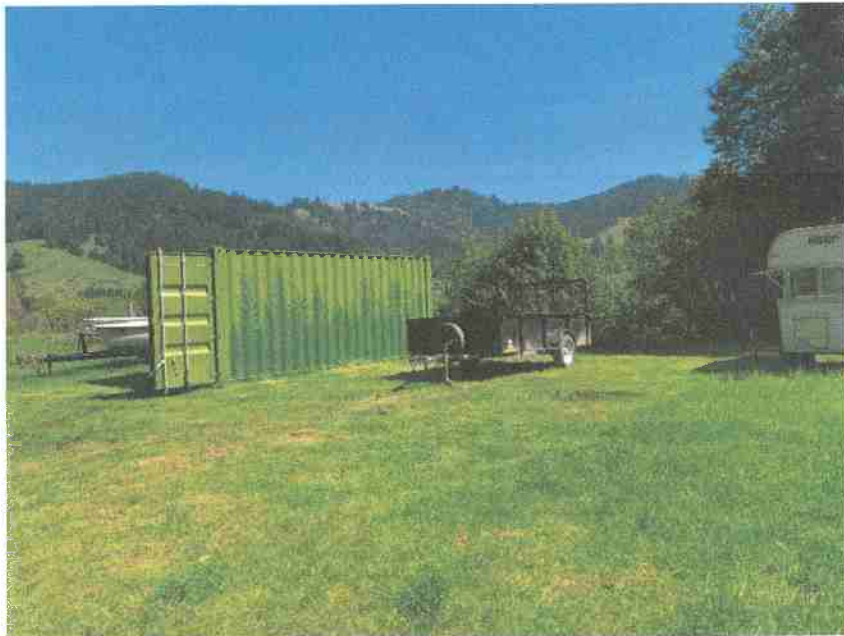


Photo 4: Proposed barn site

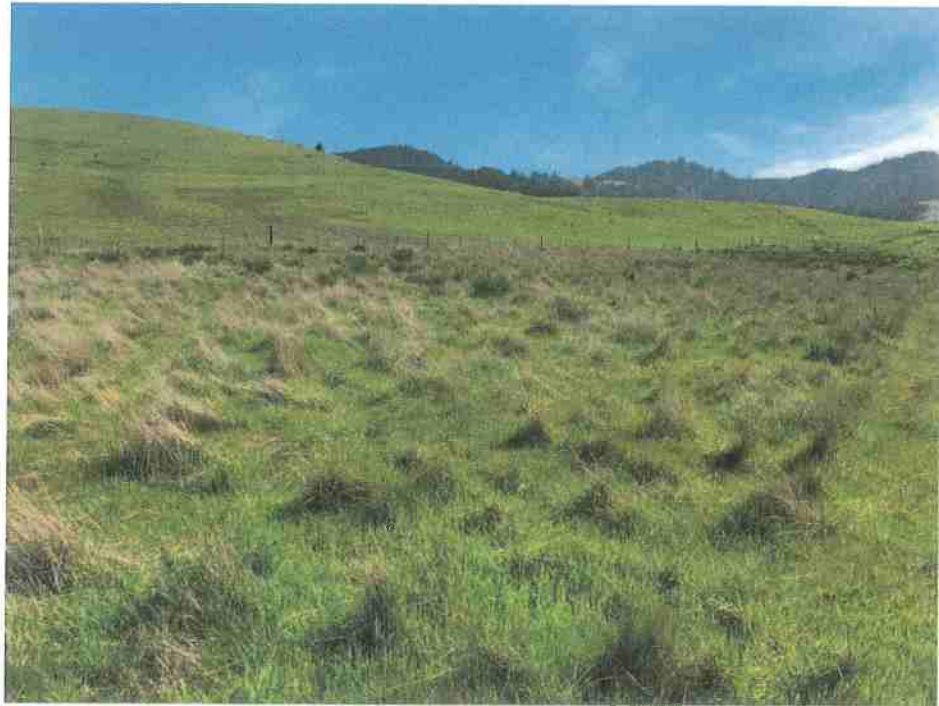


Photo 5: Proposed water storage pond site

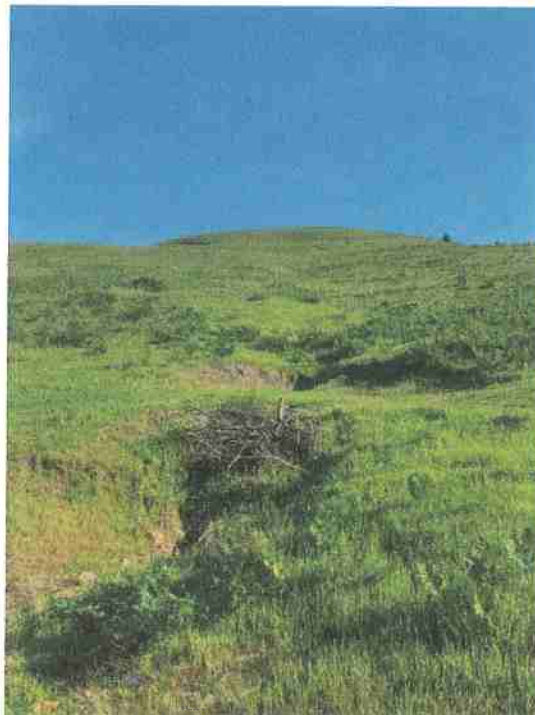


Photo 6: Class III drainage, east of proposed pond site and west of cultivation area

APPENDIX 3

Observed Plant Species List

Observed Species Plant List within the Vicinity

Trees	
<i>Alnus rhombifolia</i>	white alder
<i>Arbutus menziesii</i>	Pacific madrone
<i>Frangula purshiana</i>	cascara
<i>Juglans sp.</i>	cultivated walnut
<i>Notholithocarpus densiflorus</i>	tan-oak
<i>Pinus radiata</i>	Monterey pine
<i>Populus fremontii</i>	Fremont cottonwood
<i>Pseudotsuga menziesii</i>	Douglas-fir
<i>Salix lasiandra</i>	Pacific willow
<i>Umbellularia californica</i>	California bay
Shrubs	
<i>Baccharis pilularis</i>	coyote brush
<i>Cytisus scoparius</i>	Scotch broom
<i>Lonicera involucrata</i>	twinberry
<i>Ribes sanguinum</i>	red-flowering currant
<i>Rosa sp.</i>	cultivated rose
<i>Rubus armeniacus</i>	Himalayan blackberry
<i>Rubus parviflorus</i>	thimbleberry
<i>Rubus ursinus</i>	California blackberry
<i>Sambucus racemosa</i>	red elderberry
<i>Symphoricarpos albus</i> var. <i>laevigatus</i>	common snowberry
<i>Toxicodendron diversiloba</i>	poison oak
Herbaceous Species	
<i>Achillea millefolium</i>	yarrow
<i>Agoseris stolonifera</i>	redtop
<i>Anagallis arvensis</i>	scarlet pimpernel
<i>Anthoxanthum odoratum</i>	sweet vernal grass
<i>Athyrium filix-femina</i>	lady fern
<i>Avena barbata</i>	slender wild oat
<i>Avena fatua</i>	wild oat grass
<i>Brassica nigra</i>	black mustard
<i>Bromus catharticus</i>	rescue grass
<i>Bromus diandrus</i>	ripgut grass
<i>Bromus hordeaceus</i>	soft chess
<i>Callitriche sp.</i>	water star-wort
<i>Carex leptopoda</i>	slender-footed sedge
<i>Cyperus eragrostis</i>	tall flat sedge

<i>Dactylis glomerata</i>	orchard grass
<i>Daucus carota</i>	Queen Anne's lace
<i>Digitalis purpurea</i>	foxglove
<i>Dryopteris expansa</i>	wood fern
<i>Equisetum arvense</i>	common horsetail
<i>Erigeron canadensis</i>	horseweed
<i>Erodium cicutarium</i>	red-stem filaree
<i>Foeniculum vulgare</i>	fennel
<i>Festuca arundinacea</i>	tall fescue
<i>Festuca perennis</i>	perennial rye grass
<i>Geranium dissectum</i>	cut-leaved geranium
<i>Glyceria occidentalis</i>	Western manna grass
<i>Holcus lanatus</i>	common velvet grass
<i>Hordeum marium</i> spp. <i>gussoneanum</i>	Mediterranean barley
<i>Hypochaeris glabra</i>	annual cat's-ear
<i>Hypochaeris radicata</i>	hairy cat's-ear
<i>Juncus bufonius</i>	common toad rush
<i>Juncus effusus</i>	common rush
<i>Juncus occidentalis</i>	western rush
<i>Juncus patens</i>	spreading rush
<i>Lapsana communis</i>	nipplewort
<i>Lathyrus latifolius</i>	everlasting pea
<i>Linum bienne</i>	western blue flax
<i>Lotus corniculatus</i>	birdsfoot trefoil
<i>Lythrum hyssopifolia</i>	hyssop loosestrife
<i>Malva nicaeensis</i>	bull mallow
<i>Marah oregana</i>	coast man-root
<i>Matricaria discoidea</i>	pineapple weed
<i>Mentha pulegium</i>	pennyroyal
<i>Phacelia bolanderi</i>	Bolander's phacelia
<i>Plantago lanceolata</i>	English plantain
<i>Plantago major</i>	common plantain
<i>Poa annua</i>	annual bluegrass
<i>Poa pratensis</i>	Kentucky bluegrass
<i>Polygonum aviculare</i>	knotweed
<i>Polygonum maculosa</i>	lady's thumb
<i>Polystichum munitum</i>	sword fern
<i>Potentilla</i> sp.	cinquefoil
<i>Prunella vulgaris</i> var. <i>vulgaris</i>	self-heal
<i>Pteridium aquilinum</i> var. <i>pubescens</i>	western bracken fern
<i>Ranunculus repens</i>	hairy buttercup

<i>Raphanus sativus</i>	wild radish
<i>Rubus ursinus</i>	California blackberry
<i>Rumex acetosella</i>	sheep sorrel
<i>Rumex crispus</i>	curly dock
<i>Salix lasianдра</i>	Pacific willow
<i>Scrophularia californica</i>	figwort
<i>Senecio glomeratus</i>	cutleaf burnweed
<i>Sonchus</i> sp.	sow thistle
<i>Stachys</i> sp.	hedge-nettle
<i>Symphyotrichum chilense</i>	California aster
<i>Taraxacum officinale</i>	dandelion
<i>Trifolium pratense</i>	red clover
<i>Trifolium repens</i>	white clover
<i>Urtica dioica</i>	stinging nettles
<i>Verbascum thapsus</i>	woolly mullein
<i>Vicia villosa</i>	hairy vetch
<i>Woodwardia fimbriata</i>	chain fern

APPENDIX 4

Observed Wildlife Species List

Wildlife Species Observed within the Vicinity

Species	Status ²	Habitat	Occurrence in the Study Area ¹
Birds			
California Quail (<i>Callipepla californica</i>)	Native, not listed	Widespread, resident	Present. Suitable foraging & nesting habitat does occur on the Site.
Turkey Vulture (<i>Cathartes aura</i>)	Native, not listed	Widespread, resident	Present. Suitable foraging & nesting habitat does occur on the Site.
Red-shouldered Hawk (<i>Buteo lineatus</i>)	Native, not listed	Widespread	Present. Suitable foraging & nesting habitat does occur on the Site.
Red-tailed Hawk (<i>Buteo jamaicensis</i>)	Native, not listed	Widespread	Present. Suitable foraging & nesting habitat does occur on the Site.
Band-tailed Pigeon (<i>Patagioenas fasciata</i>)	DFW-native migratory upland game bird	Statewide forests	Present.
Anna's Hummingbird (<i>Calypte anna</i>)	Native	Resident, widespread	Present, suitable foraging and nesting habitat present
Wrentit (<i>Chamaea fasciata</i>)	Native, not listed	Widespread	Present. Suitable foraging & nesting habitat does occur on the Site.
American Robin (<i>Turdus migratorius</i>)	Native, not listed	Widespread	Present. Suitable foraging & nesting habitat does occur on the Site.
Song Sparrow (<i>Melospiza melodia</i>)	Native, not listed	Widespread	Present. Suitable foraging and nesting habitat occur on the Site.
Black Phoebe (<i>Sayornis nigricans</i>)	Native, not listed	Widespread	Present. Suitable foraging & nesting habitat does occur on the Site.
Common Raven (<i>Corvus corax</i>)	DFW-native migratory	Statewide	Present. Suitable foraging & nesting habitat does occur on the Site.
Cedar Waxwing (<i>Bombicilla cedrorum</i>)	Native, not listed	Widespread, summer breeder	Present. Suitable foraging & nesting habitat does occur on the Site.
Eurasian Starling (<i>Sturnus vulgaris</i>)	Non-native	Widespread, resident	Present. Not protected by the Migratory Bird Act.
White-crowned Sparrow (<i>Zonotrichia leucophrys</i>)	Native, not listed	Widespread	Present. Suitable foraging & nesting habitat does occur on the Site.
Purple Finch (<i>Haemorhous purpureus</i>)	Native, not listed	Widespread, resident	Present. Suitable foraging & nesting habitat does occur on the Site.
Pine Siskin (<i>Spinus pinus</i>)	Native, not listed	Widespread, resident	Present. Suitable foraging & nesting habitat does occur on the Site.
Yellow-rumped Warbler (<i>Dendroica coronata</i>)	Native, migratory species	Widespread, coniferous forest breeder	Present. Suitable foraging & nesting habitat does occur on the Site.
Mammals			
Valley Pocket Gopher (<i>Thomomys bottae</i>)	Native, not listed	Widespread	Present. Not observed in the field, but numerous sign & suitable habitat occurs on the Site.
Black-tailed deer (<i>Odocoileus hemionus columbianus</i>)	Native, California	Widespread	Present. Not observed in the field, but numerous sign & suitable habitat occurs in the project area.

Species	Status ²	Habitat	Occurrence in the Study Area ¹
	game mammal		
1 OCCURRENCE DESIGNATIONS: Present: Species observed on the study area at time of field surveys or during recent past. Likely: Species not observed on the study area, but it may be reasonably expected to occur there on a regular basis. Possible: Species not observed in the study area, but it could occur there from time to time. Unlikely: Species not observed in the study area, and would not be expected to occur there except, perhaps, as a transient. Absent: Species not observed in the study area and precluded from occurring there because habitat requirements not met. *STATUS CODES: The native bird species above are protected by the Migratory Bird Act.			