Preliminary Biological Assessment and Streamside Management Area Report

APN 220-241-017

February 2019

Apps # 10697 & 15301

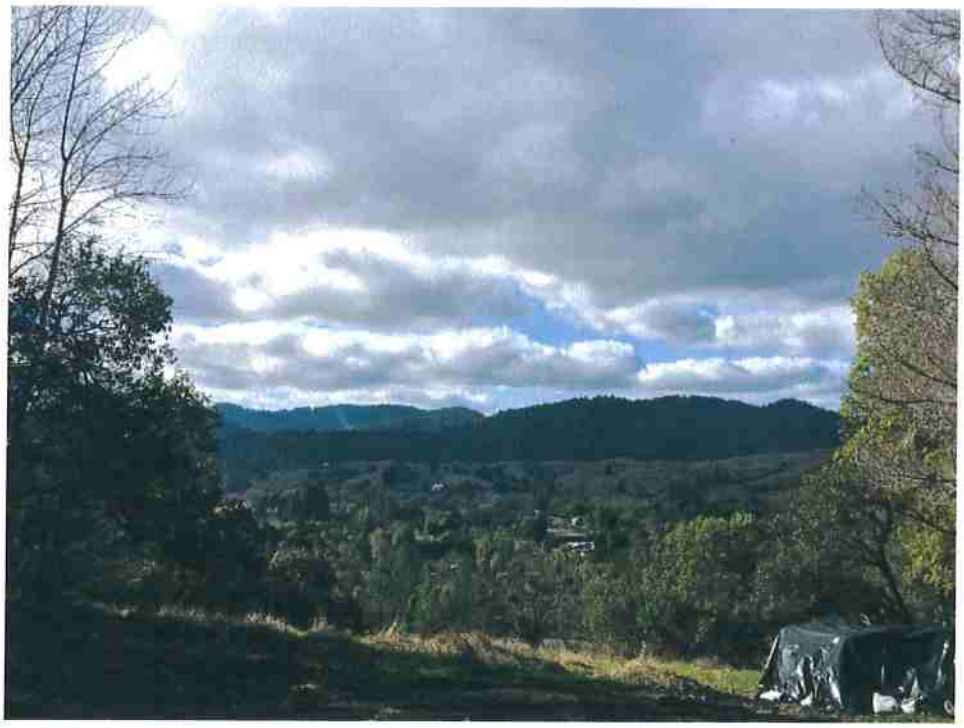

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Table of Contents

Appendices

Executive Summary

The purpose of this report is to provide preliminary assessment of the biological resources affected by cannabis cultivation and grading for the Boyd property located at 7777 Old Briceland Road in Garberville of Humboldt County, California (APN 220-241-017). The proposed projects include the construction of an estimated 660,000-gallon irrigational pond, additional clearance to hold 52 5000-gallon each HDPE water storage tanks, and installation of four (4) greenhouses. 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. Streamside Management Area Ordinance.

Due to time constraints, a full biological assessment with protocol level surveys and wetland delineation per regulatory standards was not completed per recommendations by the Final Environmental Impact Report (FEIR) amendments to the Humboldt County Code Regulating Commercial Cannabis Activities. Mother Earth Engineering staff visited the site to determine the extent of project impacts, assess potential habitat for sensitive species and develop guidelines and strategies for mitigation measures. Additional consultation with agency staff including USACE, NCRWQCB, CDFW, Humboldt County and US Fish and Wildlife Service (USFW) will continue throughout the project application and protocol level surveys and wetland/water delineations will be conducted as required.

1.0 Introduction

1.1 Purpose and Need

This document was prepared to provide a pre-approval biological reconnaissance survey of the biological resources 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 41.05-acre parcel owned by Rama Boyd.

This project proposes to expand on an existing cannabis cultivation site to hold 52 additional 5000-gallon HDPE water storage tanks referred to P1 (see Attachment A, Figure 1). Applicant proposes to construct an estimated 660,000-gallon irrigational pond on an established flat, referred to P2. Additionally, applicant proposes to install four (4) greenhouses at two (2) locations referred to P3 and P4.

2.0 Regulatory Background

2.1 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).

2.2 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.

2.3 California Department of Fish and Wildlife (CDFW)

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.

2.4 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 Section[1].

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 Activities[2].

2.5 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.

3.0 Environmental Setting

3.1 Project Location

The project area is located at 7777 Old Briceland Road in Briceland (Section 18, T4S, R3E) in Humboldt County, California. The project is located on a 41.05-acre parcel within the U.S. Geological Survey's (USGS) Briceland 7.5-minute quadrangle map. The parcel is zoned Residential Agriculture (RA) and the land-use code is unclassified[3]. Elevation is approximately 600-800 feet above sea level. (See Appendix A *Figure 1*)

[1] https://humboldtgov.org/DocumentCenter/View/58840/Section-311-Biological-Resources-Revised-DEIRPDF

[2] Final Environmental Impact Report :Amendments to the Humboldt County Code Regulating Commercial Cannabis Activities. January 2018. Prepared by Ascent Environmental. Accessed via https://humboldtgov.org/DocumentCenter/View/62689/Humboldt-County-Cannabis-Program-Final-EIR60mb-PDF. Accessed [7 February, 2019]

[3] Humboldt County GIS Desktop Version link: http://webgis.co.humboldt.ca.us/HCEGIS2.0/ Accessed [7 February, 2019].

3.2 Soil, Topography, Hydrology

Three (3) soil types are mapped in the project areas on USDA Web Soil Survey. The parcel is primarily composed of Briceland-Tankridge complex, 15 to 50 percent slopes (645), Sproulish-Canoecreek-Redwohly complex, 30 to 50 percent slopes, warm (574) and Parkland-Garberville complex, 2 to 9 percent slopes (151). The Briceland series consists of very deep, moderately well drained soils formed in colluvium and residuum weathered from mudstone. Briceland soils are on mountains and slopes range from 15 to 30 percent. Landscapes dominated by Briceland soils have hummocky relief and slips. The climate is sub humid with warm, dry summers with a marine layer influence and cool, wet winters.

Tankridge soils have moderately cemented mudstone bedrock with cracks spaced less than 10 centimeters apart above 50 centimeters. The Sproulish series consists of very deep, well drained soils formed in colluvium and residuum derived from sandstone, mudstone, and metasedimentary rocks. Sproulish soils are on mountains. Slopes range from 15 to 75 percent. Canoecreek soils have greater than 35 percent rock fragments in the particle size control section and occur on linear to convex or slightly concave positions. The Garberville series consists of very deep, well drained soils formed in alluvium derived from mixed sedimentary sources. Garberville soils are on stream terraces and alluvial fans in mountain river valleys. Slopes range from 0 to 9 percent[4].

The project areas are nearly flat (<10% slope) and generally drain west towards Somerville Creek. The property is located in the Lower South Fork Eel River watershed and in the Redwood Creek subwatershed with an average annual precipitation of 71.5 inches[5]. Somerville Creek, a Class I watercourse tributary to Redwood Creek, flows on the western side of the parcel and serves as the parcel boundary line approximately 500 feet southwest of the nearest project area. Redwood Creek flows on the northern portion of the property approximately 370 feet east of the nearest project area. Several ephemeral Class III watercourses within the property drain into Somerville Creek. There are no Class II watercourses on the property. The area is mapped as possessing moderate levels of instability in the Humboldt County GIS database.

4.0 Methods

On 6 February 2019, Mother Earth Engineering staff conducted a site visit to survey proposed project expansion areas and current project areas to evaluate potential habitat and record observed, biological resources. The study area includes areas of direct and indirect impact of current cultivation, proposed expansion and potential habitat for special status plant and wildlife species (See Attachment C, Map 2). There are no known occurrences of listed species or species of special concern within the property, however absence of species on the CNDDB layer only indicates a lack of observation and not absolute absence of a species. The study area was scanned for wildlife signs including tracks, scat, and tree habitat (cavities, nests scrapes or accumulated vegetation). Full floristic surveys and/or protocol-level surveys were not conducted in the study area as current season is not appropriate for such studies.

4.1 Limitations

Given the timing of this assessment during the mid-winter months, not all potentially occurring special-status plant or wildlife species could be entirely ruled out. The purpose of the site visit was to assess potential habitat associated with the study area and not a protocol level survey. Timing of the field visit did not coincide with ideal survey seasons based on phenology and life history cycles for all potential species.

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[4] 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/. Accessed [7 February, 2019]

[5] Caltrans Water Quality Planning Tool available at: http://svctenvims.dot.ca.gov/wqpt/wqpt.aspx.

Based on the timing of the survey, 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. A floristic study not only requires every plant observed to be identified to a level necessary to determine their regulatory status, it also necessitates a sufficient number of site visits spaced throughout the growing season within the blooming periods of all plant species, including common taxa, to ensure a complete inventory is obtained (CNPS 2001, CDFW 2018, USFWS 2000). 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. Additional studies could be conducted to verify these observations.

5.0 Results and Discussion

5.1 Vegetation

The site visit took approximately three (3) hours to survey areas of potential expansion and current project sites. The weather was overcast with light sprinkling at the time of assessment. Nearest weather station (ERCC1) observed 0.05 inches of precipitation in the last 24 hours[6]. The property was heavily altered and established with evidence of historic grazing and grading. Current project areas consisted of remnant patches of annual grassland species mixed with introduced and invasive forbs and herbs species including *Elymus caput-medusae* (medusa head), *Agrostis spp.* (bentgrass), *Hypochaeris radicata* (hairy cat's-ear), *Plantago lanceolata* (English plantain), *Eschscholzia californica* (California poppy), *Trifolium sp.* (clover), *Chlorogalum pomeridianum* (wavy-leafed soap plant), *Geranium molle* (Dove's foot Crane's bill), *Geranium pusillum* (Small-flowered Crane's-Bill), *Rumex crispus* (curly dock) and *Vinca major* (greater periwinkle). Trees surrounding the immediate project areas, including the proposed expansion area, include *Quercus kelloggii* (California black oak), *Arbutus menziesii* (madrone), *Arctostaphylos spp.* (manzanita) and *Pseudotsuga menziesii* (Douglas fir). Shrub layer included *Toxicodendron diversilobum* (poison oak), *Rubus armeniacus* (himalayan blackberry), *Cytisus scoparius* (scotch broom), *Baccharus pilularis* (coyote brush) and some stands of bamboo for privacy and willow for runoff mitigation.

Portions of the property near Redwood creek on the northeastern side of the parcel is mapped as a mixed montane hardwood-conifer habitat[7] dominated primarily by *Arbutus menziesii* (madrone), *Pseudotsuga menziesii* (Douglas fir), and *Arctostaphylos spp.* (manzanita), with stands of *Umbellularia californica* (California bay), *Notholithocarpus densiflorus* var. *densiflorus* (tan oak) and few individuals of *Sequoia sempervirens* (redwood). The understory of the forested area consisted primarily of *Vaccinum ovatum* (evergreen huckleberry), *Polystichum munitum* (western swordfern), *Pteridium aquilinum* var. *pubescens* (western bracken fern) and *Toxicodendron diversilobum* (poison oak). The herbaceous layer was sparse and included *Clinopodium douglasii* (yerba buena), *Oxalis spp.* (wood sorrel), *Fragaria vesca* (wild strawberry) and *Whipplea modesta* (whipplea).

5.2 Wetlands and SMA areas

A routine wetland delineation per USACE was not performed on site. Current cultivation areas do not appear to contain sufficient hydrology or hydrophytic vegetation to support wetland features. The topography of the site is such that water does not remain within the study area for enough time to develop wetland hydrology indicators. The current cultivation areas are at least 280+ feet outside of Somerville Creek's and Redwood Creek's Streamside Management Area.

[6] Weather conditions accessed at https://www.wrh.noaa.gov/mesowest/getobext.php?wfo=eka&sid=ERCC1&num=72&raw=0 Accessed [7 February, 2019]
[7] CALVEG habitat type accessed at https://www.ecoatlas.org/regions/ecoregion/klamath-north-coast Accessed [7 February, 2019]

The proposed expansion area in the northern boundary of the property (P1) also do not appear to contain wetland indicators. P1 area would remain to be at least 250+ feet outside of Redwood Creek's Streamside Management Area. The proposed pond area (P2) on the western side of the property do not appear to contain wetland features. However, approximately 150 feet downslope to the west of P2, there was observed evidence of surface hydrology with seepy areas and hydrophytic vegetation such as *Juncus spp.* (rushes) and *Mentha pulegium* (pennyroyal). Further investigation in the form of a jurisdictional delineation is required to ascertain the classification of this feature. Proposed expansion areas at P3 and P4 do not contain wetland indicators.

5.3 Sensitive Natural Communities

Two (2) sensitive natural communities were observed within the study boundary[8]. Although the vegetation series Redwood forest is state ranked S3, some associations have been identified as sensitive by the CDFW and the CNPS. The vegetative association Redwood forests – Pacific madrone/evergreen huckleberry (*Sequoia sempervirens – Arbutus menziesii / Vaccinium ovatum*) have been identified. Another community, the vegetative association Douglas Fir forests- tan oak/poison oak (*Pseudotsuga menziesii – Notholithocarpus densiflorus – (Umbellularia californica) / Toxicodendron diversil obum)* have been identified near the SMA. No sensitive natural communities were observed within project areas.

5.4 Northern Spotted Owl

No Northern Spotted Owl (NSO) or associated habitat was observed within the study area. The proposed expansion area will not modify any existing spotted owl habitat. Existing and proposed project areas are in an open area with very few stands of trees to provide NSO habitat. Generally, the NSO prefers forests with high, multilayered, multispecies canopy closure with large conifer overstory trees, large snags, large logs, and trees with deformities like broken tops to nest and roost in[9]. The nearest NSO Activity Center, HUM0927, was observed in 1998 and is approximately 2.31 miles southeast from the property (See Attachment C, Figure 2).

The only potential direct impact to NSO associated with this project is noise disturbance. Noise disturbance may reach significant levels for the spotted owl when it exceeds 50 dBA within habitat. Potential noise disturbances associated with this project include generator use and heavy equipment operation. These potential disturbances can be reduced to non-significant levels by: (1) assuming NSO presence and utilizing heavy equipment outside of critical bird nesting season and (2) perform protocol level surveys to assess presence and status of potential spotted owls. Applicant has active project with Pacific Gas & Electric Company (PG&E) to upgrade electrical connection to minimize generator use. Project is expected to be completed by September of 2019.

5.5 California Natural Diversity Database (CNDDB) and other Database Results

The CNDDB BIOS and RareFind, as well as California Native Plant Society (CNPS) databases, were scoped both before and after the field visit to determine what protocol-level surveys would be required for the project, as well as 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 Briceland are included in Appendices to this report (Appendix C). No known occurrences of listed species of species or special concern within the property, however absence of species on the CNDDB layer only indicates a lack of observation and not absolute absence of a species.

5.6 Potential Direct and Indirect Impacts

The potential direct, indirect, and cumulative effects of the land clearing, residential development, and cultivation activities include removal of vegetation and canopy cover, disturbance and compaction of soil,

[8] CDFW sensitive natural communities accessed at: https://www.wildlife.ca.gov/data/VegCAMP/Natural-Communities/Background#sensitive%20natural%20communities [Accessed 11 February, 2019]
[9] https://nrm.dfg.ca.gov/FileHandler.ashx?DocumentID=10406

alteration of hydrologic regime, sedimentation and erosion, increase in invasive species, and noise, visual, and air quality impacts. In general, the site was well maintained and established. Road traffic, noise, dust and visual impacts were at a minimal. Solid waste pollution or other discharge into terrestrial habitats and aquatic habitats along Redwood Creek and Somerville Creek were not observed.

The proposed expansion of P1, P3 and P4 will not result in significant direct impact. Given that the areas of expansion are an addition to existing established areas, minimum earthwork is expected. Habitat at P3 and P4 remain to be relatively flat areas dominated by annual grasses. Permanent impact may be restricted to area of greenhouse placement. Temporary impacts will include areas of access for equipment during expansion and grading. Restoration efforts will take place to replant and restore temporary impact areas with native grasses and vegetation.

Expansion at site P1 will result in low impacts to existing drainage and will remain at least 250+ ft outside of Redwood Creek's SMA. Clearing of vegetation may be required for expansion. However, expansion at P1 will not result in the loss of any sensitive or rare biological communities. Although none were observed, the site assessment occurred outside of survey period for protected plant species. Protocol level surveys can be conducted for final determination.

Habitat at P2 site is also characterized as an annual grassland with patches of *Chlorogalum pomeridianum* (wavy soap plant). The proposed pond installation at P2 may pose impacts to existing drainage features that can increase risks of erosion, sediment transportation and nutrient discharge to a riparian area 150 feet downslope. Existing drainage features channel water through the riparian area and into a culvert that flows into Somerville Creek. Disturbance of grading and earthwork could increase direct and indirect effects to water quality that further impacts aquatic species in Somerville Creek. These potential impacts should be considered during planning for development of this site.

Additional clearing, building, earthwork, tree removal, hydrology modification associated to proposed expansion activities could impact special status species if present. Avoidance and minimization measures should be considered to reduce and avoid potential adverse impacts. Review of this project by CDFW may reveal the necessity for further analysis of potential impacts.

6.0 Avoidance and Minimization

Although there are no listed species observed on site or recorded in databases, avoidance and minimization measures are employed at the site and included in future project planning to reduce potential impacts. Lights on site are in compliance with International Dark Sky Association[10] standards and all fans and generators will have noise attenuation measures incorporated. Personnel will be instructed on protocol to avoid the take of any species of wildlife designated by the CDFW as endangered, threatened, or candidate species[11]. All activities on site will be conducted in accordance to agency guidance such as pesticide and fertilizer use compliance, waste management, erosion control and riparian protection.

7.0 Conclusion

A preliminary biological habitat assessment was conducted by Risa Okuyama of Mother Earth Engineering on February 6, 2019 for potential listed species and species of concern. Parcel and project areas were scoped using the 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 and develop guidelines and strategies for mitigation measures, as necessary. Additional consultation with agency staff including the California Department of Fish and Wildlife (CDFW), U.S. Army Corps of Engineers (USACE),

[10] International Dark Sky Association Standards accessed at: https://www.darksky.org/
[11] CDFW threatened and endangered species list and information accessed at: https://www.dfg.ca.gov/wildlife/nongame/t_e_spp/

Humboldt County and US Fish and Wildlife Service (USFW) will continue throughout the project application, if necessary, and protocol-level surveys will be conducted, if required.

1. There are no known occurrences of listed species or species of special concern within the property study area, and none were observed during site evaluation.
2. Streamside Management Areas (SMA) are out of range of current project activities. There are no proposed project activities within the SMA. Current and proposed project areas do not contain wetland features. However, 150+ ft downslope of proposed pond (P2) area contained numerous seeps and hydrophytic vegetation that provide evidence of wetland features. Further investigation in the form of a jurisdictional delineation is recommended to make final determination. Additional disturbance of grading and earthwork would likely modify existing drainage features that would likely cause additional erosion and instability in the area. This could subsequently increase direct and indirect effects to water quality and other resources. Additional disturbance to this area could also potentially impact aquatic species in Somerville Creek.
3. Review of this project from CDFW and USFWS may reveal the necessity for further protocol level surveys and analysis for potential impacts. Consultation with agency personnel from CDFW and USFWS is recommended if project scope changes or additional areas will be disturbed.

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Appendix A

Maps

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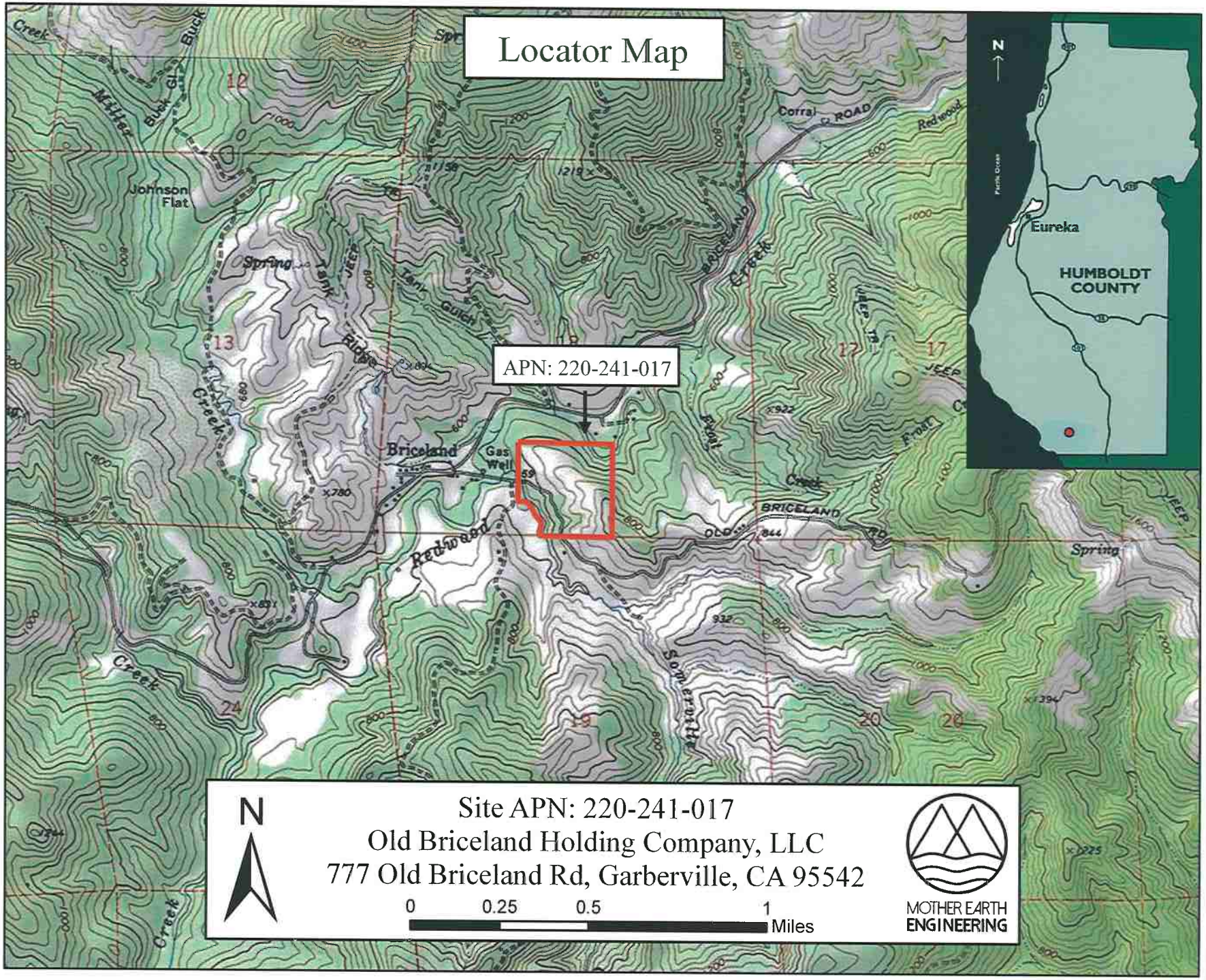
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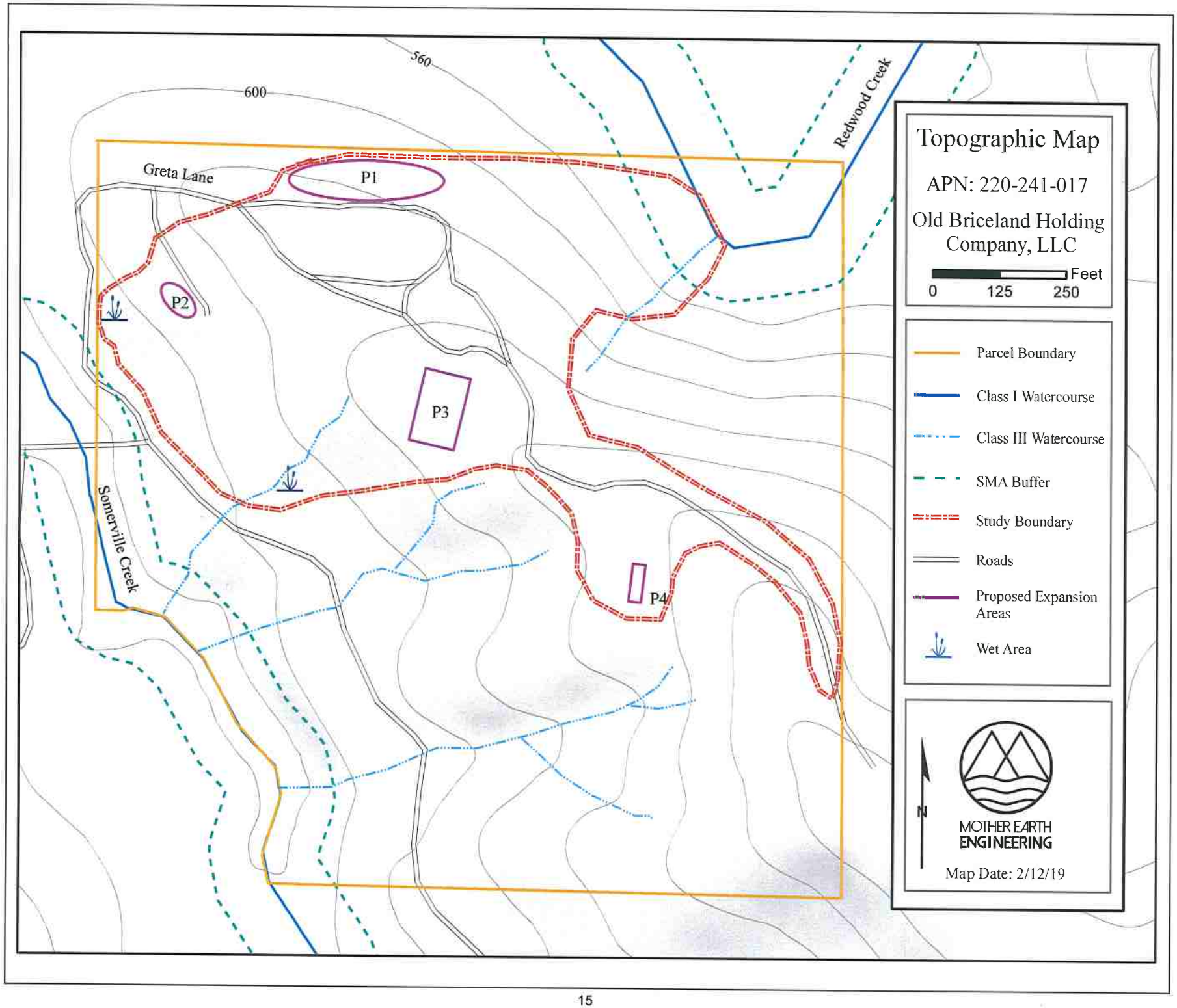
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Class I Watercourse
Class III Watercourse
SMA Buffer
Study Boundary
Roads
Proposed Expansion Areas
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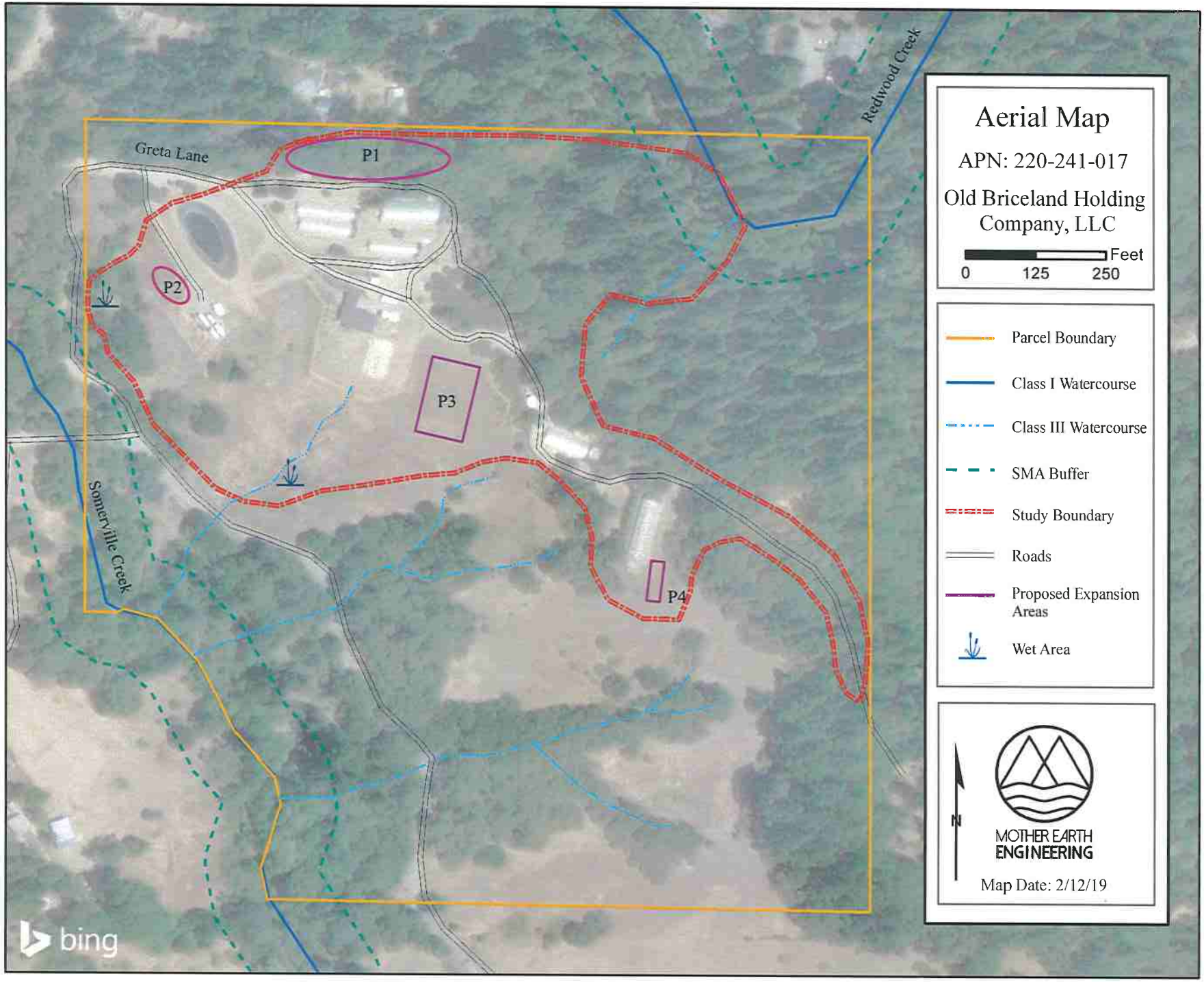
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Appendix B

Photos

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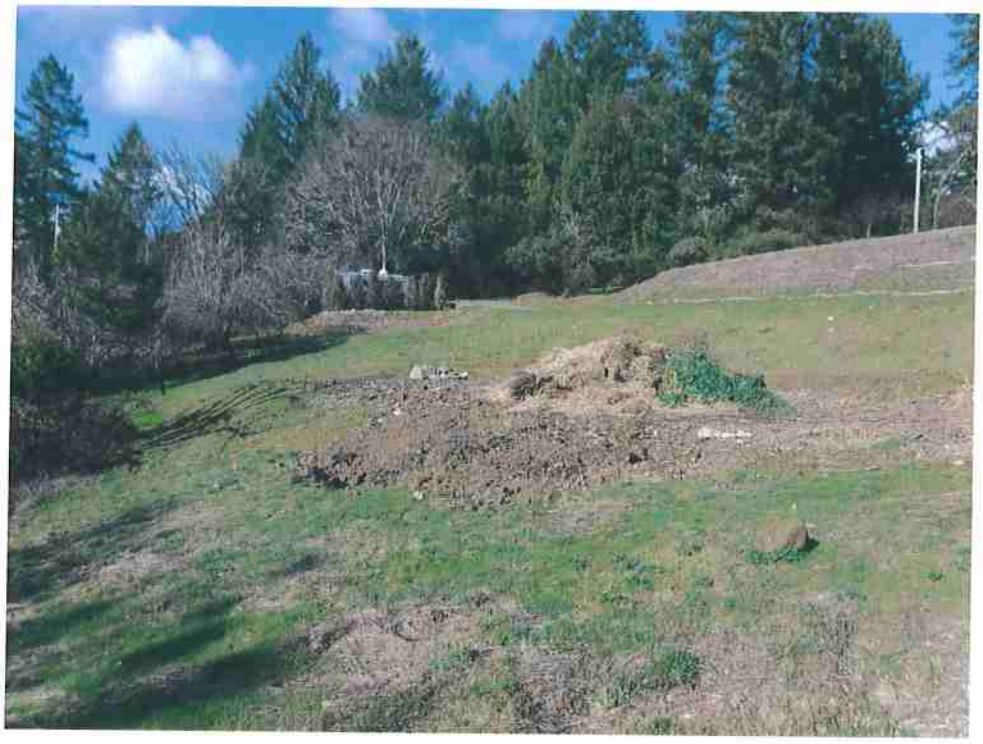
Picture 1: View of the established pond built in 2017. Image taken 2/06/2019.

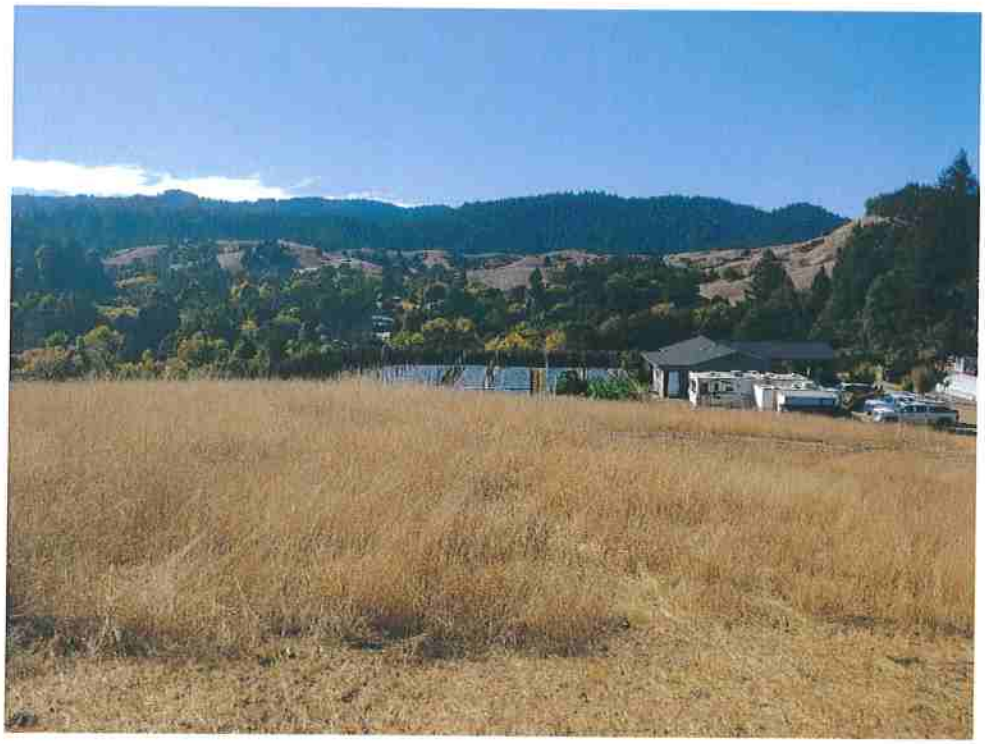
Picture 2: Area of proposed expansion(P3) in the foreground. Image taken 2/06/2019.



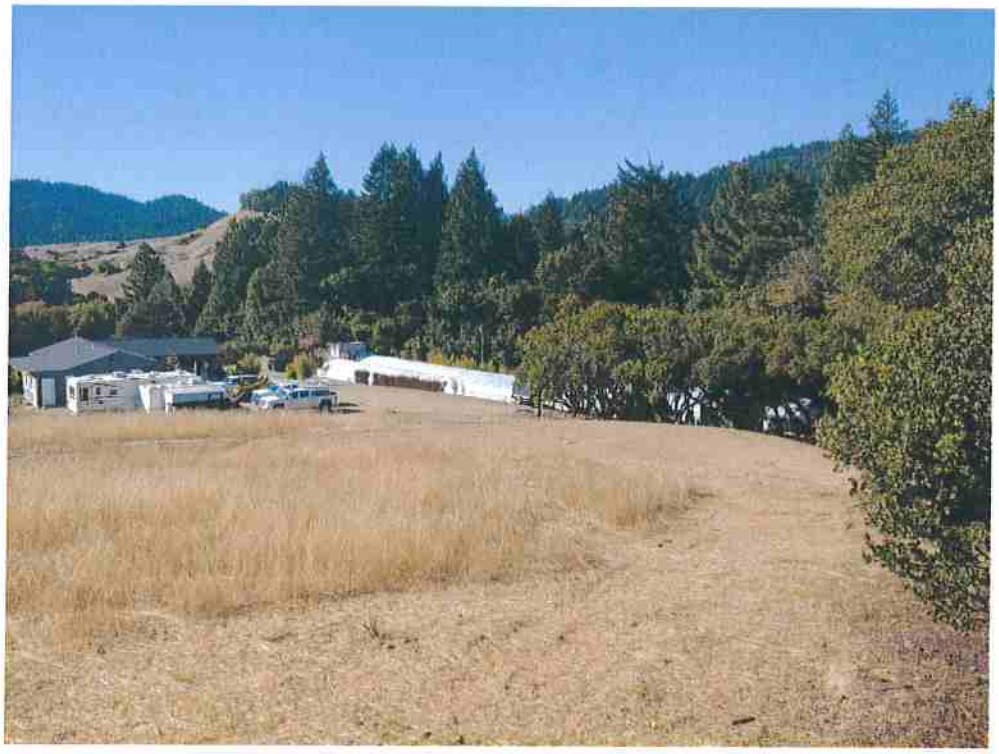
Picture 3: View of the proposed pond area (P2). Currently the area is used for compost. Image taken 2/06/2019.

Picture 4: Another view of the proposed pond area (P2). 150 feet downslope is a riparian zone with observed wet areas. Image taken 2/06/2019.

Picture 5: View of the forested area near Redwood Creek in the northeastern portion of the property. Image taken 2/06/2019.



Picture 6: View of the annual grassland habitat at existing project areas. Image taken 10/09/18.



Picture 7: View of the residence and existing greenhouses in the foreground. Image taken 10/09/18.

Picture 8: View of the madrone and Douglas Fir stands at the top of the ridge. Image taken 2/06/2019.

Picture 9: View of Redwood Creek. Image taken 2/06/2019.

Picture 10: View upslope of a Class III drainage. Hydrophytic plants were observed at the bottom of the hill. Image taken 2/06/2019.

Appendix C

Database Results

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Table 1-CNDDB and CNPS nine-quad database results for the Briceland USGS 7.5' quadrangle January 2019.

Animals

Scientific Name	Common Name	Fed	Cal	Habitats	GenHab	MicroHab	Habitat Present on Property
Accipiter cooperii	Cooper's hawk	None	None	Cismontane woodland | Riparian forest | Riparian woodland | Upper montane coniferous forest	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.	Yes
Antrozous pallidus	pallid bat	None	None	Chaparral | Coastal scrub | Desert wash | Great Basin grassland | Great Basin scrub | Mojavean desert scrub | Riparian woodland | Sonoran desert scrub | Upper montane coniferous forest | Valley & foothill grassland	Deserts, grasslands, shrublands, woodlands and forests. Most common in open, dry habitats with rocky areas for roosting.	Roosts must protect bats from high temperatures. Very sensitive to disturbance of roosting sites.	Yes
Aquila chrysaetos	golden eagle	None	None	Broadleaved upland forest | Cismontane woodland | Coastal prairie | Great Basin grassland | Great Basin scrub | Lower montane coniferous forest | Pinon & juniper woodlands | Upper montane coniferous forest | Valley & foothill grassland	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.	Yes
Arborimus pomo	Sonoma tree vole	None	None	North coast coniferous forest | Oldgrowth | Redwood	North coast fog belt from Oregon border to Somona 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.	Yes

Ascaphus truei	Pacific tailed frog	None	None	Aquatic | Klamath/North coast flowing waters | Lower montane coniferous forest | North coast coniferous forest | Redwood | Riparian forest	Occurs in montane hardwood-conifer, redwood, Douglas-fir & ponderosa pine habitats.	Restricted to perennial montane streams. Tadpoles require water below 15 degrees C.	Yes
Bombus caliginosus	obscure bumble bee	None	None		Coastal areas from Santa Barbara county to north to Washington state.	Food plant genera include Baccharis, Cirsium, Lupinus, Lotus, Grindelia and Phacelia.	Yes
Bombus occidentalis	western bumble bee	None	None		Once common & widespread, species has declined precipitously from central CA to southern B.C., perhaps from disease.		Yes
Corynorhinus townsendii	Townsend's big-eared bat	None	None	Broadleaved upland forest | Chaparral | Chenopod scrub | Great Basin grassland | Great Basin scrub | Joshua tree woodland | Lower montane coniferous forest | Meadow & seep | Mojavean desert scrub | Riparian forest | Riparian woodland | Sonoran desert scrub | Sonoran thorn woodland | Upper montane coniferous forest | Valley & foothill grassland	Throughout California in a wide variety of habitats. Most common in mesic sites.	Roosts in the open, hanging from walls and ceilings. Roosting sites limiting. Extremely sensitive to human disturbance.	No
Empidonax traillii brewsteri	little willow flycatcher	None	Endangered	Meadow & seep | Riparian woodland	Mountain meadows and riparian habitats in the Sierra Nevada and Cascades.	Nests near the edges of vegetation clumps and near streams.	Yes
Emys marmorata	western pond turtle	None	None	Aquatic | Artificial flowing waters | Klamath/North coast flowing waters | Klamath/North coast standing waters | Marsh &	A thoroughly aquatic turtle of ponds, marshes, rivers, streams and irrigation ditches, usually	Needs basking sites and suitable (sandy banks or grassy open fields) upland habitat up to 0.5	No

				swamp | Sacramento/San Joaquin flowing waters | Sacramento/San Joaquin standing waters | South coast flowing waters | South coast standing waters | Wetland	with aquatic vegetation, below 6000 ft elevation.	km from water for egg-laying.	
Erethizon dorsatum	North American porcupine	None	None	Broadleaved upland forest | Cismontane woodland | Closed-cone coniferous forest | Lower montane coniferous forest | North coast coniferous forest | Upper montane coniferous forest	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.	Yes
Falco peregrinus anatum	American peregrine falcon	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.	Yes
Helminthoglypta arrosa monticola	mountain shoulderband	None	None	Chaparral | Talus slope	Known only from the King Range in Humboldt County.	Found in talus slopes.	No
Myotis evotis	long-eared myotis	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.	Possible
Myotis thysanodes	fringed myotis	None	None		In a wide variety of habitats, optimal habitats are pinyon-juniper, valley foothill hardwood & hardwood-conifer.	Uses caves, mines, buildings or crevices for maternity colonies and roosts.	Possible
Myotis yumanensis	Yuma myotis	None	None	Lower montane coniferous forest | Riparian forest | Riparian woodland | Upper montane coniferous forest	Optimal habitats are open forests and woodlands with sources	Distribution is closely tied to bodies of water. Maternity colonies in	Possible

					of water over which to feed.	caves, mines, buildings or crevices.	
Noyo intersessa	Ten Mile shoulderband	None	None	Coastal dunes | Coastal scrub | Redwood | Riparian forest	Found in coastal dunes, coastal scrub, and riparian redwood forest habitats.		Yes
Oncorhynchus kisutch pop. 2	coho salmon - southern Oregon / northern California ESU	Threatened	Threatened	Aquatic | Klamath/North coast flowing waters | Sacramento/San Joaquin flowing waters	Federal listing refers to populations between Cape Blanco, Oregon and Punta Gorda, Humboldt County, California.	State listing refers to populations between the Oregon border and Punta Gorda, California.	Possible
Oncorhynchus mykiss irideus pop. 36	summer-run steelhead trout	None	None	Aquatic | Klamath/North coast flowing waters | Sacramento/San Joaquin flowing waters	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.	Possible
Pandion haliaetus	osprey	None	None	Riparian forest	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.	Possible
Pekania pennanti	fisher - West Coast DPS	None	Threatened	North coast coniferous forest | Oldgrowth | Riparian forest	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.	Possible
Rana boylii	foothill yellow-legged frog	None	Candidate Threatened	Aquatic | Chaparral | Cismontane woodland | Coastal scrub | Klamath/North coast flowing waters | Lower montane coniferous forest | Meadow & seep | Riparian forest | Riparian	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.	Yes

				woodland | Sacramento/San Joaquin flowing waters			
Rhyacotriton variegatus	southern torrent salamander	None	None	Lower montane coniferous forest | Oldgrowth | Redwood | Riparian forest	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.	Yes
Taricha rivularis	red-bellied newt	None	None	Broadleaved upland forest | North coast coniferous forest | Redwood | Riparian forest | Riparian woodland	Coastal drainages from Humboldt County south to Sonoma County, inland to Lake County. Isolated population of uncertain origin in Santa Clara County.	Lives in terrestrial habitats, juveniles generally underground, adults active at surface in moist environments. Will migrate over 1 km to breed, typically in streams with moderate flow and clean, rocky substrate.	Yes

Plants

Scientific Name	Common Name	Family	Lifeform	CRPR	GRank	SRank	Habitat	Micro Habitat	Habitat present
Antennaria suffrutescens	evergreen everlasting	Asteraceae	perennial stoloniferous herb	4.3	G4	S3	Lower montane coniferous forest (serpentinite)		No - outside elevation range
Astragalus agnicidus	Humboldt County milk-vetch	Fabaceae	perennial herb	1B.1	G2	S2	Broadleafed upland forest, North Coast coniferous forest	openings, disturbed areas, sometimes roadsides	No
Calamagrostis bolanderi	Bolander's reed grass	Poaceae	perennial rhizomatous herb	4.2	G4	S4	Bogs and fens, Broadleafed upland forest, Closed-cone coniferous forest, Coastal scrub, Meadows and seeps (mesic), Marshes and swamps (freshwater), North Coast coniferous forest	mesic	Yes
Calamagrostis foliosa	leafy reed grass	Poaceae	perennial herb	4.2	G3	S3	Coastal bluff scrub, North Coast coniferous forest	rocky	Possible
Castilleja litoralis	Oregon coast paintbrush	Orobanchaceae	perennial herb (hemiparasitic)	2B.2	G3	S3	Coastal bluff scrub, Coastal dunes, Coastal scrub	sandy	No - outside elevation range
Castilleja mendocinensis	Mendocino Coast paintbrush	Orobanchaceae	perennial herb (hemiparasitic)	1B.2	G2	S2	Coastal bluff scrub, Closed-cone coniferous forest, Coastal dunes, Coastal prairie, Coastal scrub		No - outside elevation range

Ceanothus gloriosus var. exaltatus	glory brush	Rhamnaceae	perennial evergreen shrub	4.3	G4T4	S4	Chaparral		Yes
Clarkia amoena ssp. whitneyi	Whitney's farewell-to-spring	Onagraceae	annual herb	1B.1	G5T1	S1	Coastal bluff scrub, Coastal scrub		Not coastal
Coptis laciniata	Oregon goldthread	Ranunculaceae	perennial rhizomatous herb	4.2	G4?	S3?	Meadows and seeps, North Coast coniferous forest (streambanks)	Mesic	Yes
Epilobium septentrionale	Humboldt County fuchsia	Onagraceae	perennial herb	4.3	G4	S4	Broadleafed upland forest, North Coast coniferous forest	sandy or rocky	No
Erigeron biolettii	streamside daisy	Asteraceae	perennial herb	3	G3?	S3?	Broadleafed upland forest, Cismontane woodland, North Coast coniferous forest	rocky, mesic	No
Erythronium oregonum	giant fawn lily	Liliaceae	perennial bulbiferous herb	2B.2	G4G5	S2	Cismontane woodland, Meadows and seeps	sometimes serpentinite, rocky, openings	No
Erythronium revolutum	coast fawn lily	Liliaceae	perennial bulbiferous herb	2B.2	G4G5	S3	Bogs and fens, Broadleafed upland forest, North Coast coniferous forest	Mesic, streambanks	No
Gilia capitata ssp. pacifica	Pacific gilia	Polemoniaceae	annual herb	1B.2	G5T3	S2	Coastal bluff scrub, Chaparral (openings), Coastal prairie, Valley and foothill grassland		Yes
Kopsiopsis hookeri	small groundcone	Orobanchaceae	perennial rhizomatous herb (parasitic)	2B.3	G4?	S1S2	North Coast coniferous forest		Yes

Lasthenia californica ssp. macrantha	perennial goldfields	Asteraceae	perennial herb	1B.2	G3T2	S2	Coastal bluff scrub, Coastal dunes, Coastal scrub		No
Lathyrus palustris	marsh pea	Fabaceae	perennial herb	2B.2	G5	S2	Bogs and fens, Coastal prairie, Coastal scrub, Lower montane coniferous forest, Marshes and swamps, North Coast coniferous forest	mesic	No - outside elevation range
Lilium rubescens	redwood lily	Liliaceae	perennial bulbiferous herb	4.2	G3	S3	Broadleafed upland forest, Chaparral, Lower montane coniferous forest, North Coast coniferous forest, Upper montane coniferous forest	Sometimes serpentinite, sometimes roadsides	Yes
Listera cordata	heart-leaved twayblade	Orchidaceae	perennial herb	4.2	G5	S4	Bogs and fens, Lower montane coniferous forest, North Coast coniferous forest		Unlikely
Micranthes marshallii	Marshall's saxifrage	Saxifragaceae	perennial rhizomatous herb	4.3	G5	S3	Riparian forest	rocky streambanks	Possible
Mitellastra caulescens	leafy-stemmed mitrewort	Saxifragaceae	perennial rhizomatous herb	4.2	G5	S4	Broadleafed upland forest, Lower montane coniferous forest, Meadows and seeps, North Coast coniferous forest	mesic, sometimes roadsides	Yes
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	Yes
Piperia candida	white-flowered rein orchid	Orchidaceae	perennial herb	1B.2	G3	S3	Broadleafed upland forest, Lower montane coniferous forest, North Coast coniferous forest	sometimes serpentinite	Yes

Pityopus californicus	California pinefoot	Ericaceae	perennial herb (achlorophyllous)	4.2	G4G5	S4	Broadleafed upland forest, Lower montane coniferous forest, North Coast coniferous forest, Upper montane coniferous forest	mesic	Yes
Sidalcea malachroides	maple-leaved checkerbloom	Malvaceae	perennial herb	4.2	G3	S3	Broadleafed upland forest, Coastal prairie, Coastal scrub, North Coast coniferous forest, Riparian woodland	Often in disturbed areas	Yes
Usnea longissima	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	Yes

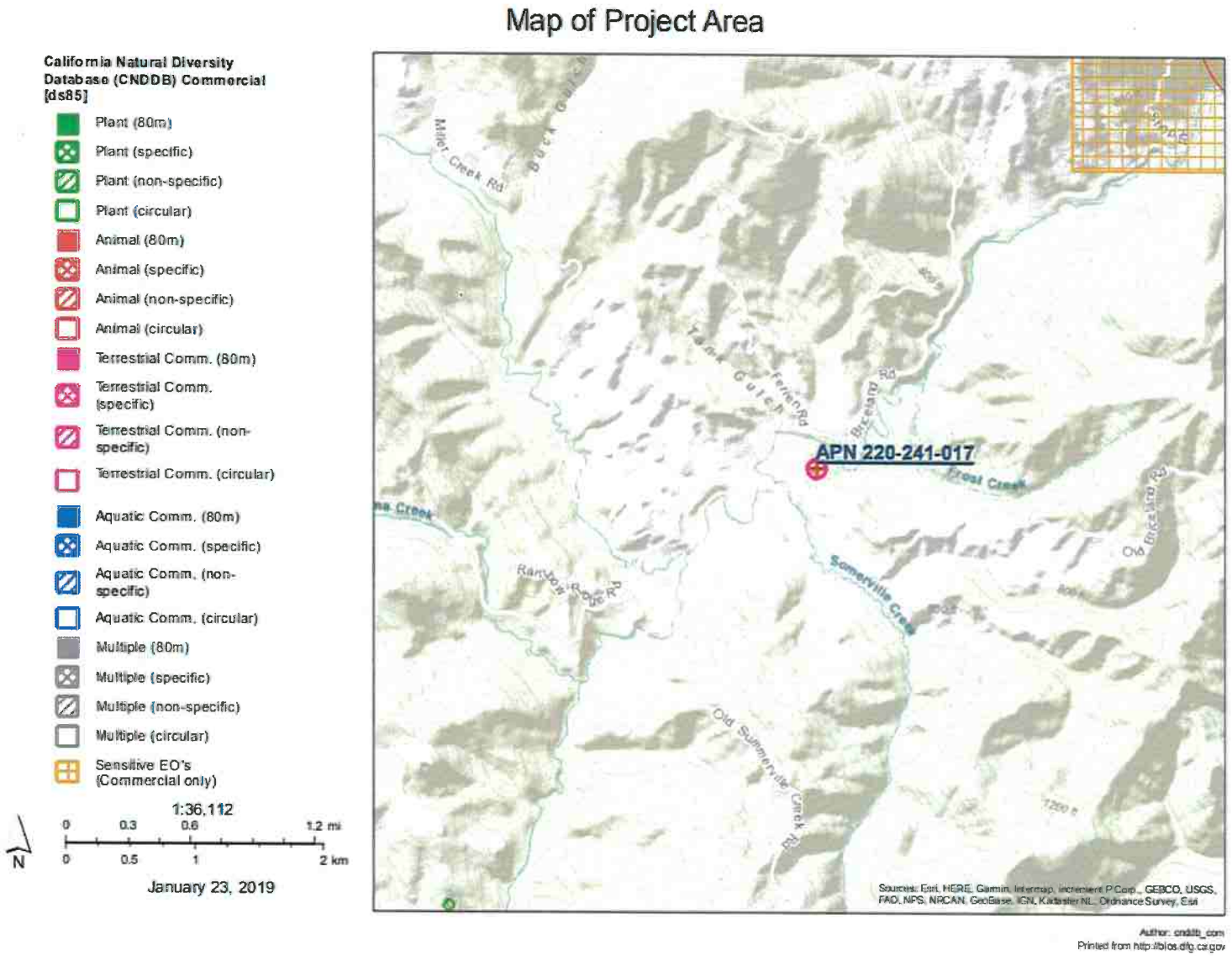

Figure 1: Map of observations of rare plant and sensitive animal species that occurred within 1 mile of property project areas. No observations have occurred within 1 mile of the property project areas.

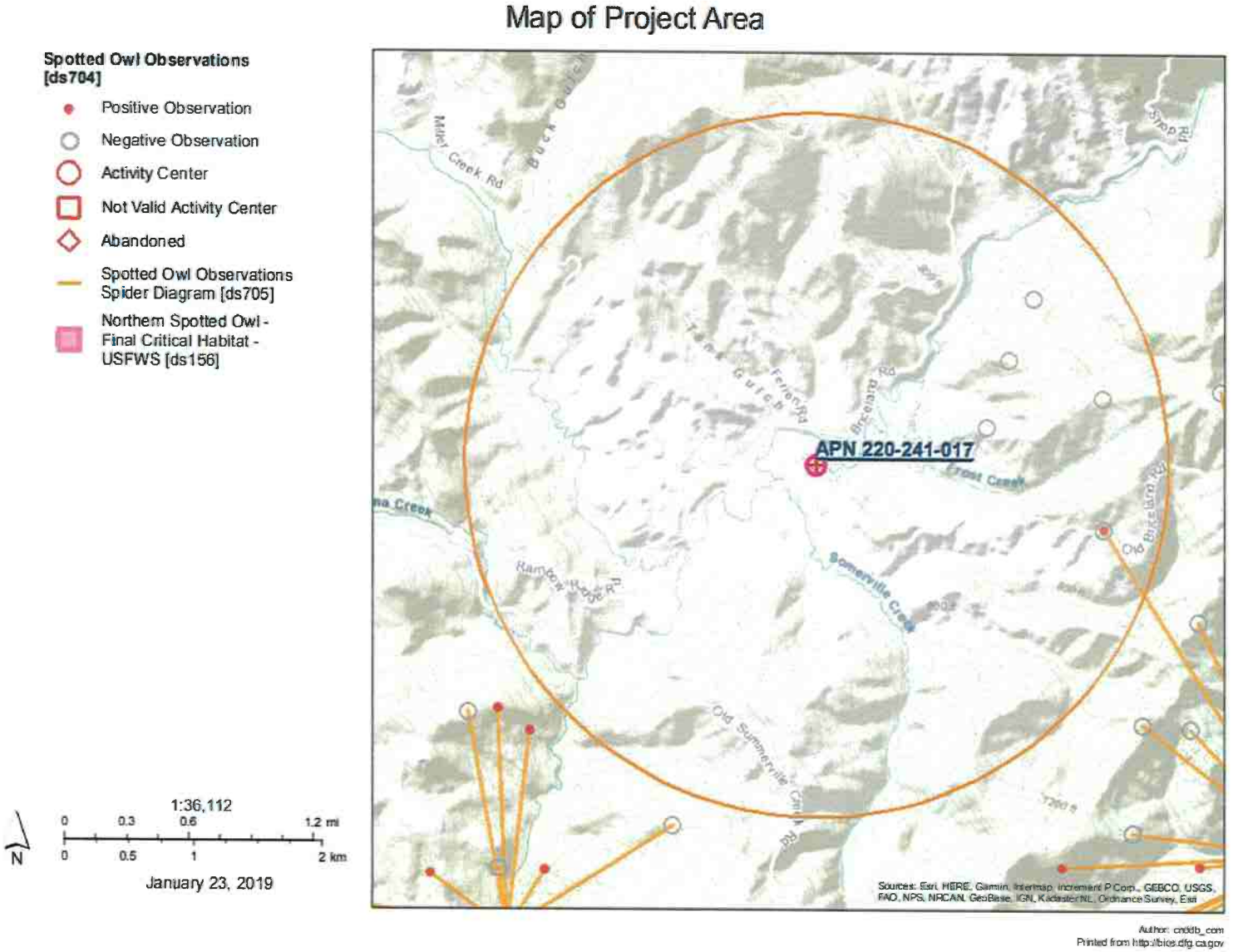

Figure 2: Observed occurrences of Northern Spotted Owls (*Strix occidentalis caurina*) within 1 mile of property project areas. Nearest Activity Center, HUM0927, was established in 1998 and is approximately 2.31 miles southeast from the property project area.