

Appendix I

Botanical

1. Supplemental Botanical Survey Report, NRM 2020.
2. Botanical Survey Report; NRM, 2018.
3. Assessment of Road Improvement and Maintenance Activity Impacts to Botanical Resources, NRM 2020

Botanical Survey Report

Rolling Meadow Ranch

Supplemental to Botanical Survey report prepared by NRM in July 2018

Prepared for

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I. Summary of Findings and Conclusions

This Botanical Report reviews the proposed project, described below, to determine potential impacts on special status plants and sensitive natural communities. See Table 1 for list of reviewed plant species. This Botanical Report builds upon previous botanical surveys and reporting for this project, completed in 2018 (NRM 2018).

One (1) special status plant species with California Native Plant Society California Rare Plant Rank (CRPR) of 1B.2, and one (1) species with a CRPR of 4.3 were found within the Study Area:

- Pacific gilia (*Gilia capitata ssp. pacifica*) CRPR 1B.2, S2
- Tracy's tarplant (*Hemizonia congesta ssp. tracyi*) CRPR 4.3, S4

With adherence to the required mitigation measures, we have determined that the project as proposed will result in no significant impacts to special status plant species or sensitive natural communities.

Summary of Further Surveys Needed and Recommended Management

- "Early season" surveys targeting species such as *Sidalcea malviflora ssp. patula* (CRPR 1B.2) are required within the portion of the Study Area including Facilities 7, 8, 9 and 10, where only "late season" surveys have yet been completed.
- Surveys specific for *Monita howellii* (CRPR 2B.2) are needed in some low-gradient, vernal wet portions of the roads in the vicinity of Facilities 1, 2 and 3 (See Appendix D).
- To avoid impacts to Pacific gilia, all road maintenance shall occur after August 15th and before October 15th. Additionally, all extraction of rock from the rock quarry (Map ID #4, Figures 10 and 13) shall occur after August 15th and before October 15th and occur no more frequently than every two (2) years (i.e. allowing two years between extraction events). A different rock quarry site shall be identified to meet additional needs.
- The effects of the above listed management recommendations shall be monitored by a qualified botanist for a period of five (5) years following project implementation. Additionally, monitoring will occur every two (2) years following any rock extraction, within a period of ten (10) years following project implementation. Monitoring shall entail annual inventory and mapping of the extent of the Pacific gilia population on roads accessing project areas and within the rock quarry area. A monitoring report shall be submitted to CDFW annually. Monitoring results shall be used in an adaptive management process aimed at maintaining the Pacific gilia population. For instance, if it appears that rock extraction is negatively impacting the population, a different plan shall be developed and implemented.
- The densest portion of the Tracy's tarplant population (Figure 13, Table 2) shall be protected during construction by the placement of construction fencing at the periphery, to keep equipment operators out of the area.

II. Introduction

This Botanical Report builds upon previous botanical surveys and reporting for this project (described below), completed in 2018 (NRM 2018).

This Report reviews the project described below in sufficient detail to determine potential impacts to any plant species that are listed, candidates for listing or proposed for listing under the ESA, CESA, and the California Native Plant Protection Act (NPPA) and or meet the definition of rare, endangered or special status under the California Environmental Quality Act (CEQA), hereinafter referred to as special status plants. Furthermore, this report reviews potential impacts to sensitive natural communities, as defined by CDFW. We conducted botanical surveys to determine the presence of special status species or sensitive natural communities within the proposed project areas. Survey findings are useful in assessing the potential for significant negative impacts on botanical resources and are critical in mitigating those impacts to a less than significant level. Special status plant species with the potential to occur in the project area are listed in Table 1.

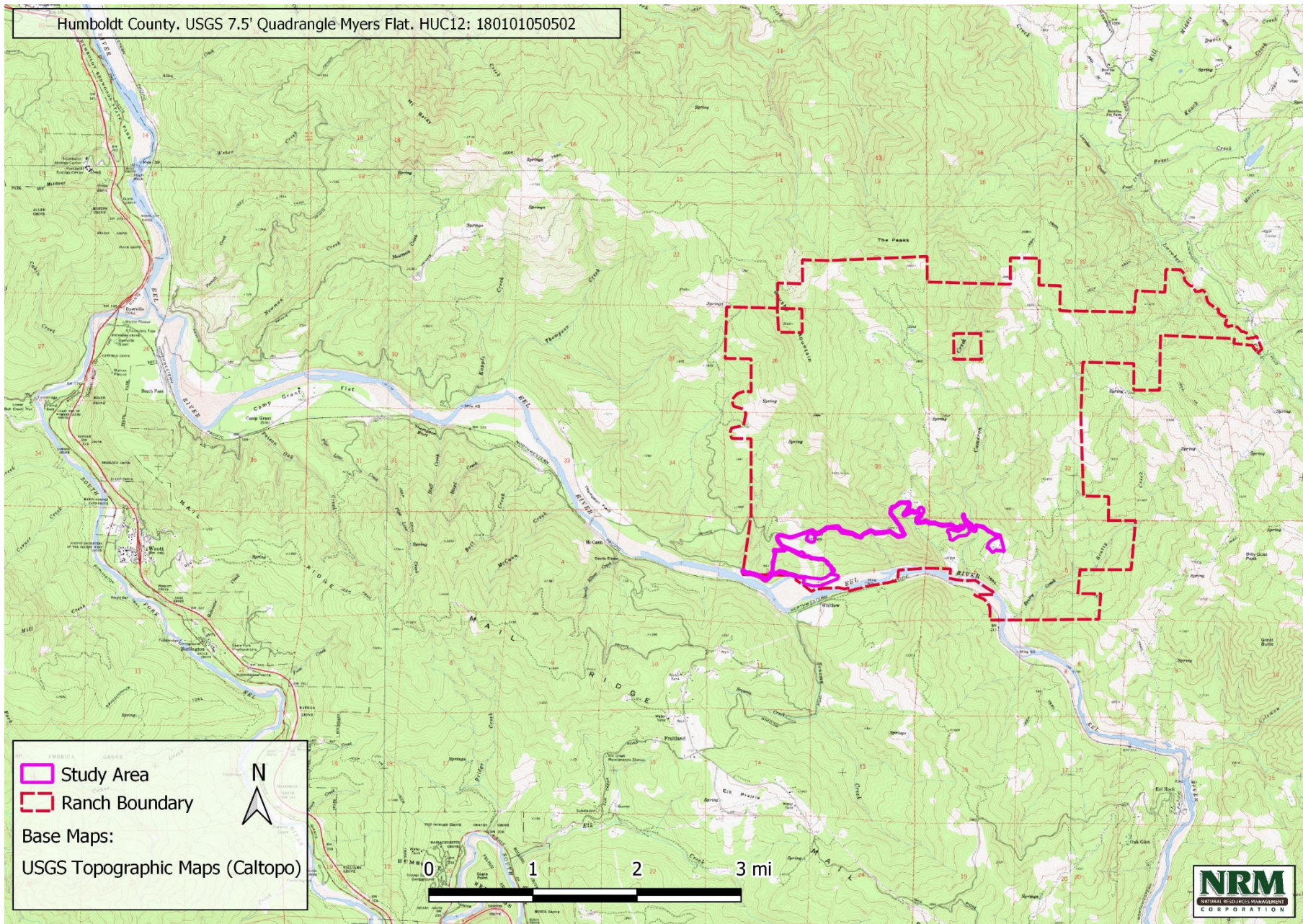


Figure 1. Project Area Map

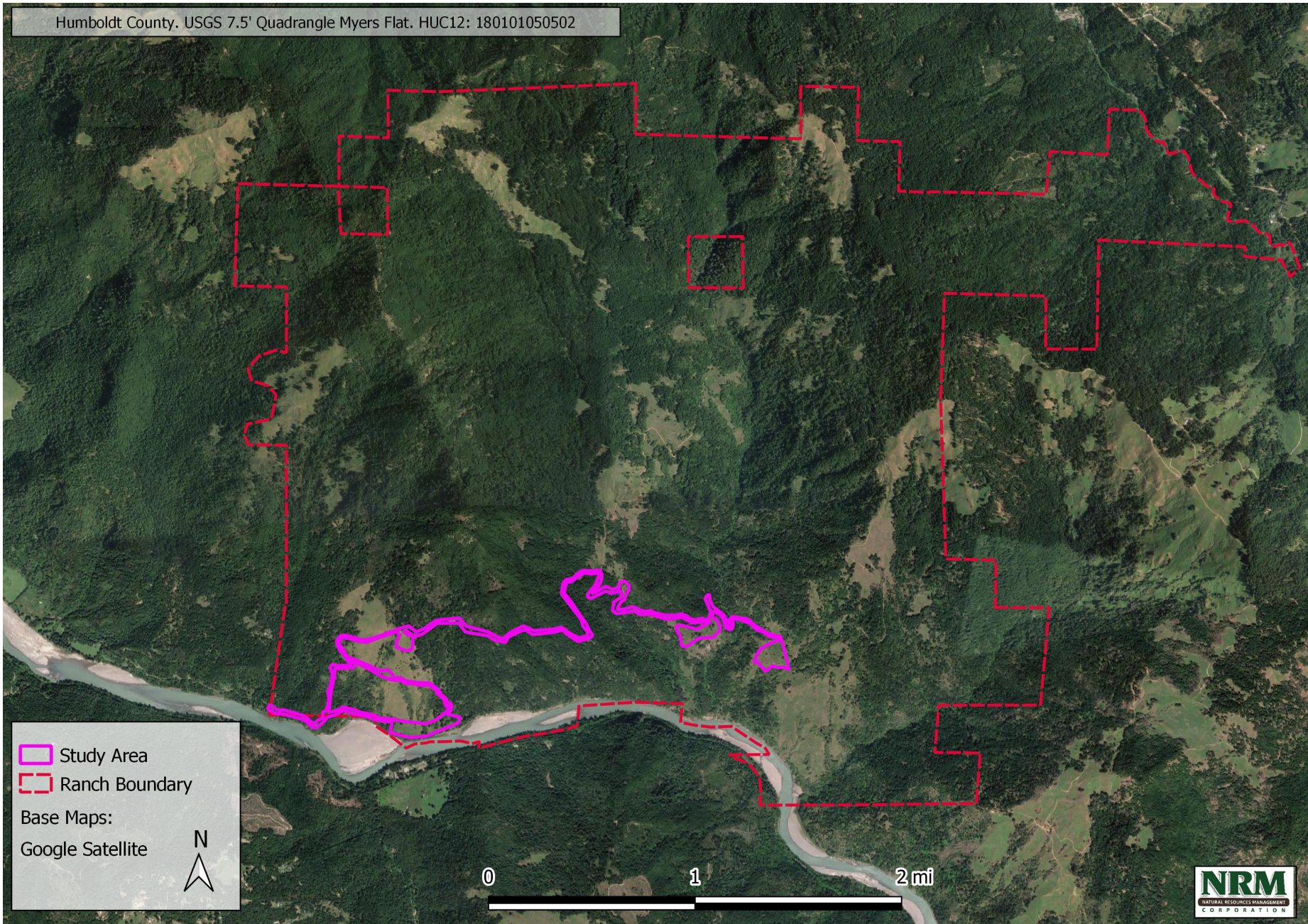


Figure 2. Study Area Location Map

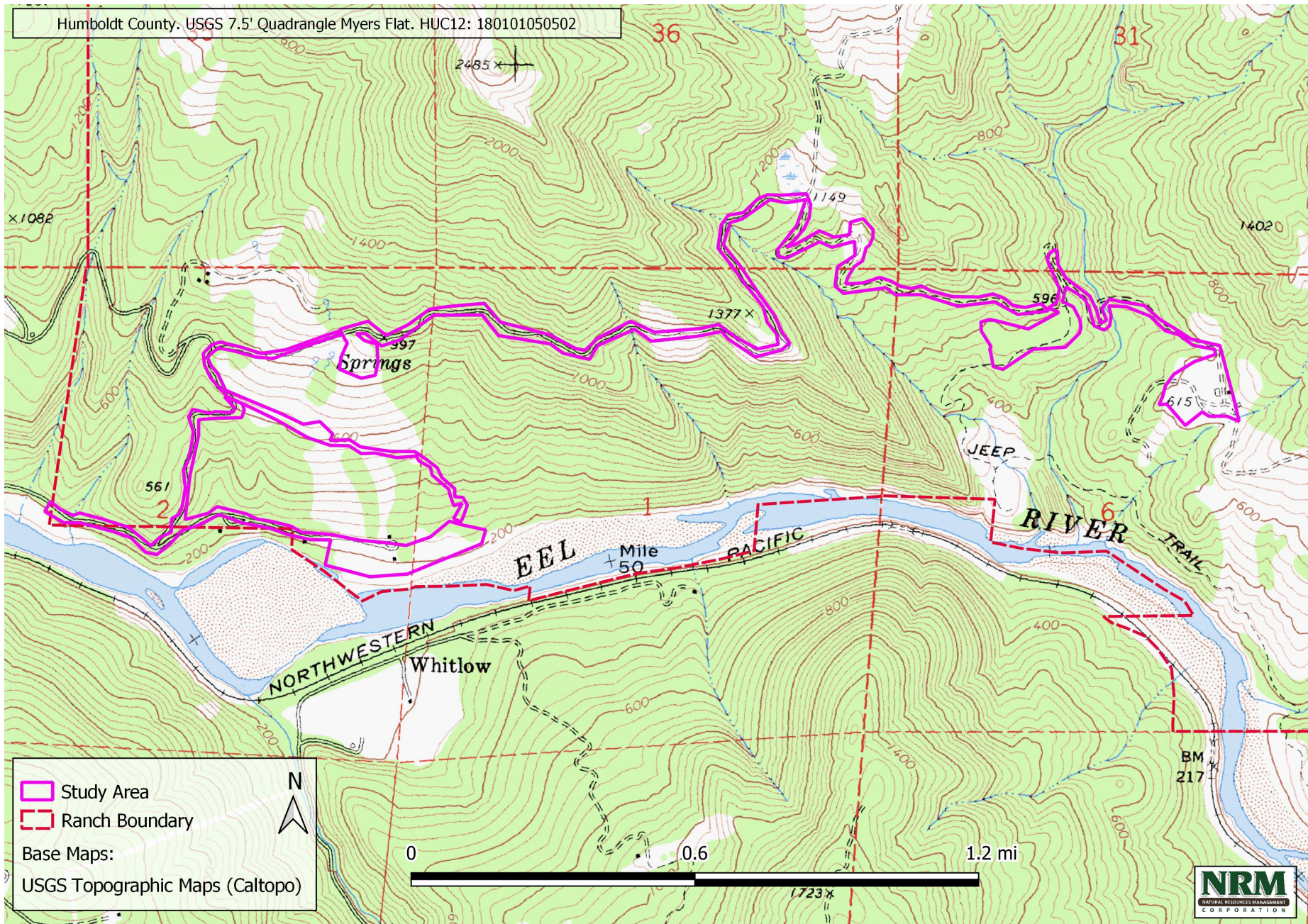


Figure 3. Study Area Overview, Topographic

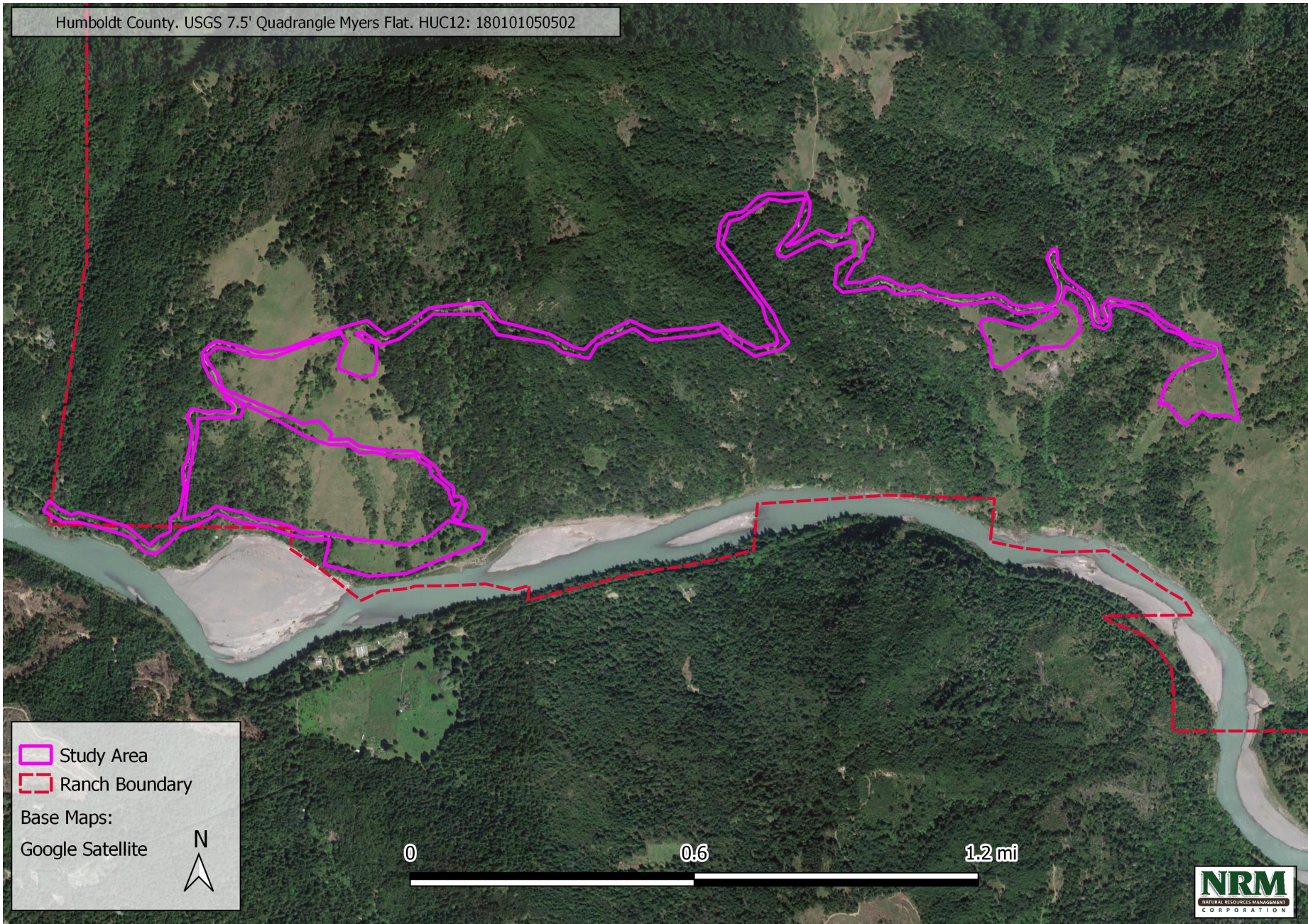


Figure 4. Study Area Overview, Orthographic

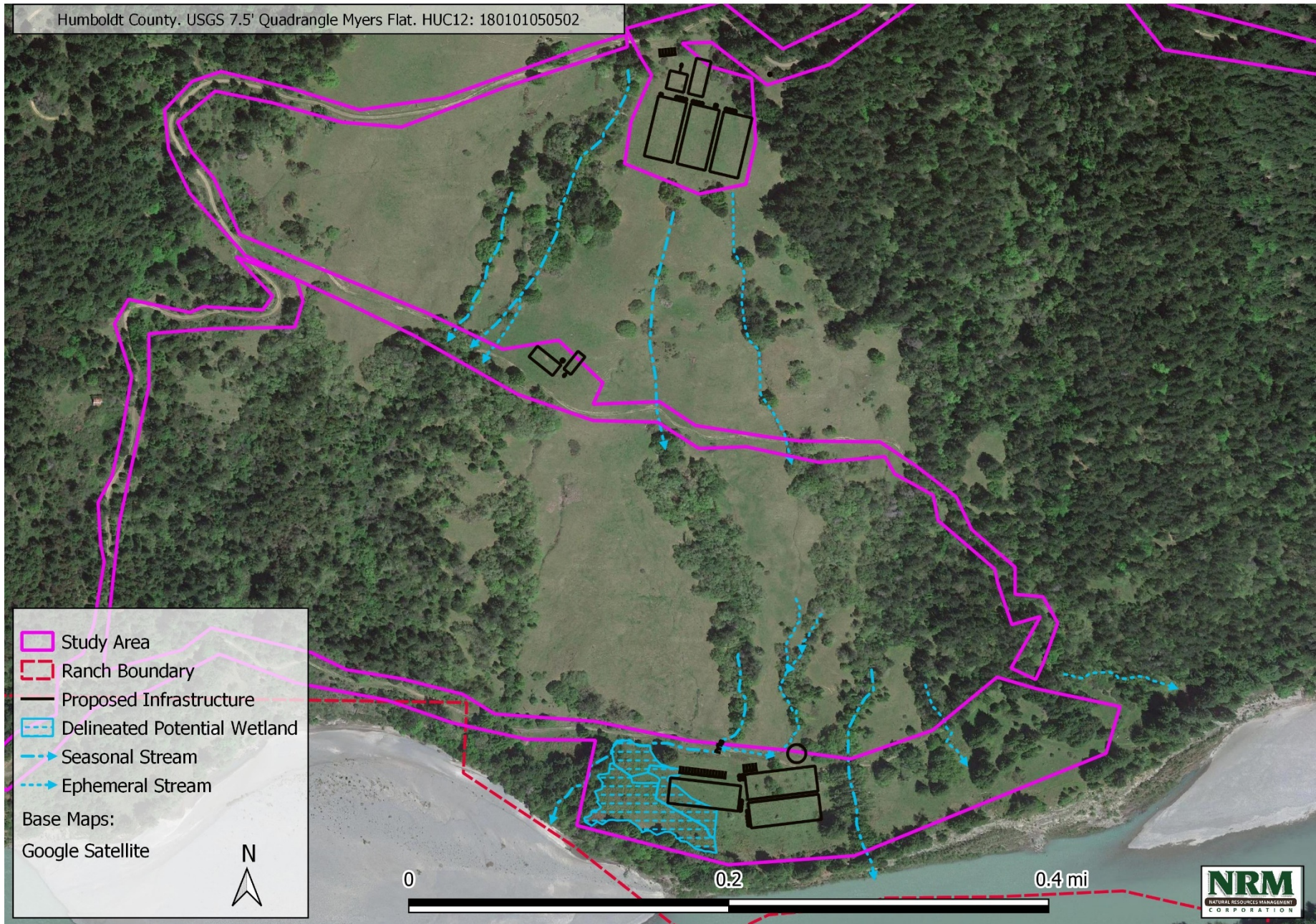


Figure 5. Relevant Hydrological Features 1 of 2. Note infrastructure layout has changed since this map was made.



Figure 6. Relevant Hydrological Features 2 of 2. Note infrastructure layout has changed since this map was made.

III. Background and Project Understanding

Project Description

The Project reviewed here concerns development on Humboldt County APNs 217-181-028, 217-201-001, within contiguous ownership including APNs 217-201-001, 217-181-027, 217-181-028, 217-182-001, 217-024-011, 217-024-010, and 217-024-003, 217-025-001. See Appendix D for Project Plans. These parcels are collectively referred to as “the ranch.”

The project is located on the main stem of the Eel River in southeastern Humboldt County. In its entirety, Rolling Meadow Ranch is comprised of 7,110 acres of agricultural and timber land. The legal parcel, Parcel 1, on which the cannabis cultivation will be located, is approximately 1,632 acres. The proposed project, to be located on Parcel 1, consists of 16 greenhouses, five trimming and drying buildings with restrooms, herein known as, ‘processing buildings,’ five associated septic systems, and three wells. The 16 greenhouses are located in 5 geographically separate areas. These five cultivation areas will be located on one legally combined unit, totaling 1632 acres of land, herein known as ‘Parcel 1.’ A total of 16 greenhouses, five drying and trimming buildings with restrooms, and six septic systems will be constructed. The three wells have already been installed on Rolling Meadow Ranch.

Facilities #1 and #2 are mixed light greenhouses. Facility #1, #2 and #3 are 19,656-square-foot greenhouses, all three are designed by Gro-Tech Systems Inc.; the total greenhouse facility space is 58,968 sq. ft. The site is expected to yield approximately 48,354 sq. ft. of cannabis cultivation space (factors out areas, like pathways, that are within the greenhouse but are not planted). In this area one septic system will be installed as well as one 4,500-square-foot processing building with restrooms. Water for irrigation and building needs will come from a well located to the north of Facilities #4-6. Facilities #1, #2, and #3 will each have 20,000 gallons (four 5,000-gallon tanks) of hard sided rainwater catchment tanks. On the northwest side of Facility #1, the project will locate a 45KW emergency standby generator and water pump. On the north side of Facility #1, the project will locate a 100 sq. ft. covered compost building and a stabilized parking area with four (4) parking spaces. Facility #4, #5 and #6 are all mixed light greenhouses located north of Facilities #1, #2 and #3. Each facility is a 19,584-square-foot greenhouse designed by Gro-Tech Systems Inc.; the total greenhouse facility space is 58,752sq. ft. The site is expected to yield approximately 48,177 sq. ft. of cannabis cultivation space (factors out areas, like pathways, that are within the greenhouse but are not planted). At this site, one septic system will be installed as well as one 6,000-square-foot processing building with restrooms. The project will locate a 100 sq. ft. covered compost building on the southeast side of the processing building. Water for irrigation and building needs will come from a well located north, northwest of Facility # 4. The well, labeled ‘Well 3,’ will have a 5,000-gallon transfer tank adjacent to it. Facilities #4, #5, and #6 will each have 20,000 gallons (four 5,000-gallon tanks together) of hard sided rainwater catchment tanks. Near Facility #6, the project will locate a 45KW emergency standby generator and water pump. To the north of Facility #4, the project proposes a stabilized parking area with five (5) parking spaces.

Facilities #7, #8, #9 and #10 are mixed light greenhouse located to the east of Facilities #1-6. Facility #7 -#9 are all 17,280-square-foot greenhouses. Facility #10 is a 19,548-square-foot greenhouse. All greenhouses are designed by Gro-Tech Systems Inc. The total facility space will be 71,388 sq. ft. The site is expected to yield approximately 58,567 sq. ft. of cannabis cultivation space (factors out areas, like pathways, that are within the greenhouse but are not planted). At this site, one septic system will be installed as well as one 8,250-square-foot processing building with restrooms. A 100-square-foot covered composting building will be established on the northeast side of Facility #9. Water for irrigation and building needs will come from a well, labeled Well 2, located west, northwest of this site. A 5,000-gallon transfer tank will be located adjacent to the well. Facilities

#7, #8, #9 and #10 will each have 20,000 gallons (four 5,000-gallon tanks together) of hard sided rainwater catchment tanks.

Near Facility #8, the project will locate a 45KW emergency standby generator and water pump. To the east of Facility #8, the project proposes a stabilized parking area with five (5) parking spaces.

Facility #11 through #16 are all mixed light greenhouses. All six greenhouses #11-#16 are 19,584 sq. ft. All Greenhouses are designed by Gro-Tech Systems Inc. The total facility space will be 117,504 sq. ft. The site is expected to yield approximately 96,353 sq. ft. of cannabis cultivation space (factors out areas, like pathways, that are within the greenhouse but are not planted). At this site, two septic systems will be installed as well as one (1) 7,000-square-foot processing building with restrooms and one 8,000-square-foot processing building with restrooms. West of Facility #11 and East of the 7,000-square-foot processing building, the project includes development of a 100-square-foot covered composting building. Water for irrigation and building needs will come from a well, labeled Well 1, located north, northeast of this site. A 5,000-gallon transfer tank will be located adjacent to the well. All greenhouses, Facilities #11 through #16 will each have 20,000 gallons (four 5,000-gallon tanks together) of hard-sided rainwater catchment tanks. Near facility #16, the project will locate a 45KW emergency standby generator and water pump. To the east of Facility #16, the project proposes a stabilized parking area with five (5) parking spaces. The total proposed square footage for all cannabis facility space (Facilities #1-#16 combined) is 306,648 square feet (7.04 acres). The total area dedicated to cannabis cultivation will be approximately 251,451 sq. ft. (5.77 acres).

See Appendix D for Project Plans.

IV. Environmental Setting

The project is located on the north side of the main stem of the Eel River in southeastern Humboldt County (Figure 1). There are several natural drainage courses on the Property, including Cameron & Beatty Creek as well as ephemeral drainage swales. The project is set on a 7,110- acre ranch that has been managed in the past for cattle and timber production and is currently managed for timber production. The land in and surrounding the ranch is generally forested but is interspersed with open prairies. It has been historically (and is currently) used for cattle, timber production, cannabis cultivation, and rural residences.

All project areas are set in prairies. Elevations within the project area range from approximately 60 to 425 m (200 to 1400 ft). Aspects are generally southern. The project area lies within a mosaic of redwood forest, mixed evergreen forest and coastal prairie and nonnative grassland, with inclusions of oak woodland (Holland, 1986). Red alder and redwood forest form the main vegetation type along and mainstem Eel. On the ranch, the forest is primarily composed of the *Pseudotsuga menziesii* - *Notholithocarpus densiflorus* Forest Alliance (S4) at upper elevations and the *Sequoia sempervirens* Forest Alliance (S3.2) at lower elevations (CNPS 2, 2018).

Tree species present but not dominant within both alliances include *Umbellularia californica*, *Acer macrophyllum*, *Arbutus menziesii*, and *Notholithocarpus densiflorus* var. *densiflorus*. The oak woodland inclusions are composed of the *Quercus kelloggii* Forest Alliance (S4), containing a *Quercus kelloggii*-*Quercus chrysolepis* association and a *Quercus kelloggii*/*Toxicodendron diversilobum*/grass association

(CNPS, 2020b). *Umbellularia californica*, *Acer macrophyllum*, *Quercus garryana* and *Aesculus californica* trees and *Baccharis pilularis*, *Rubus armeniacus* and *Heteromeles arbutifolia* shrubs are also present within this vegetation type. These forested areas have been extensively logged by previous property owners and are largely composed of even-aged stands of second or third-growth trees.

The proposed project footprint lies almost entirely within the prairie and grassland portions of this mosaic, which are primarily composed of the *Holcus lanatus*- *Anthoxanthum odoratum* Herbaceous Semi-Natural Alliance (SR: NONE), areas dominated by *Dactylis glomerata*, and areas dominated by *Briza maxima*-*Bromus hordeaceus*. Within these larger communities were inclusions of *Elymus glaucus* stands (S3), the *Centaurea (solstitialis, melitensis)* Herbaceous Semi-Natural Alliance, the *Danthonia californica* Herbaceous Alliance (S3), *Stipa pulchra* stands (S4), and areas dominated by *Arrhenatherum elatius* (CNPS 2, 2020). Common forb species present include *Brodiaea elegans*, *Crepis capillaris*, and *Linum bienne*. Shrubs such as *Baccharis pilularis*, *Rubus armeniacus*, *Heteromeles arbutifolia* and *Toxicodendron diversilobum* are present as scattered thickets. These prairies have been heavily utilized for cattle grazing in recent decades. There is no active livestock management under the current owner, however the areas continue to be utilized by trespassing cattle.

Potential wetland areas identified in the project areas are defined by the dominance of Obligate (OBL), Facultative-Wetland (FACW) and Facultative (FAC) species, as listed in the United States Army Core of Engineers Western Mountains, Valleys & Coast 2016 Regional Wetland Plant List (Lichvar et al., 2016). These areas are found primarily within the open prairie. See Delineation of Waters Report concerning wetlands with the potential to be impacted by the project (NRM 2020)

See Figures 1-6.

Soils

Soils within the Study Area are mapped by the Natural Resources Conservation Service (NRCS) as belonging to the following map units. See NRCS soils map in Appendix C.

Wirefence-Windynip-Devilshole complex (5 to 30 percent slopes), with parent material of colluvium and residuum derived from sandstone (NRCS, 2018). These soils are described as well drained loams and underlain by gravelly loams and very gravelly fine sandy loams (NRCS, 2018).

Yorknorth-Windynip complex (15 to 30 percent slopes), with parent material of colluvium derived from sandstone and/or earthflow deposits derived from schist (NRCS, 2018). These soils are described as moderately well drained silt loams underlain by silty clay loams (NRCS, 2018).

Yorknorth-Witherell complex (2 to 15 percent slopes) and the Yorknorth-Witherell complex (30 to 50 percent slopes), with parent material of colluvium derived from sandstone and/or earthflow deposits derived from schist (NRCS, 2018). The Yorknorth-Witherell complex (30 to 50 percent slopes) are described as moderately well drained silt loams underlain by silty clay loams, clay, and gravelly clay loams, while the Yorknorth-Witherell complex (2 to 15 percent slopes) are described as moderately well drained loams underlain by layers of clays and clay loams (NRCS, 2018).

V. Methods

Pre-Field Review

Prior to the surveys, the current inventories of the California Native Plant Society's (CNPS) Inventory of Rare and Endangered Plants of California (CNPS 2020a) and the California Natural Diversity Database CNDDDB (CNDDDB 2020) were consulted to determine which special status plant species may occur within the project area and to compile a target species list. A nine-quad query of CNDDDB and CNPS Inventory records resulted in 39 listed vascular and nonvascular plant species (Table 1). These scoping strategies are consistent with California Department of Fish and Wildlife protocols (CDFW 2018d) and the California Environmental Quality Act (State of California 2001). The following resources were consulted:

- California Natural Communities List (CDFW 2018a);
- State and Federally Listed Endangered, Threatened, and Rare Plants of California (CDFW 2018b);
- Special Vascular Plants, Bryophytes, Lichens List (CDFW 2018c);
- California Natural Diversity Database (CNDDDB) Query (CNDDDB 2020);
- The Jepson Manual, 2nd Edition (Baldwin et al. 2012);
- Jepson eFlora (Jepson Flora Project 2020);
- The California Native Plant Society's Online Inventory of Rare and Endangered Plants of California (CNPS 2020a);
- A Manual of California Vegetation (Sawyer et al. 2009)
- A Manual of California Vegetation, Online Edition (CNPS 2020b);
- Consortium of California Herbaria (CCH 2020);
- Calflora online database (Calflora 2020).

Botanical taxonomy and nomenclature conform to The Jepson Manual, 2nd Edition (Baldwin et al. 2012) and recent circumscriptions in the Jepson eFlora (Jepson Flora Project 2020). Common names of plant species are derived from The Calflora Database (Calflora 2020). Nomenclature for special-status plant species conforms to the Inventory of Rare and Endangered Plants of California (CNPS 2020) and Special Vascular Plants, Bryophytes and Lichens List (CDFW 2018c). Vegetation communities described herein conform to A Manual of California Vegetation (Sawyer et al. 2009) or A Manual of California Vegetation, Online Edition (CNPS 2020b), and/or the Preliminary Descriptions of the Terrestrial Natural Communities of California (Holland 1986), where applicable.

Reference Populations

The following reference populations were visited preceding surveys:

Pacific gilia (*Gilia capitata ssp. pacifica*): Lord Ellis Quad, on Snow Camp Rd; elevation 2800 ft; visited 2019-06-01. Population 70% in bloom, 30% In bud, 0% vegetative. And on 2020-07-03, population 10% in bloom, 90% in fruit.

Howell's Montia (*Montia howellii*): Korbelt Quad, at the logger's palace; 150 ft elevation; visited 2019-04-12; plants 99% in flower.

Seacoast Ragwort (*Packera bolanderi var. bolanderi*): Red Crest Quad, along HWY 36, less than 100 yards west of entrance to Grizzly Creek campground; Visited 2020-06-14; Population of 15 plants 5% in bloom.

Table 1. Special status plant species from nine-quad area surrounding project (Table data source: CNDDDB 2020, CNPS 2020a).

Scientific Name	Common Name	CRPR	GRank	SRank	CESA	FESA	Blooming Period	Habitat	Micro Habitat	Elevation Low (ft)	Elevation High (ft)
<i>Astragalus agnicidus</i>	Humboldt County milk-vetch	1B.1	G2	S2	CE	None	Apr-Sep	Broadleaved upland forest, North Coast coniferous forest	openings, disturbed areas, sometimes roadsides	390	2625
<i>Carex arcta</i>	northern clustered sedge	2B.2	G5	S1	None	None	Jun-Sep	Bogs and fens, North Coast coniferous forest (mesic)		195	4595
<i>Castilleja ambigua</i> var. <i>ambigua</i>	johnny-nip	4.2	G4T4	S3S4	None	None	Mar-Aug	Coastal bluff scrub, Coastal prairie, Coastal scrub, Marshes and swamps, Valley and foothill grassland, Vernal pools margins		0	1425
<i>Coptis laciniata</i>	Oregon goldthread	4.2	G4?	S3?	None	None	(Feb)Mar-May(Sep-Nov)	Meadows and seeps, North Coast coniferous forest (streambanks)	Mesic	0	3280
<i>Cypripedium fasciculatum</i>	clustered lady's-slipper	4.2	G4	S4	None	None	Mar-Aug	Lower montane coniferous forest, North Coast coniferous forest	usually serpentinite seeps and streambanks	325	7990
<i>Epilobium septentrionale</i>	Humboldt County fuchsia	4.3	G4	S4	None	None	Jul-Sep	Broadleaved upland forest, North Coast coniferous forest	sandy or rocky	145	5905
<i>Erigeron biolettii</i>	streamside daisy	3	G3?	S3?	None	None	Jun-Oct	Broadleaved upland forest, Cismontane woodland, North Coast coniferous forest	rocky, mesic	95	3610

<i>Erigeron robustior**</i>	robust daisy	4.3	G3	S3	None	None	Jun-Jul	Lower montane coniferous forest, Meadows and seeps	sometimes serpentinite	655	2000
<i>Erythronium oregonum</i>	giant fawn lily	2B.2	G4G5	S2	None	None	Mar-Jun(Jul)	Cismontane woodland, Meadows and seeps	sometimes serpentinite, rocky, openings	325	3775
<i>Erythronium revolutum</i>	coast fawn lily	2B.2	G4G5	S3	None	None	Mar-Jul(Aug)	Bogs and fens, Broadleafed upland forest, North Coast coniferous forest	Mesic, streambanks	0	5250
<i>Fritillaria purdyi</i>	Purdy's fritillary	4.3	G4	S4	None	None	Mar-Jun	Chaparral, Cismontane woodland, Lower montane coniferous forest	usually serpentinite	570	7400
<i>Gilia capitata ssp. pacifica</i>	Pacific gilia	1B.2	G5T3	S2	None	None	Apr-Aug	Coastal bluff scrub, Chaparral (openings), Coastal prairie, Valley and foothill grassland		15	5465
<i>Hemizonia congesta ssp. tracyi</i>	Tracy's tarplant	4.3	G5T4	S4	None	None	May-Oct	Coastal prairie, Lower montane coniferous forest, North Coast coniferous forest	openings, sometimes serpentinite	390	3935
<i>Howellia aquatilis</i>	water howellia	2B.2	G3	S2	None	FT	Jun	Marshes and swamps (freshwater)		3555	4230
<i>Kopsiopsis hookeri</i>	small groundcone	2B.3	G4?	S1S2	None	None	Apr-Aug	North Coast coniferous forest		295	2905
<i>Lathyrus glandulosus</i>	sticky pea	4.3	G3	S3	None	None	Apr-Jun	Cismontane woodland		980	2625
<i>Leptosiphon acicularis</i>	bristly leptosiphon	4.2	G4?	S4?	None	None	Apr-Jul	Chaparral, Cismontane woodland, Coastal prairie, Valley and foothill grassland		180	4920

<i>Leptosiphon latisectus</i>	broad-lobed leptosiphon	4.3	G4	S4	None	None	Apr-Jun	Broadleafed upland forest, Cismontane woodland		555	4920
<i>Lilium kelloggii</i>	Kellogg's lily	4.3	G3	S3	None	None	May-Aug	Lower montane coniferous forest, North Coast coniferous forest	Openings, roadsides	5	4265
<i>Lilium rubescens</i>	redwood lily	4.2	G3	S3	None	None	Apr-Aug(Sep)	Broadleafed upland forest, Chaparral, Lower montane coniferous forest, North Coast coniferous forest, Upper montane coniferous forest	Sometimes serpentinite, sometimes roadsides	95	6265
<i>Lilium washingtonianum ssp. purpurascens</i>	purple-flowered Washington lily	4.3	G4T4	S3S4	None	None	Jun-Aug	Chaparral, Lower montane coniferous forest, Upper montane coniferous forest	often serpentinite	225	9020
<i>Listera cordata</i>	heart-leaved twayblade	4.2	G5	S4	None	None	Feb-Jul	Bogs and fens, Lower montane coniferous forest, North Coast coniferous forest		15	4495
<i>Lycopodium clavatum</i>	running-pine	4.1	G5	S3	None	None	Jun-Aug(Sep)	Lower montane coniferous forest (mesic), Marshes and swamps, North Coast coniferous forest (mesic)	often edges, openings, and roadsides	145	4020
<i>Lycopus uniflorus</i>	northern bugleweed	4.3	G5	S4	None	None	Jul-Sep	Bogs and fens, Marshes and swamps		15	6560
<i>Meesia triquetra</i>	three-ranked hump moss	4.2	G5	S4	None	None	Jul	Bogs and fens, Meadows and seeps, Subalpine coniferous forest, Upper montane coniferous forest (mesic)	soil	4265	9690

<i>Mitellastrca caulescens</i>	leafy-stemmed mitrewort	4.2	G5	S4	None	None	(Mar)Apr-Oct	Broadleafed upland forest, Lower montane coniferous forest, Meadows and seeps, North Coast coniferous forest	mesic, sometimes roadsides	15	5575
<i>Montia howellii</i>	Howell's montia	2B.2	G3G4	S2	None	None	(Jan-Feb)Mar-May	Meadows and seeps, North Coast coniferous forest, Vernal pools	vernally mesic, sometimes roadsides	0	2740
<i>Navarretia leucocephala ssp. bakeri</i>	Baker's navarretia	1B.1	G4T2	S2	None	None	Apr-Jul	Cismontane woodland, Lower montane coniferous forest, Meadows and seeps, Valley and foothill grassland, Vernal pools	Mesic	15	5710
<i>Packera bolanderi var. bolanderi</i>	seacoast ragwort	2B.2	G4T4	S2S3	None	None	(Jan-Apr)May-Jul(Aug)	Coastal scrub, North Coast coniferous forest	Sometimes roadsides	95	2135
<i>Piperia candida</i>	white-flowered rein orchid	1B.2	G3	S3	None	None	(Mar)May-Sep	Broadleafed upland forest, Lower montane coniferous forest, North Coast coniferous forest	sometimes serpentinite	95	4300
<i>Pityopus californicus</i>	California pinefoot	4.2	G4G5	S4	None	None	(Mar-Apr)May-Aug	Broadleafed upland forest, Lower montane coniferous forest, North Coast coniferous forest, Upper montane coniferous forest	mesic	45	7300
<i>Pleuropogon refractus</i>	nodding semaphore grass	4.2	G4	S4	None	None	(Mar)Apr-Aug	Lower montane coniferous forest, Meadows and seeps, North Coast coniferous forest, Riparian forest	Mesic	0	5250

<i>Ribes roezlii</i> var. <i>amictum</i>	hoary gooseberry	4.3	G5T4	S4	None	None	Mar-Apr	Broadleafed upland forest, Cismontane woodland, Lower montane coniferous forest, Upper montane coniferous forest		390	7545
<i>Sanicula tracyi</i>	Tracy's sanicle	4.2	G4	S4	None	None	Apr-Jul	Cismontane woodland, Lower montane coniferous forest, Upper montane coniferous forest	openings	325	5200
<i>Sidalcea malachroides</i>	maple-leaved checkerbloom	4.2	G3	S3	None	None	(Mar)Apr-Aug	Broadleafed upland forest, Coastal prairie, Coastal scrub, North Coast coniferous forest, Riparian woodland	Often in disturbed areas	0	2395
<i>Sidalcea malviflora</i> ssp. <i>patula</i>	Siskiyou checkerbloom	1B.2	G5T2	S2	None	None	(Apr)May-Aug	Coastal bluff scrub, Coastal prairie, North Coast coniferous forest	often roadcuts	45	2885
<i>Tracyina rostrata</i>	beaked tracyina	1B.2	G2	S2	None	None	May-Jun	Chaparral, Cismontane woodland, Valley and foothill grassland		295	2590
<i>Usnea longissima</i>	Methuselah's beard lichen	4.2	G4	S4	None	None		Broadleafed upland forest, North Coast coniferous forest	On tree branches; usually on old growth hardwoods and conifers	160	4790
<i>Wyethia longicaulis</i>	Humboldt County wyethia	4.3	G4	S4	None	None	May-Jul	Broadleafed upland forest, Coastal prairie, Lower montane coniferous forest	sometimes roadsides	2460	5005

Listing codes are as follows (CNPS 2020a): California Rare Plant Rank (CRPR) 1B = rare, threatened, or endangered in CA and elsewhere; 2B = rare, threatened, or endangered in CA, but more common elsewhere; 3 = plants about which more information is needed; a review list; 4 = of limited distribution or infrequent throughout a broader area in California. Ranks at each level also include a threat rank and are determined as follows: 0.1-Seriously threatened in California; 0.2-Moderately threatened in California; 0.3-Not very threatened in California. Global Ranking (GRank) - The global rank (G-rank) is a reflection of the overall condition of an element throughout its global range: G1 = Less than 6 viable element occurrences (EOs) OR less than 1,000 individuals OR less than 2,000 acres; G2 = 6-20 EOs OR 1,000-3,000 individuals OR 2,000-10,000 acres; G3 = 21-80 EOs OR 3,000-10,000 individuals OR 10,000-50,000 acres; G4 = Apparently secure; this rank is clearly lower than G3 but factors exist to cause some concern; i.e., there is some threat, or somewhat narrow habitat; G5 = Population or stand demonstrably secure to ineradicable due to being commonly found in the world. State Rank (SRank) The state rank (S-rank) is assigned much the same way as the global rank, except state ranks in California often also contain a threat designation attached to the S-rank: S1: Fewer than 6 viable occurrences worldwide/ statewide, and/ or up to 518 hectares; S2: 6-20 viable occurrences worldwide/ statewide, and/ or more than 518-2,590 hectares; S3: 21-100 viable occurrences worldwide/ statewide, and/or more than 2,590-12,950 hectares; S4: Greater than 100 viable occurrences worldwide/ statewide, and/or more than 12,950 hectares; S5: Demonstrably secure because of its worldwide/ statewide abundance. Additional Threat Ranks: 0.1=Very threatened; 0.2=Threatened; 0.3= No current threat known. CESA: California Endangered Species Act: CR: state-listed (NPPA) RARE; CE = state-listed ENDANGERED; FESA: Federal Endangered Species Act: FE = federally listed ENDANGERED

Field Survey

NRM botanists Claire Brown and Jenell Jackson conducted surveys to assess presence of or habitat for sensitive and special status plant species, and sensitive natural communities. Claire has a B.S. in Ecology and Evolutionary Biology from the University of Tennessee, has eight years of experience as a botanist in California, including three and a half years of experience conducting rare plant surveys on the North Coast. Jenell has a M.S. from Humboldt State University, has seven years surveying vegetation and rare plants in California, including three years' experience on the North Coast.

The surveys were spread out over a two-year period, as the Study Area changed due to project design development. Surveys took place on May 9th, 2019, June 16th, 2020 and June 25th, 2020. Figures 7-9 depict what areas were surveyed on which dates. The Study Area depicted in Figures 1-9 reflects areas surveyed since the completion of a former Botanical Survey Report in 2018.

The plant surveys followed the 2018 California Department of Fish and Wildlife (CDFW) Protocols for Surveying and Evaluating Impacts to Special Status Native Plant Populations and Sensitive Natural Communities (CDFW 2018d). The survey was timed to coincide with the bloom period for the target species with potential to occur at the site elevation and within habitat and soil types present. See Tables 1 and 3. Exceptions include the portion of the Study Area including Facilities 7, 8, 9, 10, where only "late season" surveys have yet been completed, and some low-gradient, vernal wet portions of the roads where early season surveys are needed for certain target species such as Howell's montia. Otherwise, the Study Area (Figures 1-9) was covered systematically, with emphasis on finding suitable habitat for target species while achieving thorough coverage. The surveys were floristic in nature, and all species encountered in the field were identified to the taxonomic level necessary for a rare species determination. A species list was recorded and is found in Appendix B.

Vegetation types within and around the project area were identified and recorded according to the conventions of A Manual of California Vegetation (Sawyer et al. 2009) or A Manual of California Vegetation, Online Edition (CNPS 2020b), and/or the Preliminary Descriptions of the Terrestrial Natural Communities of California (Holland 1986), where applicable. CDFW's California Natural Communities list (CDFW 2018a) was referenced to determine if sensitive communities were included in the vegetation alliances and associations found on-site. Location data for vegetation community types was recorded in the field using a Garmin etrex 30 GPS unit.

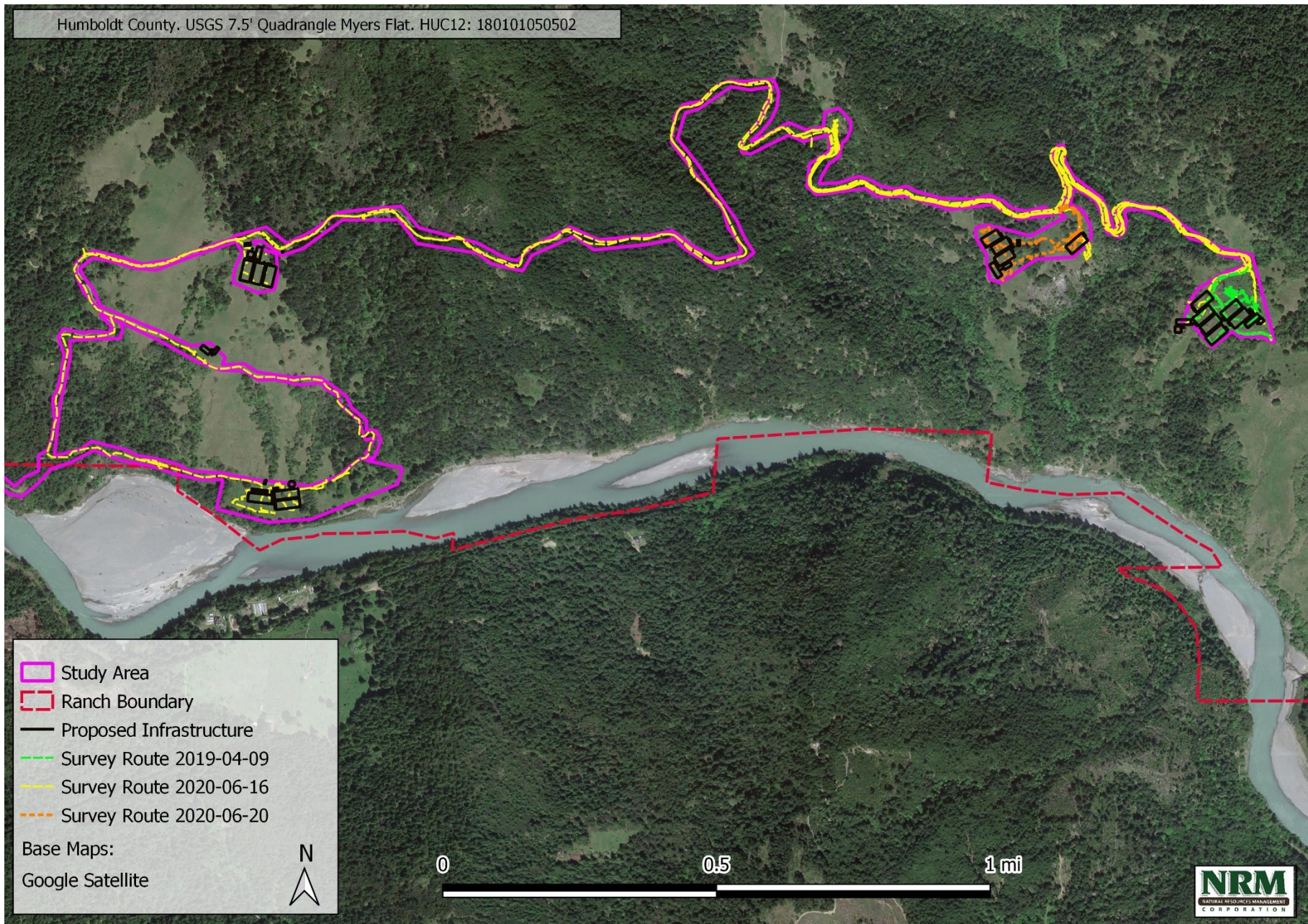


Figure 7. Survey Route Map Overview. Note infrastructure layout has changed since this map was made.

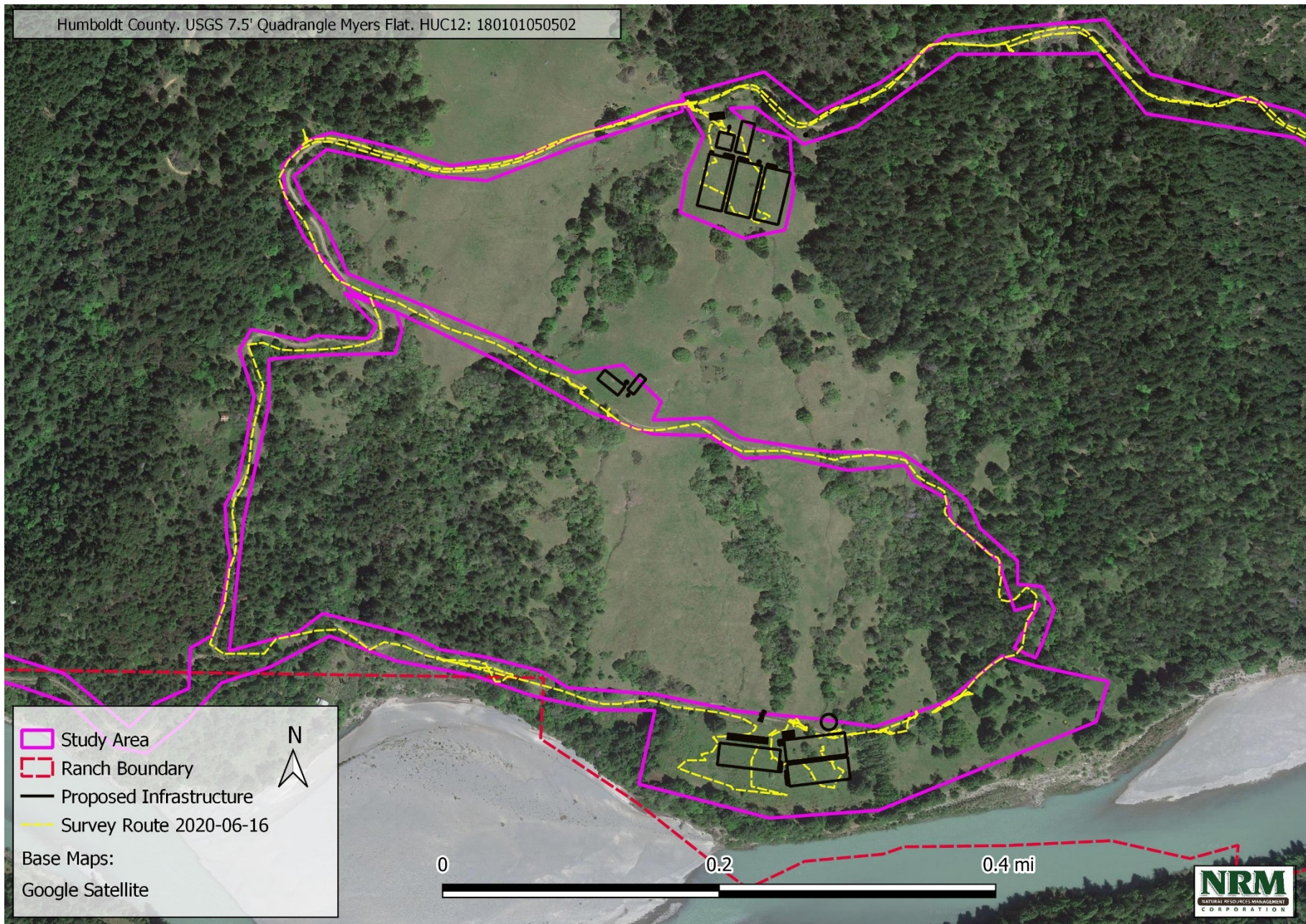


Figure 8. Survey Route Map 1 of 2. Note infrastructure layout has changed since this map was made.

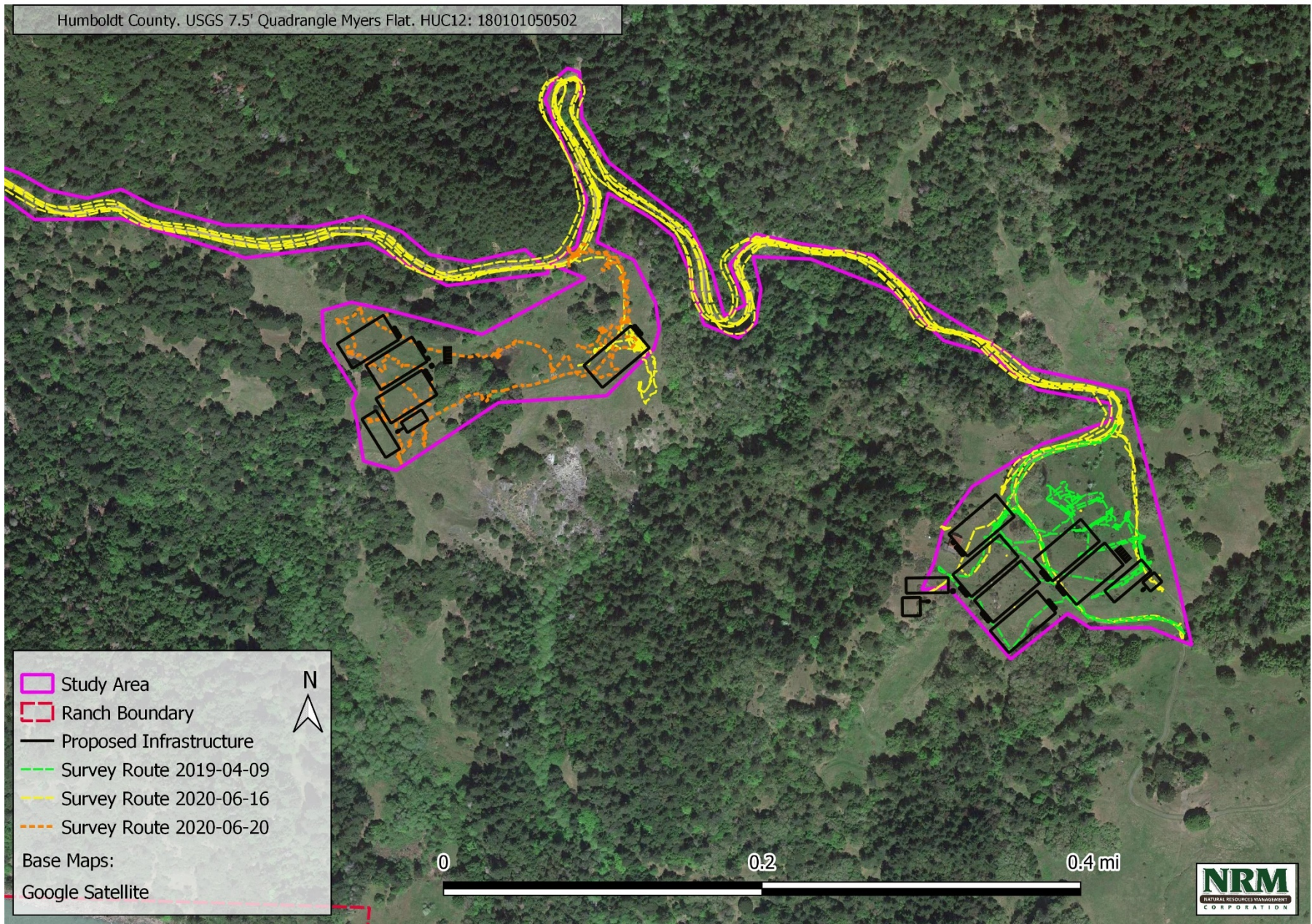


Figure 9. Survey Route 2 of 2. Note infrastructure layout has changed since this map was made.

VI. Survey Results and Discussion

Special Status Plants

Results

One (1) special status plant species with California Native Plant Society California Rare Plant Rank (CRPR) of 1B.2, and one (1) species with a CRPR of 4.3 were found within the Study Area:

- Pacific gilia (*Gilia capitata ssp. pacifica*) CRPR 1B.2
- Tracy's tarplant (*Hemizonia congesta ssp. tracyi*) CRPR 4.3

These findings will be reported to the CNDDDB. The overall survey results are summarized in Table 3. Occurrence data are found in Table 2 below, and occurrence locations are displayed in Figures 10-13. Map identification numbers (Map ID #) were assigned to each sub-population found and can be cross-walked between Table 2 and Figures 10-13.

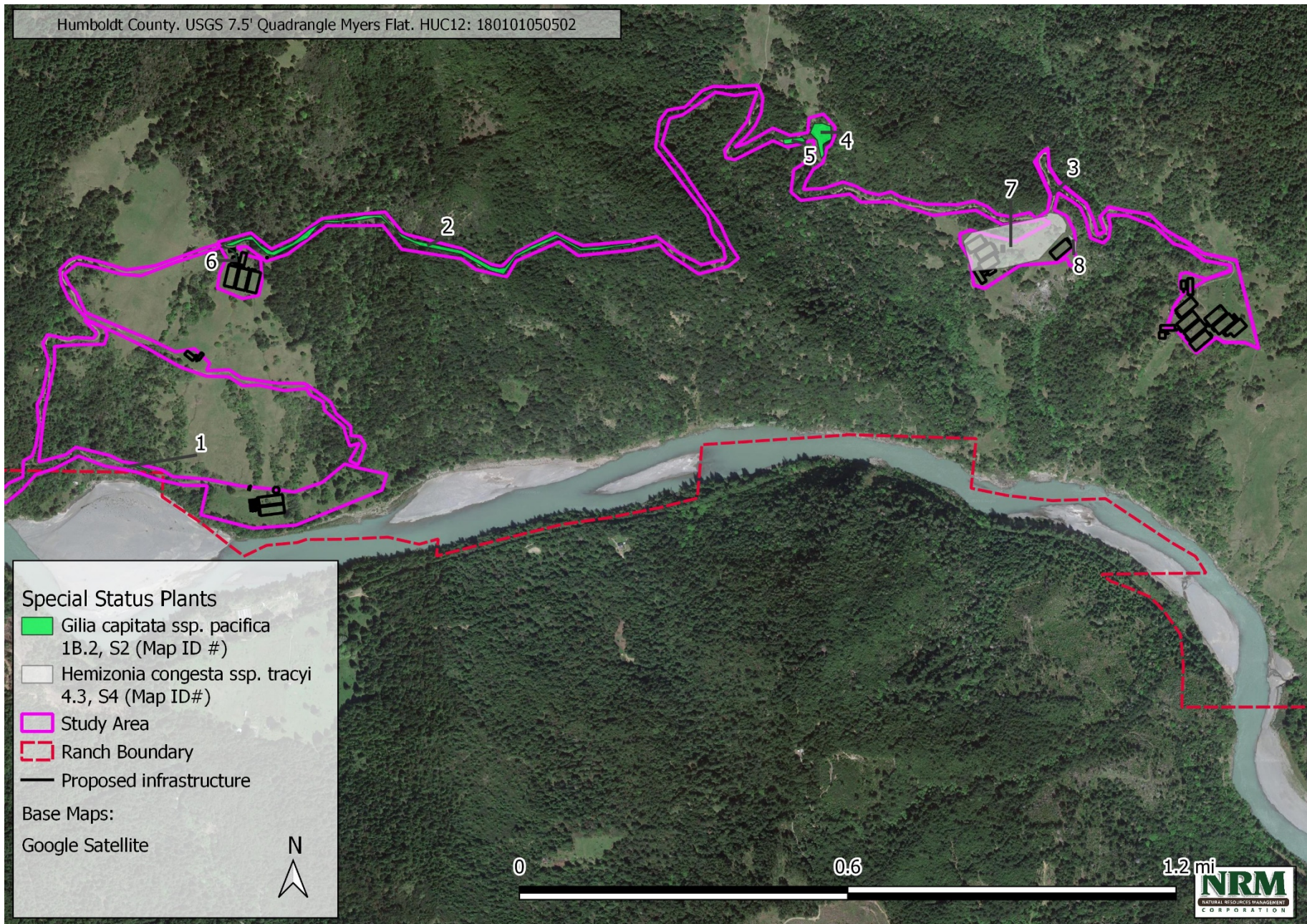


Figure 10. Special Status Plant Location Map: Overview. Current infrastructure layout.

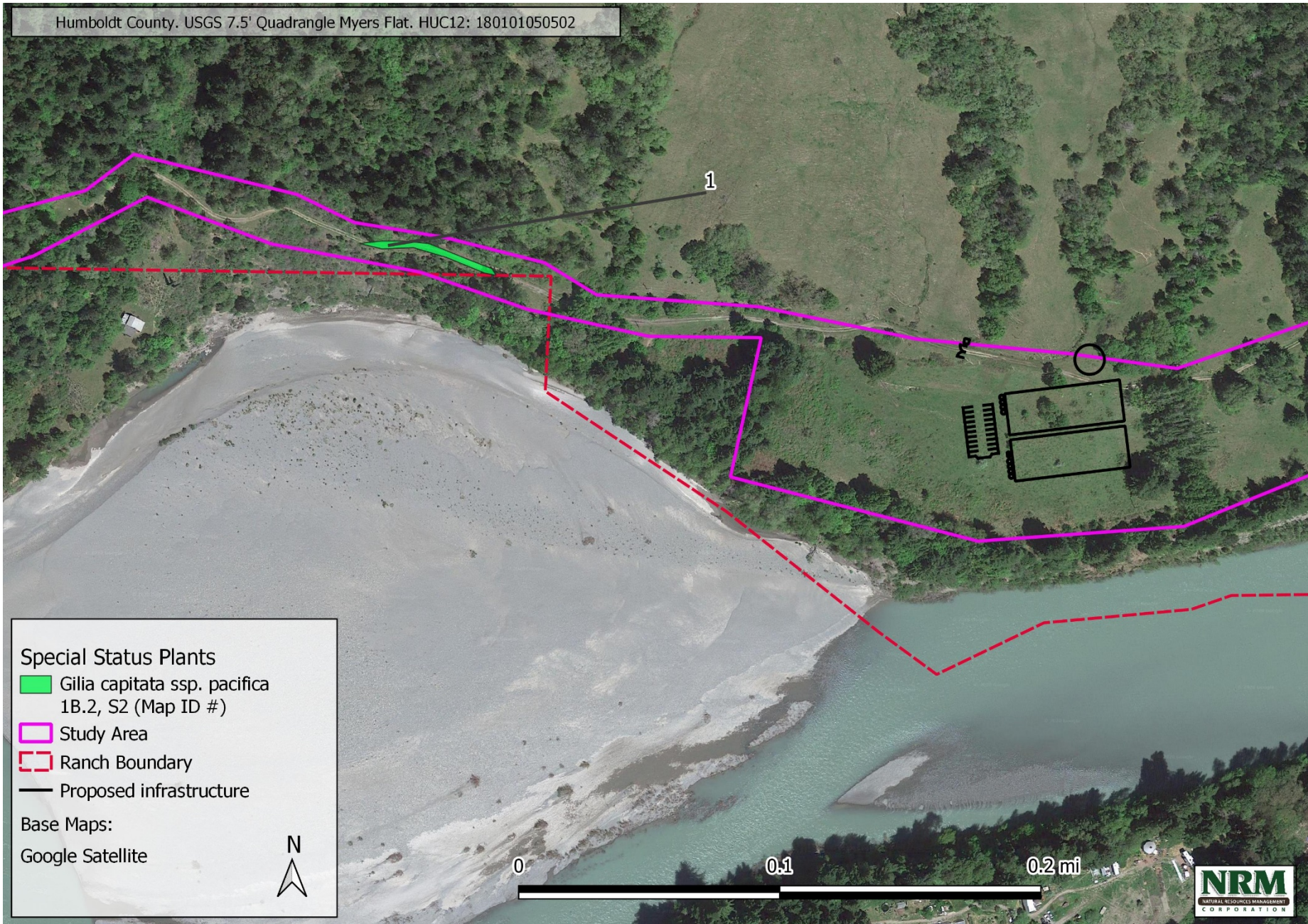


Figure 11. Special Status Plant Location Map 1 of 3

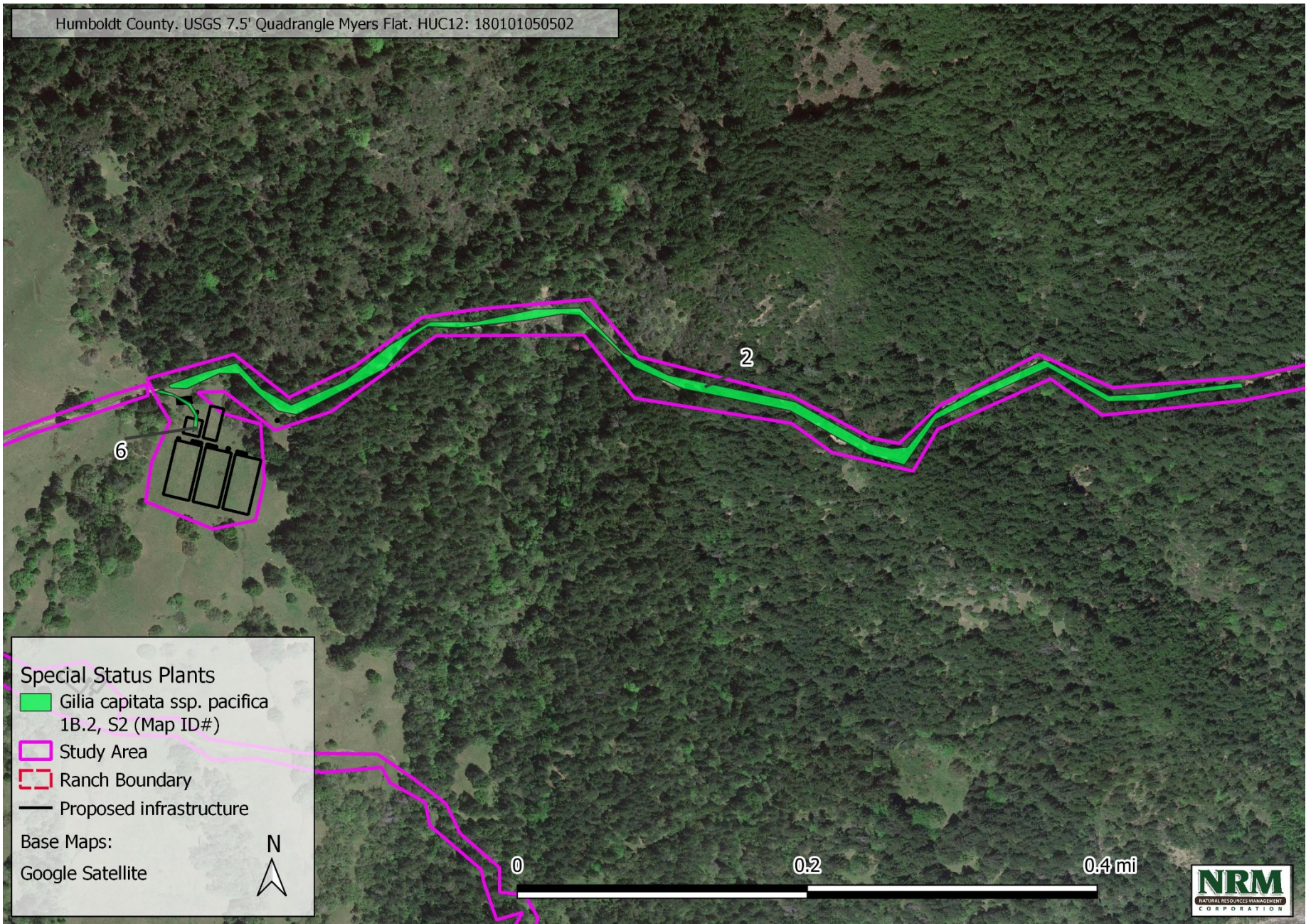


Figure 12. Special Status Plant Location Map 2 of 3

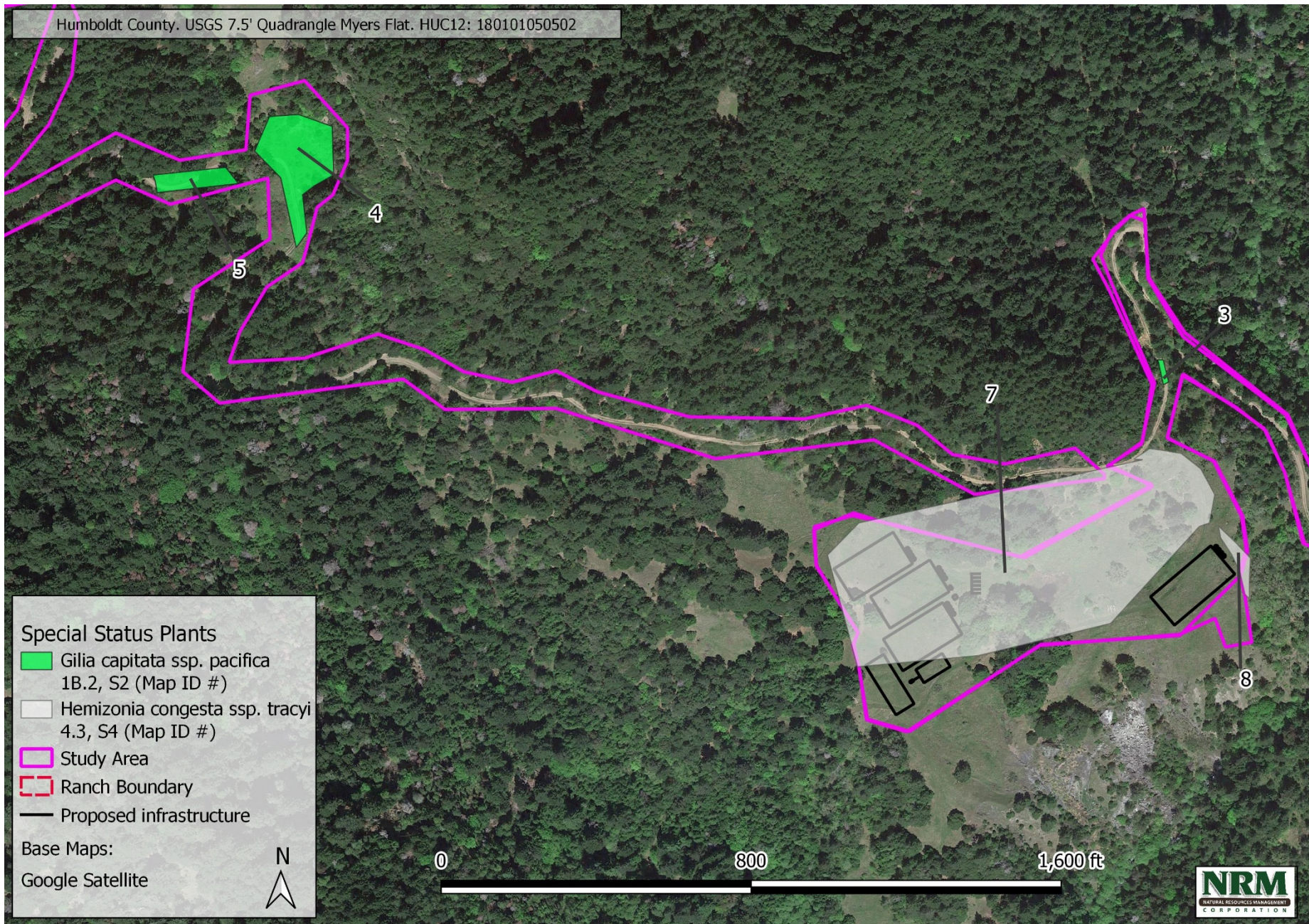


Figure 13. Special Status Plant Location Map 3 of 3

Table 2. Summary table of special status species identified during surveys. Map ID# corresponds with Figures 10-13

Map ID #	Date Mapped	Scientific Name	Common Name	CNPS Rank	Total Individuals	% Vegetative	% Flowering	% Fruiting	Location	HabitatDescription	Datum	Coordinates
1	6/16/2020	<i>Gilia capitata</i> ssp. <i>pacifica</i>	Pacific gilia	1B.2	45	0	30	70	In edge of recently rocked private ranch road, outside of driven tread.	Recently spread gravel along road through coastal prairie and mixed evergreen forest. Associates	NAD83	40.31907261, -123.80261845
2	6/16/2020	<i>Gilia capitata</i> ssp. <i>pacifica</i>	Pacific gilia	1B.2	50	0	30	70	In edge of recently rocked private ranch road, outside of driven tread.	Road through coastal prairie and mixed evergreen forest. Associates include <i>Toxicodendron diversilobum</i> , <i>Rubus leucodermis</i> , <i>Crepis capillaris</i> , <i>Hypocharis radicata</i> , <i>Prunella vulgaris</i>	NAD83	40.32560968, -123.79540107
3	6/16/2020	<i>Gilia capitata</i> ssp. <i>pacifica</i>	Pacific gilia	1B.2	14	0	30	70	In edge of recently rocked private ranch road, outside of driven tread.	Road through coastal prairie and mixed evergreen forest. Associates include <i>Toxicodendron diversilobum</i> , <i>Rubus leucodermis</i> , <i>Crepis capillaris</i> , <i>Hypocharis radicata</i> , <i>Prunella vulgaris</i>	NAD83	40.32657276, -123.77083294
7	6/16/2020	<i>Hemizonia congesta</i> ssp. <i>tracyi</i>	Tracys tarplant	4.3	50	0	100	0	Dispersed through a natural terrace, proposed Cannabis development site	Coastal prairie, associates <i>Stipa pulchra</i> , <i>Centaurea solstitialis</i> , <i>Holcus lanatus</i> , <i>Linum bienne</i>	NAD83	40.32538160, -123.77232505
4	6/16/2020	<i>Gilia capitata</i> ssp. <i>pacifica</i>	Pacific gilia	1B.2	1000	0	30	70	In edge of recently rocked private ranch road, outside of driven tread.	Road through coastal prairie and mixed evergreen forest. Associates include <i>Rubus armeniacus</i> , <i>Rubus leucodermis</i> ,	NAD83	40.32803881, -123.77886268

										Crepis capillaris, centaurea solstitialis, Plantago lanceolata		
5	6/16/2020	Gilia capitata ssp. pacifica	Pacific gilia	1B.2	15	0	30	70	Within rock quarry (borrow pit) and surrounding area, including upslope of road	Road through coastal prairie and mixed evergreen forest. Associates include Toxicodendron diversilobum, Rubus leucodermis, Crepis capillaris, Hypocharis radicata, Prunella vulgaris	NAD83	40.32786887, -123.77977860
6	6/25/2020	Gilia capitata ssp. pacifica	Pacific gilia	1B.2	20	0	30	70	Recently rocked dirt road accessing proposed Cannabis development site	Road through coastal prairie and mixed evergreen forest. Associates include Toxicodendron diversilobum, Rubus leucodermis, Crepis capillaris, Hypocharis radicata, Prunella vulgaris	NAD83	40.32482640, -123.79928031
8	6/25/2020	Hemizonia congesta ssp. tracyi	Tracys tarplant	4.3	300	0	100	0	Along treeline of edge of proposed Cannabis development site	Coastal prairie, associates Stipa pulchra, Centaurea solstitialis, Holcus lanatus, Linum bienne	NAD83	40.32526812, -123.77008958

Discussion

General

The timing and location of surveys reported here were decided in response to additions to project scope since 2018 and identification of habitat for specific target species. For example, “late season” surveys (to coincide with the bloom windows of some later blooming target species such as Pacific gilia and beaked tracyina) were conducted in the Facility 7,8, 8, 10 area, since it was added to the project layout in 2020. Early season, pre-construction surveys of that area will be needed. An additional survey of the Facility 11-16 area, specifically for Howell’s montia, was conducted in 2019, as it was determined to present likely habitat.

While great effort was made to detect target species, there is always the possibility of a false negative detection, due to odd or unpredictable phenology, lack of expression from a seedbank in a given year, herbivory, or a myriad of other factors. However, the climate over the study period was within normal parameters, and reference populations were checked for phenology (where possible) making the possibility of false negatives as low as possible.

Pacific gilia

Gilia capitata ssp. pacifica is an annual member of the vascular plant family Polemoniaceae. It is known from Humboldt, Mendocino, Del Norte, and Sonoma Counties in California (CNPS 2020a). It also occurs in Oregon (CNPS 2020a). The CNDDDB database contains 83 recorded occurrences (CNPS 2020a).

Gilia capitata ssp. pacifica has the California Rare Plant Rank of 1B.2. Plant species with a California Rare Plant Rank of 1B are considered by the CNPS Inventory of Rare and Endangered Plants to be “rare throughout their range” (CNPS 2020a). The Threat Rank of 0.2 indicates that this species is “Moderately threatened in California (20-80% occurrences threatened / moderate degree and immediacy of threat) (CNPS 2020a). Plants with a CRPR of 2B meet the definition of rare or endangered under CEQA Guidelines section 15380 subdivisions (b) and (d) (CDFW 2018d). *Gilia capitata ssp. pacifica* is given a State Rank of S2, “Imperiled.” (CNPS 2020a)

Gilia capitata ssp. pacifica is primarily distinguished from other *Gilia capitata* subspecies by its violet-colored calyx sinus membranes (Photo 2). Other distinguishing traits include the width of the petals (1-2 mm) and that the fruits are more or less included within the calyx (Baldwin et. al 2012). The population reported here exhibited an interesting characteristic. An estimated 50 percent of individuals investigated **did not** exhibit the characteristic violet color in the calyx membranes. These colorless-membraned individuals were fully intermingled with violet-membraned individuals. They also matched the other *G. capitata ssp. pacifica* traits listed above. We do not offer any hypothesis here as to what this means for the genetics or taxonomy of this population.

During field surveys in June of 2020, we found small populations of Pacific gilia distributed along some portions of the gravel access roads, and a large population with an estimated between 1,000 individuals growing in a rock quarry (borrow pit) beside the road (Map ID #4, figures 10 and 13). A small number of individuals (approximately 20) were found on the access road to the Facility 4, 5 and 6 development sites. The roadside populations were almost entirely restricted to the road edges, outside the driven road tread.

These findings are interesting, because some of the same areas were surveyed in 2018, yet no Pacific gilia were found. This could have been due to a mismatch of plant phenology and survey timing, but both the early and late season surveys should have captured some portion of the vegetative, bloom or fruiting period of that species. The proposed development areas were each checked for Pacific gilia during June 2020 surveys once our first detection was made. Communication with the property owner revealed that all areas where we found Pacific gilia were rocked in late summer of 2019 with gravel extracted from the rock quarry where the biggest population was found.

Given that the distribution of Pacific gilia over the Study Area was restricted to regions of access road which had been rocked in 2019, and that the largest population was found in the quarry supplying that rock, we conclude that roadwork in 2020 utilizing gravel from the quarry likely resulted in distributing Pacific gilia to its current extent over the Study Area.

Pacific gilia: Potential Impacts

Pacific gilia is an annual plant, growing each year from the seed set of the previous year or a seed bank from previous years. It is frequently found in portions of prairies and roadsides where soils are thin and rocky, indicating that it does not flourish in competition with thick vegetation.

Given Pacific gilia's status (CRPR1B.2, S2), any potential impacts to any population should be considered for significance.

The project does not propose to significantly regrade or alter any area where the Pacific gilia was found in 2020, except the short road to Facilities 4, 5 and 6. We do not expect that normal use of the access road would reduce the populations along the roadsides, as they plants were mostly found outside the driven road tread. We would not expect them to expand into the road tread under normal use, but they could expand along the edge habitat as years go on. Use of the road will prevent encroachment by other vegetation, potentially keeping habitat open for the Pacific gilia.

However, if road grading, rocking or other maintenance were to occur these populations could be entirely wiped out, causing impacts. This would be especially likely if maintenance occurred during the portion of the growing season before seed set (before August). Use of the rock quarry where the largest population is found could have similar impacts. However, if these activities took place after seed set (in August), as they did in 2019, they could potentially help maintain or even further expand the Pacific gilia populations, resulting in negligible or no impacts.

The rock quarry presents a more puzzling picture. If rock continues to be removed from that location over the long term, it could eventually result in the total removal of the Pacific gilia seed bank, a significant impact. However, a moderate level of use could potentially benefit the population by keeping exposed soil habitat open and spreading the seeds to new locations.

It is unlikely that the small extent of the population within the Facility 4,5,6 footprint (20 individuals out of over 1,000) would survive the development proposed there. However, this portion of the overall population in the area is insignificant and would not cause significant impacts.

In conclusion, the potential for significant impacts is largely dependent on the timing of scheduled road maintenance and timing, frequency, and extent of use of rock from the quarry.

Pacific gilia: Management Recommendations

To avoid impacts to Pacific gilia, all road maintenance shall occur after August 15th and before October 15th. Additionally, all extraction of rock from the rock quarry (Map ID #4, Figures 10 and 13) shall occur after August 15th and before October 15th and occur no more frequently than every two (2) years (i.e. allowing two years between extraction events). A different rock quarry site shall be identified to meet additional needs.

The effects of the above listed management recommendations shall be monitored by a qualified botanist for a period of five (5) years following project implementation. Additionally, monitoring will occur every two (2) years following any rock extraction, within a period of ten (10) years following project implementation. Monitoring shall entail annual inventory and mapping of the extent of the Pacific gilia population on roads accessing project areas and within the rock quarry area. A monitoring report shall be submitted to CDFW annually within the above described monitoring period. Monitoring results shall be used in an adaptive management process aimed at maintaining the Pacific gilia population.

For instance, if it appears that rock extraction is negatively impacting the population, a different plan shall be developed and implemented.

Tracy's tarplant

Hemizonia congesta ssp. tracyi is an annual member of the plant family Asteraceae. It is known from Humboldt, Mendocino, and Trinity counties, and is a California endemic (CNPS 2020a). CNDDDB does not report the number of known occurrences, but the Calflora database reports 96 records, with the occurrence reported here falling near the center of its distribution (Calflora 2020). However, most of these records are from before 1990.

Hemizonia congesta ssp. tracyi has the California Rare Plant Rank (California Rare Plant Rank) of 4.3. Plant species with a California Rare Plant Rank of 4 are considered by the CNPS Inventory of Rare and Endangered Plants to be “of limited distribution or infrequent throughout a broader area in California” (CNPS 2019a). The Threat Rank of 0.3 indicates that this species is “-not very threatened in California (less than 20% of occurrences threatened / low degree and immediacy of threat or no current threats known)” (CNPS 2019a). Plants with a CRPR of 4 sometimes meet the definition of rare or endangered under CEQA Guidelines section 15380 subdivisions (b) and (d), and “Impacts to CRPR 4 plants may warrant consideration under CEQA if cumulative impacts to such plants are significant enough to affect their overall rarity” (CDFW 2018d). *Hemizonia congesta ssp. tracyi* is given a State Rank of S4: “Apparently secure within California” (CNPS 2020a).

Tracy's tarplant is distinguished from other *Hemizonia congesta* subspecies by the “heads generally terminating elongate side branches of flowering stems or ± sessile in tight groups; ray white or yellow, purple-veined abaxially or not” and “Leaves generally puberulent or minutely bristly or strigose and nonglandular, distal rarely long-soft-hairy and glandular; ray white, not purple-veined abaxially except NCo; heads in panicle-like cluster” (Baldwin et.al 2012).

We found one population of approximately 350 hundred individuals within and around the Facility 7,8,9,10 site (Figures 10 and 13). Plants were found scattered and in patches along the existing dirt access roads, and across the grassy terraces proposed for grading. However, the densest sub-population was located slightly downslope from the proposed Facility 10 project footprint, against the tree line. See Figures 10 and 13. We estimated approximately 50 plants scattered throughout the site, and an additional approximately 300 in the lower area against the tree line.

Tracy's tarplant: Potential Impacts and Avoidance Recommendations

Tracy's tarplant is an annual plant, growing each year from the seed set of the previous year or a seed bank from previous years.

The proposed development would impact much of the area where we found Tracy's tarplant to occur. However, local impacts to this population are difficult to predict without a grading plan indicating the full extent of the project disturbance footprint. According to the available proposed project layout, most of the dense patch by the tree line would likely be avoided.

While avoidance is generally recommended for CRPR 4 plants, strict mitigation is only required if the taxa *does* meet the definition of rare or endangered under CEQA Guidelines section 15380 subdivisions (b) and (d). A 2020 Technical memorandum published by the CNPS Rare Plant Program (CNPS 2020c) offers guidance on determining whether a CRPR taxa does or does not meet that definition.

This population is at the center of the species' known distribution in California (Calflora 2020) and is therefore not within a peripheral portion of the known range, and the substrate on which it is found is not an unusual one. However, most of

the records from CCH and the Calflora database are quite old, most being from before 1990 and many from before 1950. It is therefore difficult to know whether this species is still widely distributed within its range or is in decline. It is therefore difficult to say whether it meets the definition of rare or endangered.

Furthermore, while find no direct evidence that potential impacts (to this population) from project activity would affect the overall rarity or distribution of this CRPR 4.3 species, we also have no strong evidence that they would not.

Therefore, we recommend that the densest portion of the Tracy's tarplant population, the patch largely outside the project footprint (Figure 13, Table 2) , be protected during construction by the placement of construction fencing at the periphery, to keep equipment operators out of the area.

Sensitive Natural Communities

Results and Discussion

Pseudotsuga menziesii - *Notholithocarpus densiflorus* Forest Alliance (S4) and the *Sequoia sempervirens* Forest Alliance (S3.2) are found in the vicinity of the project area. The proposed construction footprint does not directly impact these communities, as they are located within prairies dominated by grass and forbs. These communities were therefore not mapped for the purpose of this report.

Two small (less than 1 acre) stands of the *Nassella* spp. – *Melica* spp. Alliance: *Nassella pulchra* (*Stipa pulchra*) association (S4, association code 41.150.04). were identified within the Facility 7, 8, 9,10 area. Natural communities with an S4 rank do not warrant impacts consideration under CEQA and are not mapped here (CDFW 2018b).

See the previous 2018 botanical report (NRM 2018) for further discussion of Sensitive Natural Communities.

Additional Interesting Survey Results

We found an interesting and unusual plant in the wetland surrounding the seasonal pond in the facility 7,8,9,10 area (Photo 8). The identification is tentative, as no flowering structures were found, but vegetative parts identify the plant as potentially being *Hydrocotyle verticillata*. This finding is interesting because Calflora and the Consortium of California Herbarium (CCH) returns no record of this plant in Humboldt County (Calflora 2020, CCH 2020). We recorded this plant as *Hydrocotyle c.f. verticillata* in the plant list in Appendix B. See Photos 11 and 12.

Table 3. Summary of botanical survey results (Table Data: CNPS 2020a)

Scientific Name	Common Name	CRPR	GRank	SRank	CESA	FESA	Blooming Period	Habitat	Elevation Low (ft)	Elevation High (ft)	Habitat Present in Study Area?	Species Detected?
<i>Astragalus agnicidus</i>	Humboldt County milk-vetch	1B.1	G2	S2	CE	None	Apr-Sep	Broadleaved upland forest, North Coast coniferous forest	390	2625	Yes- Habitat present along roadsides	No
<i>Carex arcta</i>	northern clustered sedge	2B.2	G5	S1	None	None	Jun-Sep	Bogs and fens, North Coast coniferous forest (mesic)	195	4595	No	No
<i>Castilleja ambigua</i> <i>var. ambigua</i>	johnny-nip	4.2	G4T4	S3S4	None	None	Mar-Aug	Coastal bluff scrub, Coastal prairie, Coastal scrub, Marshes and swamps, Valley and foothill grassland, Vernal pools margins	0	1425	No	No
<i>Coptis laciniata</i>	Oregon goldthread	4.2	G4?	S3?	None	None	(Feb)Mar-May(Sep-Nov)	Meadows and seeps, North Coast coniferous forest (streambanks)	0	3280	Marginal-possible along roadsides, and forest edge	No
<i>Cypripedium fasciculatum</i>	clustered lady's-slipper	4.2	G4	S4	None	None	Mar-Aug	Lower montane coniferous forest, North Coast coniferous forest	325	7990	No	No

<i>Epilobium septentrionale</i>	Humboldt County fuchsia	4.3	G4	S4	None	None	Jul-Sep	Broadleaved upland forest, North Coast coniferous forest	145	5905	No	No
<i>Erigeron biolettii</i>	streamside daisy	3	G3?	S3?	None	None	Jun-Oct	Broadleaved upland forest, Cismontane woodland, North Coast coniferous forest	95	3610	Marginal-possible along roadsides	No
<i>Erigeron robustior</i>	robust daisy	4.3	G3	S3	None	None	Jun-Jul	Lower montane coniferous forest, Meadows and seeps	655	2000	Marginal-possible along roadsides, in prairie edges	No
<i>Erythronium oregonum</i>	giant fawn lily	2B.2	G4G5	S2	None	None	Mar-Jun(Jul)	Cismontane woodland, Meadows and seeps	325	3775	Marginal-possible along roadsides, and forest edge	No
<i>Erythronium revolutum</i>	coast fawn lily	2B.2	G4G5	S3	None	None	Mar-Jul(Aug)	Bogs and fens, Broadleaved upland forest, North Coast coniferous forest	0	5250	Marginal-possible along roadsides, and forest edge	No
<i>Fritillaria purdyi</i>	Purdy's fritillary	4.3	G4	S4	None	None	Mar-Jun	Chaparral, Cismontane woodland, Lower montane coniferous forest	570	7400	No- Project area is open prairie on sedimentary soils	No

<i>Gilia capitata ssp. pacifica</i>	Pacific gilia	1B.2	G5T3	S2	None	None	Apr-Aug	Coastal bluff scrub, Chaparral (openings), Coastal prairie, Valley and foothill grassland	15	5465	Yes- Habitat present along roadsides, in open prairie and forest edge	Yes
<i>Hemizonia congesta ssp. tracyi</i>	Tracy's tarplant	4.3	G5T4	S4	None	None	May-Oct	Coastal prairie, Lower montane coniferous forest, North Coast coniferous forest	390	3935	Yes- habitat present along roadsides, in open prairie and forest edge	Yes
<i>Howellia aquatilis</i>	water howellia	2B.2	G3	S2	None	FT	Jun	Marshes and swamps (freshwater)	3555	4230	No -project area lower elevation than usually found, no perennial wetland in Study Area	No
<i>Kopsiopsis hookeri</i>	small groundcone	2B.3	G4?	S1S2	None	None	Apr-Aug	North Coast coniferous forest	295	2905	No- project area in open prairie	No
<i>Lathyrus glandulosus</i>	sticky pea	4.3	G3	S3	None	None	Apr-Jun	Cismontane woodland	980	2625	Yes- Possible along roadsides	No
<i>Leptosiphon acicularis</i>	bristly leptosiphon	4.2	G4?	S4?	None	None	Apr-Jul	Chaparral, Cismontane woodland, Coastal prairie, Valley and foothill grassland	180	4920	Yes- habitat present along roadsides, in open prairie and forest edge	No

<i>Leptosiphon latisectus</i>	broad-lobed leptosiphon	4.3	G4	S4	None	None	Apr-Jun	Broadleaved upland forest, Cismontane woodland	555	4920	Yes- habitat present along roadsides, in open prairie and forest edge	No
<i>Lilium kelloggii</i>	Kellogg's lily	4.3	G3	S3	None	None	May-Aug	Lower montane coniferous forest, North Coast coniferous forest	5	4265	Yes- habitat present along roadsides, and forest edge	No
<i>Lilium rubescens</i>	redwood lily	4.2	G3	S3	None	None	Apr-Aug(Sep)	Broadleaved upland forest, Chaparral, Lower montane coniferous forest, North Coast coniferous forest, Upper montane coniferous forest	95	6265	Yes- habitat present along roadsides, and forest edge	No
<i>Lilium washingtonianum ssp. purpurascens</i>	purple-flowered Washington lily	4.3	G4T4	S3S4	None	None	Jun-Aug	Chaparral, Lower montane coniferous forest, Upper montane coniferous forest	225	9020	Yes- habitat present along roadsides, and forest edge	No
<i>Listera cordata</i>	heart-leaved twayblade	4.2	G5	S4	None	None	Feb-Jul	Bogs and fens, Lower montane coniferous forest, North Coast coniferous forest	15	4495	Marginal-possible along roadsides, and forest edge	No

<i>Lycopodium clavatum</i>	running-pine	4.1	G5	S3	None	None	Jun- Aug(Sep)	Lower montane coniferous forest (mesic), Marshes and swamps, North Coast coniferous forest (mesic)	145	4020	Yes- possible along roadsides, and forest edge	No
<i>Lycopus uniflorus</i>	northern bugleweed	4.3	G5	S4	None	None	Jul-Sep	Bogs and fens, Marshes and swamps	15	6560	No- No perennial wetland in Study Area	No
<i>Meesia triquetra</i>	three-ranked hump moss	4.2	G5	S4	None	None	Jul	Bogs and fens, Meadows and seeps, Subalpine coniferous forest, Upper montane coniferous forest (mesic)	4265	9690	No- usually found at much higher elevations	No
<i>Mitellastracaulescens</i>	leafy-stemmed mitrewort	4.2	G5	S4	None	None	(Mar)Apr- Oct	Broadleafed upland forest, Lower montane coniferous forest, Meadows and seeps, North Coast coniferous forest	15	5575	Marginal-possible along roadsides near creek crossings	No
<i>Montia howellii</i>	Howell's montia	2B.2	G3G4	S2	None	None	(Jan-Feb) Mar-May	Meadows and seeps, North Coast coniferous forest, Vernal pools	0	2740	Yes- Possible in road cuts and old graded areas with low vegetative cover	No

<i>Navarretia leucocephala</i> ssp. <i>bakeri</i>	Baker's navarretia	1B.1	G4T2	S2	None	None	Apr-Jul	Cismontane woodland, Lower montane coniferous forest, Meadows and seeps, Valley and foothill grassland, Vernal pools	15	5710	Marginal-technically possible is vernal wet areas but very unlikely	No
<i>Packera bolanderi</i> var. <i>bolanderi</i>	seacoast ragwort	2B.2	G4T4	S2S3	None	None	(Jan-Apr) May-Jul(Aug)	Coastal scrub, North Coast coniferous forest	95	2135	Marginal-possible along roadsides in forested areas	No
<i>Piperia candida</i>	white-flowered rein orchid	1B.2	G3	S3	None	None	(Mar)May-Sep	Broadleafed upland forest, Lower montane coniferous forest, North Coast coniferous forest	95	4300	Marginal-possible along roadsides in forested areas	No
<i>Pityopus californicus</i>	California pinefoot	4.2	G4G5	S4	None	None	(Mar-Apr) May-Aug	Broadleafed upland forest, Lower montane coniferous forest, North Coast coniferous forest, Upper montane coniferous forest	45	7300	Marginal-possible along roadsides in forested areas	No

<i>Pleuropogon refractus</i>	nodding semaphore grass	4.2	G4	S4	None	None	(Mar)Apr-Aug	Lower montane coniferous forest, Meadows and seeps, North Coast coniferous forest, Riparian forest	0	5250	Marginal-possible along roadsides in forested areas or in wetter portions of prairies	No
<i>Ribes roezlii var. amictum</i>	hoary gooseberry	4.3	G5T4	S4	None	None	Mar-Apr	Broadleafed upland forest, Cismontane woodland, Lower montane coniferous forest, Upper montane coniferous forest	390	7545	Yes- possible in shrub thickets within prairies, forest edge, along roads	No
<i>Sanicula tracyi</i>	Tracy's sanicle	4.2	G4	S4	None	None	Apr-Jul	Cismontane woodland, Lower montane coniferous forest, Upper montane coniferous forest	325	5200	Yes- possible along roadsides and in prairies	No
<i>Sidalcea malachroides</i>	maple-leaved checkerbloom	4.2	G3	S3	None	None	(Mar)Apr-Aug	Broadleafed upland forest, Coastal prairie, Coastal scrub, North Coast coniferous forest, Riparian woodland	0	2395	Yes- possible along roadsides and in prairies	No
<i>Sidalcea malviflora ssp. patula</i>	Siskiyou checkerbloom	1B.2	G5T2	S2	None	None	(Apr)May-Aug	Coastal bluff scrub, Coastal prairie, North	45	2885	Yes- possible along roadsides and in prairies	No

								Coast coniferous forest				
<i>Tracyina rostrata</i>	beaked tracyina	1B.2	G2	S2	None	None	May-Jun	Chaparral, Cismontane woodland, Valley and foothill grassland	295	2590	Yes- possible in prairies	No
<i>Usnea longissima</i>	Methuselah's beard lichen	4.2	G4	S4	None	None		Broadleafed upland forest, North Coast coniferous forest	160	4790	Marginal-possible in forests along roads	No
<i>Wyethia longicaulis</i>	Humboldt County wyethia	4.3	G4	S4	None	None	May-Jul	Broadleafed upland forest, Coastal prairie, Lower montane coniferous forest	2460	5005	Yes- possible along roadsides and in prairies	No

*Listing codes are as follows (CNPS 2020a): California Rare Plant Rank (CRPR) 1B = rare, threatened, or endangered in CA and elsewhere; 2B = rare, threatened, or endangered in CA, but more common elsewhere; 3 = plants about which more information is needed; a review list; 4 = of limited distribution or infrequent throughout a broader area in California. Ranks at each level also include a threat rank and are determined as follows: 0.1-Seriously threatened in California; 0.2-Moderately threatened in California; 0.3-Not very threatened in California. Global Ranking (GRank) - The global rank (G-rank) is a reflection of the overall condition of an element throughout its global range: G1 = Less than 6 viable element occurrences (EOs) OR less than 1,000 individuals OR less than 2,000 acres; G2 = 6-20 EOs OR 1,000-3,000 individuals OR 2,000-10,000 acres; G3 = 21-80 EOs OR 3,000-10,000 individuals OR 10,000-50,000 acres; G4 = Apparently secure; this rank is clearly lower than G3 but factors exist to cause some concern; i.e., there is some threat, or somewhat narrow habitat; G5 = Population or stand demonstrably secure to ineradicable due to being commonly found in the world. State Rank (SRank) The state rank (S-rank) is assigned much the same way as the global rank, except state ranks in California often also contain a threat designation attached to the S-rank: S1: Fewer than 6 viable occurrences worldwide/ statewide, and/ or up to 518 hectares; S2: 6-20 viable occurrences worldwide/ statewide, and/ or more than 518-2,590 hectares; S3: 21-100 viable occurrences worldwide/ statewide, and/or more than 2,590-12,950 hectares; S4: Greater than 100 viable occurrences worldwide/ statewide, and/or more than 12,950 hectares; S5: Demonstrably secure because of its worldwide/ statewide abundance. Additional Threat Ranks: 0.1=Very threatened; 0.2=Threatened; 0.3= No current threat known. CESA: California Endangered Species Act: CR: state-listed (NPPA) RARE; CE = state-listed ENDANGERED; FESA: Federal Endangered Species Act: FE = federally listed ENDANGERED

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Appendix A: Photos taken June, 2020



Photo 1. Pacific gilia



Photo 2. Close up of violet-colored calyx sinus membrane in Pacific gilia



Photo 3. Habitat of Pacific gilia in southwestern portion of Study Area



Photo 4. Pacific gilia habitat in rock quarry by access road



Photo 5. Pacific gilia flagged in the field



Photo 6. Looking west over site of Facility 10



Photo 7. Looking north over site of Facility 10.



Photo 8. Looking southeast over seasonal pond and wetland between the sites of Facility 10 and Facilities 7,8,9.



Photo 9. Looking west over the site of Facilities 7,8,9.



Photo 10. Looking south over the site of Facilities 7,8,9.

Photo 12. *Hydrocotyle* c.f. *verticillata*



Photo 11. *Hydrocotyle* c.f. *verticillata*



Appendix B. Floristic Plant List

FAMILY	SPECIES NAME	COMMON NAME	LIFEFORM
AGAVACEAE	<i>Chlorogalum pomeridianum</i> var. <i>pomeridianum</i>	Common soaproot	Perennial herb
AMARYLLIDACEAE	<i>Amaryllis belladonna</i>	Pink naked ladies	Herbaceous
ANACARDIACEAE	<i>Toxicodendron diversilobum</i>	Poison oak	Shrub
APIACEAE	<i>Daucus carota</i>	Wild carrot	Herbaceous
	<i>Daucus pusillus</i>	rattlesnake weed	Herbaceous
	<i>Foeniculum vulgare</i>	Fennel	Herbaceous
	<i>Osmorhiza berteroi</i>	Sweet cicily	Herbaceous
	<i>Sanicula bipinnatifida</i>	Purple sanicle	Perennial herb
	<i>Sanicula crassicaulis</i>	Pacific sanicle	Herbaceous
	<i>Torilis arvensis</i>	Hedge parsley	Herbaceous
ARALIACEAE	<i>Hydrocotyle</i> c.f. <i>verticillata</i>	Whorled Marsh pennywort	Perennial herb
ASPARAGACEAE	<i>Chlorogalum pomeridianum</i>	Soap plant	Herbaceous
ASPHODELACEAE	<i>Kniphofia uvaria</i>	Red hot poker	Shrub
ASTERACEAE		Italian thistle	Herbaceous
	<i>Carduus pycnocephalus</i>		
	<i>Agoseris</i> sp.	Dandelion	Herbaceous
	<i>Ansiocarpus madiodes</i>	Woodland Tarweed	Herbaceous
	<i>Baccharis pilularis</i> ssp. <i>pilularis</i>	Coyote brush	Shrub
	<i>Baccharis pilularis</i>	Coyote brush	Shrub
	<i>Carduus pycnocephalus</i>	Italian thistle	Annual herb
	<i>Centaurea solstitialis</i>	Yellow star thistle	Herbaceous
	<i>Cichorium intybus</i>	Chicory	Herbaceous
	<i>Cirsium vulgare</i>	Bull thistle	Herbaceous
	<i>Crepis capillaris</i>	Hawks beard	Herbaceous
	<i>Helminthotheca echioides</i>	Bristly ox-tongue	Annual, Perennial herb
	<i>Hemizonia congesta</i> ssp. <i>tracyi</i>	Tracy's tarplant	Annual herb
	<i>Hypochaeris glabra</i>	Smooth cats ear	Annual herb
	<i>Hypochaeris radicata</i>	Cat's ear	Herbaceous
	<i>Lactuca saligna</i>	Willow lettuce	Annual herb
	<i>Lactuca virilis</i>	Bitter lettuce	Herbaceous
	<i>Lactuca virosa</i>	Bitter lettuce	Herbaceous
	<i>Leucanthemum vulgare</i>	Oxeye daisy	Herbaceous
	<i>Logfia filaginoides</i>	california cottonrose	Herbaceous
	<i>Logfia gallica</i>	Narrowleaf cottonrose	Herbaceous
	<i>Madia exigua</i>	Small tarweed	Herbaceous
	<i>Madia gracilis</i>	Grassy tarweed	Herbaceous
	<i>Silybum marianum</i>	Milk thistle	Herbaceous
	<i>Sonchus asper</i>	Spiny sowthistle	Annual herb
	<i>Sonchus asper</i> ssp. <i>asper</i>	Spiny sow's thistle	Herbaceous

	<i>Sonchus oleraceus</i>	Sow's thistle	Herbaceous
BETULACEA	<i>Alnus rubra</i>	Red alder	Tree
CAPRIFOLIACEAE	<i>Lonicera hispidula</i>	Pink honeysuckle	Herbaceous
CARYOPHYLLACEAE	<i>Scleranthus annuus ssp. annuus</i>	German knotgrass	Annual herb
	<i>Silene gallica</i>	Common catchfly	Annual herb
	<i>Spergularia rubra</i>	Purple sand spurry	Herbaceous
CONVOLVULACEAE	<i>Convolvulus arvensis</i>	Bindweed	Herbaceous
CRASSULACEAE	<i>Sedum c.f laxum</i>	Rose flowered stonecrop	Perennial herb
CUPRESSACEAE	<i>Sequoia sempervirens</i>	Coast redwood	Tree
CYPERACEAE	<i>Carex barbarae</i>	Valley sedge	Grasses and Graminoids
	<i>Carex gynodynama</i>	Wonder woman sedge	Grasses and Graminoids
	<i>Carex tumulicola</i>	Split awn sedge	Perennial grasslike herb
	<i>Cyperus eragrostis</i>	Tall Flat Sedge	Herbaceous
	<i>Eleocharis palustris</i>	Common spikerush	Perennial grasslike herb
DENNSTAEDTIACEAE	<i>Pteridium aquilinum var. pubescens</i>	Western bracken fern	Ferns and Allies
DIPSACACEAE	<i>Dipsacus fullonum</i>	Teasel	Herbaceous
DRYOPTERIDACEAE	<i>Dryopteris sp.</i>	Wood fern	Fern
	<i>Polystichum munitum</i>	Sword fern	Ferns and Allies
EQUISETACEAE	<i>Equisetum laevigatum</i>	Smooth scouring rush	Fern
ERICACEAE	<i>Arbutus menziesii</i>	Madrone	Tree
	<i>Gaultheria shallon</i>	Salal	Shrub
EUPHORBIACEAE	<i>Croton setiger</i>	Turkey-mullein	Annual herb
FABACEAE	<i>Acmispon americanus</i>	American bird's foot trefoil	Annual herb
FABACEAE	<i>Acmispon americanus var. americanus</i>	American lotus	Herbaceous
	<i>Acmispon parviflorus</i>	Hill lotus	Herbaceous
	<i>Genista monspessulana</i>	French broom	Shrub
	<i>Medicago polymorpha</i>	Medic	Herbaceous
	<i>Trifolium dubium</i>	Shamrock clover	Herbaceous
	<i>Trifolium hirtum</i>	Rose clover	Herbaceous
	<i>Trifolium hybridum</i>	Aslike clover	Herbaceous
	<i>Trifolium repens</i>	White clover	Herbaceous
	<i>Vicia sativa ssp. nigra</i>	Smaller common vetch	Annual herb, Vine
	<i>Vicia sativa subsp. nigra</i>	Common vetch	Herbaceous
FAGACEAE	<i>Notholithocarpus densiflorus var. densiflorus</i>	Tanoak	Tree
	<i>Quercus garryana</i>	Oregon Oak	Tree
	<i>Quercus kelloggii</i>	Black oak	Tree
GENTIANACEAE	<i>Centaurium tenuiflorum</i>	Slender centaury	Annual herb
GENTIANACEAE	<i>Zeltnera muehlenbergii</i>	Centaury	Herbaceous

GERANIACEAE	<i>Erodium botrys</i>	Broad leaved filaree	Herbaceous
	<i>Geranium dissectum</i>	Cut leaved geranium	Herbaceous
GROSSULARIACEAE	<i>Ribes menziesii</i>	Gooseberry	Shrub
	<i>Ribes roezlii</i> var. <i>cruentum</i>	Spiny fruited gooseberry	Shrub
	<i>Ribes roezlii</i> var. <i>roezlii</i>	Sierra gooseberry	Shrub
HYDRANGEACEAE	<i>Whipplea modesta</i>	Modesty	Herbaceous
HYPERICACEAE	<i>Hypericum calycinum</i>	Aaron's beard	Shrub
	<i>Hypericum perforatum</i> ssp. <i>perforatum</i>	Klamathweed	Perennial herb
IRIDACEAE	<i>Iris douglasiana</i>	Douglas iris	Herbaceous
	<i>Iris germanica</i>	Bearded Iris	Herbaceous
	<i>Iris purdyi</i>	Purdy's iris	Perennial herb
IRIDACEAE	<i>Sisyrinchium bellum</i>	Blue-eyes grass	Herbaceous
	<i>Juncus bufonius</i> var. <i>bufonius</i>	Toad rush	Grasses and Graminoids
JUNCACEAE	<i>Juncus effuses</i> ssp. <i>pacificus</i>	Common rush	Grasses and Graminoids
	<i>Juncus occidentalis</i>	Slender juncus	Perennial grasslike herb
	<i>Juncus patens</i>	Grey rush	Grasses and Graminoids
	<i>Luzula comosa</i>	Common wood rush	Grasses and Graminoids
LAMIACEAE	<i>Mentha pulegium</i>	Pennyroyal	Herbaceous
	<i>Monardella villosa</i>	Coyote mint	Perennial herb
	<i>Prunella vulgaris</i> ssp. <i>lanceolata</i>	Self-heal	Herbaceous
	<i>Prunella vulgaris</i> ssp. <i>vulgaris</i>	Self-heal	Herbaceous
	<i>Scutellaria antirrhinoides</i>	Snapdragon skullcap	Perennial herb
	<i>Stachys rigida</i> var. <i>quercetorum</i>	Rough hedgenettle	Herbaceous
	<i>Trichostema</i> sp.	Vinegarweed	Annual herb
LAURACEAE	<i>Umbellularia californica</i>	California bay laurel	Tree
LINACEAE	<i>Linum bienne</i>	Pale flax	Herbaceous
LYTHRACEAE	<i>Lythrum hyssopifolia</i>	Hyssop loosestrife	Herbaceous
MONTIACEAE	<i>Claytonia perfoliata</i> ssp. <i>perfoliata</i>	Miner's lettuce	Herbaceous
MYRSINACEAE	<i>Lysimachia arvensis</i>	Scarlet pimpernel	Annual herb
ONAGRACEAE	<i>Clarkia purpurea</i> ssp. <i>quadrivulnera</i>	Purple clarkia	Annual herb
ONAGRACEAE	<i>Epilobium brachycarpum</i>	Willow herb	Annual herb
ONAGRACEAE	<i>Epilobium ciliatum</i> ssp. <i>ciliatum</i>	Willow herb	Herbaceous
ORCHIDACEAE	<i>Spiranthes romanzoffiana</i>	Ladies' tresses	Perennial herb
OROBANCHACEAE	<i>Parentucellia viscosa</i>	Yellow parentucellia	Annual herb
PAPAVERACEAE	<i>Eschscholzia californica</i>	California poppy	Herbaceous
PARMELIACEAE	<i>Usnea</i> sp.	beard lichen	Lichens
PHRYMACEAE	<i>Mimulus aurantiacus</i>	Sticky monkeyflower	Shrub

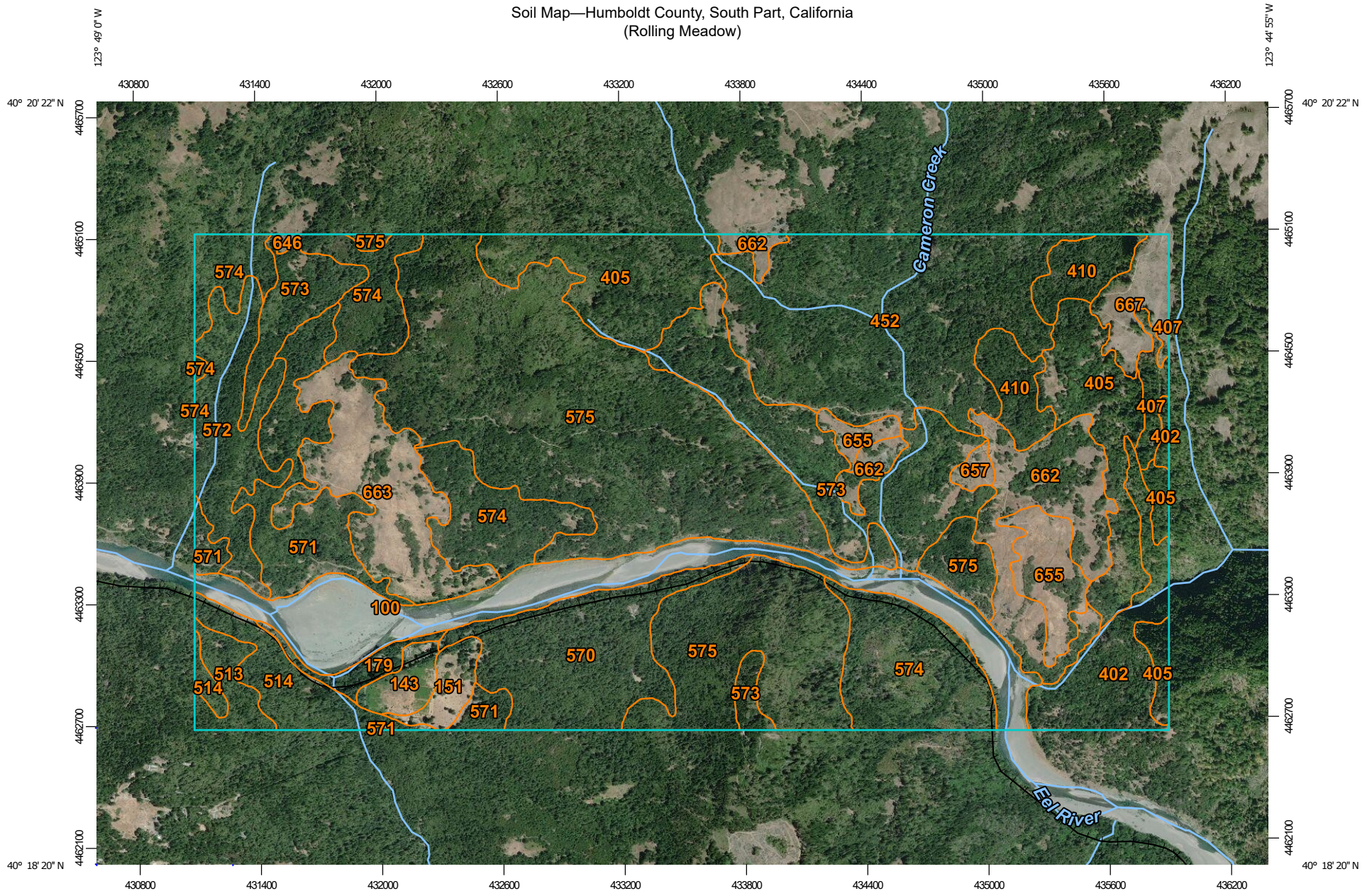
	<i>Mimulus guttatus</i>	Seep monkeyflower	Herbaceous
PINACEAE	<i>Pseudotsuga menziesii</i>	Douglas-fir	Tree
PINACEAE	<i>Pseudotsuga menziesii</i> var. <i>menziesii</i>	Douglas fir	Tree
PLANTAGINACEAE	<i>Plantago lanceolata</i>	English plantain	Herbaceous
	<i>Veronica serpyllifolia</i> ssp. <i>humifusa</i>	Bright Blue speedwell	Herbaceous
POACEAE	<i>Agrostis capillaris</i>	Colonial bentgrass	Grasses and Graminoids
	<i>Agrostis stolonifera</i>	Redtop	Perennial grass
	<i>Aira caryophyllea</i>	Silver hairgrass	Grasses and Graminoids
	<i>Anthoxanthum odoratum</i>	Sweet vernal grass	Grasses and Graminoids
	<i>Arrhenatherum elatius</i>	Tall Oatgrass	Grasses and Graminoids
	<i>Avena barbata</i>	Wild Oats	Grasses and Graminoids
	<i>Briza maxima</i>	Rattlesnake grass	Grasses and Graminoids
	<i>Briza minor</i>	Little rattlesnake grass	Annual grass
	<i>Bromus carinatus</i>	California bromegrass	Perennial grass
	<i>Bromus diandrus</i>	Rip gut brome	Grasses and Graminoids
	<i>Bromus hordeaceus</i>	Soft Chess	Grasses and Graminoids
	<i>Bromus madritensis</i> ssp. <i>rubens</i>	Foxtail brome	Grasses and Graminoids
	<i>Bromus racemosus</i>	Smooth brome	Annual grass
	<i>Bromus sterilis</i>	Poverty Brome	Grasses and Graminoids
	<i>Cynodon dactylon</i>	Burmuda Grass	Grasses and Graminoids
	<i>Cynosurus echinatus</i>	Hedgehog dogtail grass	Grasses and Graminoids
	<i>Dactylis glomerata</i>	Orchard grass	Grasses and Graminoids
	<i>Danthonia californica</i>	California oat grass	Grasses and Graminoids
	<i>Deschampsia elongata</i>	Hairgrass	Grasses and Graminoids
	<i>Elymus caput-medusae</i>	Medusa Head	Herbaceous
	<i>Elymus glaucus</i>	Blue wild rye	Grasses and Graminoids
	<i>Festuca arundinacea</i>	Tall fescue	Grasses and Graminoids
	<i>Festuca myuros</i>	Sixweeks grass	Grasses and Graminoids
	<i>Festuca perennis</i>	Italian rye grass	Annual, Perennial grass

	<i>Festuca perennis</i>	Italian Rye	Grasses and Graminoids
	<i>Holcus lanatus</i>	Purple velvet grass	Grasses and Graminoids
	<i>Hordeum marinum</i>	Seaside Barley	Herbaceous
	<i>Hordeum murinum ssp. leporinum</i>	Barley	Herbaceous
	<i>Melica harfordii</i>	Hartford's melic	Grasses and Graminoids
	<i>Melica subulata</i>	Alaska melic	Perennial grass
	<i>Melica torreyana</i>	Torrey's melica	Grasses and Graminoids
	<i>Paspalum dilatatum</i>	Dallis grass	Perennial grass
	<i>Stipa pulchra</i>	Purple needlegrass	Grasses and Graminoids
POLEMONIACEAE	<i>Navarretia intertexta</i>	Interwoven navarretia	Annual herb
	<i>Navarretia squarrosa</i>	Skunkweed	Annual herb
POLYGALACEAE	<i>Polygala californica</i>	California milkwort	Herbaceous
POLYGONACEAE	<i>Eriogonum nudum var. nudum</i>	Nude buckwheat	Shrub
	<i>Polygonum aviculare</i>	Prostrate knotweed	Herbaceous
	<i>Rumex acetosella</i>	Sheep sorrel	Herbaceous
	<i>Rumex pulcher</i>	Fiddle dock	Herbaceous
POLYPODIACEAE	<i>Polypodium glycyrrhiza</i>	Licorice fern	Ferns and Allies
POLYTRICHACEAE	<i>Polytrichum sp.</i>	Star moss	Bryophyte
PTERIDACEAE	<i>Athyrium filix-femina</i>	Lady fern	Ferns and Allies
PTERIDACEAE	<i>Pentagramma triangularis ssp. triangularis</i>	Gold back fern	Ferns and Allies
RANUNCULACEAE	<i>Ranunculus parviflorus</i>	Few flowered buttercup	Annual herb
RHAMNACEAE	<i>Ceanothus thyrsiflorus</i>	Blueblossom	Tree, Shrub
ROSACEAE	<i>Fragaria vesca</i>	Woodland strawberry	Herbaceous
	<i>Heteromeles arbutifolia</i>	Toyon	Shrub
	<i>Holodiscus discolor var. discolor</i>	Oceanspray	Shrub
	<i>Oemlaria cerasiformis</i>	Oso berry	Shrub
	<i>Prunus cerasifera</i>	Cherry plum	Tree
	<i>Rosa californica</i>	California wild rose	Shrub
	<i>Rosa canina</i>	Dog rose	Shrub
	<i>Rosa rubiginosa</i>	Sweet brier	Shrub
	<i>Rubus armeniacus</i>	Himalayan blackberry	Shrub
	<i>Rubus leucodermis</i>	Whitebark raspberry	Shrub
	<i>Rubus parviflorus</i>	Thimbleberry	Shrub
	<i>Rubus ursinus</i>	California blackberry	Shrub
RUBIACEAE	<i>Galium parisiense</i>	Wall bedstraw	Annual herb
	<i>Sherardia arvensis</i>	Field madder	Annual herb
SAPINDACEAE	<i>Acer macrophyllum</i>	Bigleaf maple	Tree
	<i>Aesculus californica</i>	Buckeye	Tree

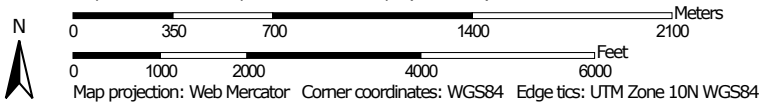
THEMIDACEAE	<i>Brodiaea elegans ssp. elegans</i>	Harvest Brodiaea	Herbaceous
	<i>Triteleia hyacinthina</i>	Wild hyacinth	Herbaceous
	<i>Triteleia laxa</i>	Ithuriel's spear	Herbaceous
VERBENACEAE	<i>Verbena lasiostachys</i>	Western vervain	Herbaceous

Appendix C. NRCS Soil Map (NRCS 2020)

Soil Map—Humboldt County, South Part, California
(Rolling Meadow)




Map Scale: 1:26,500 if printed on A landscape (11" x 8.5") sheet.



Soil Map—Humboldt County, South Part, California
(Rolling Meadow)

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.

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, South Part, California
Survey Area Data: Version 9, Jun 1, 2020

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

Date(s) aerial images were photographed: Dec 31, 2009—Nov 6, 2017

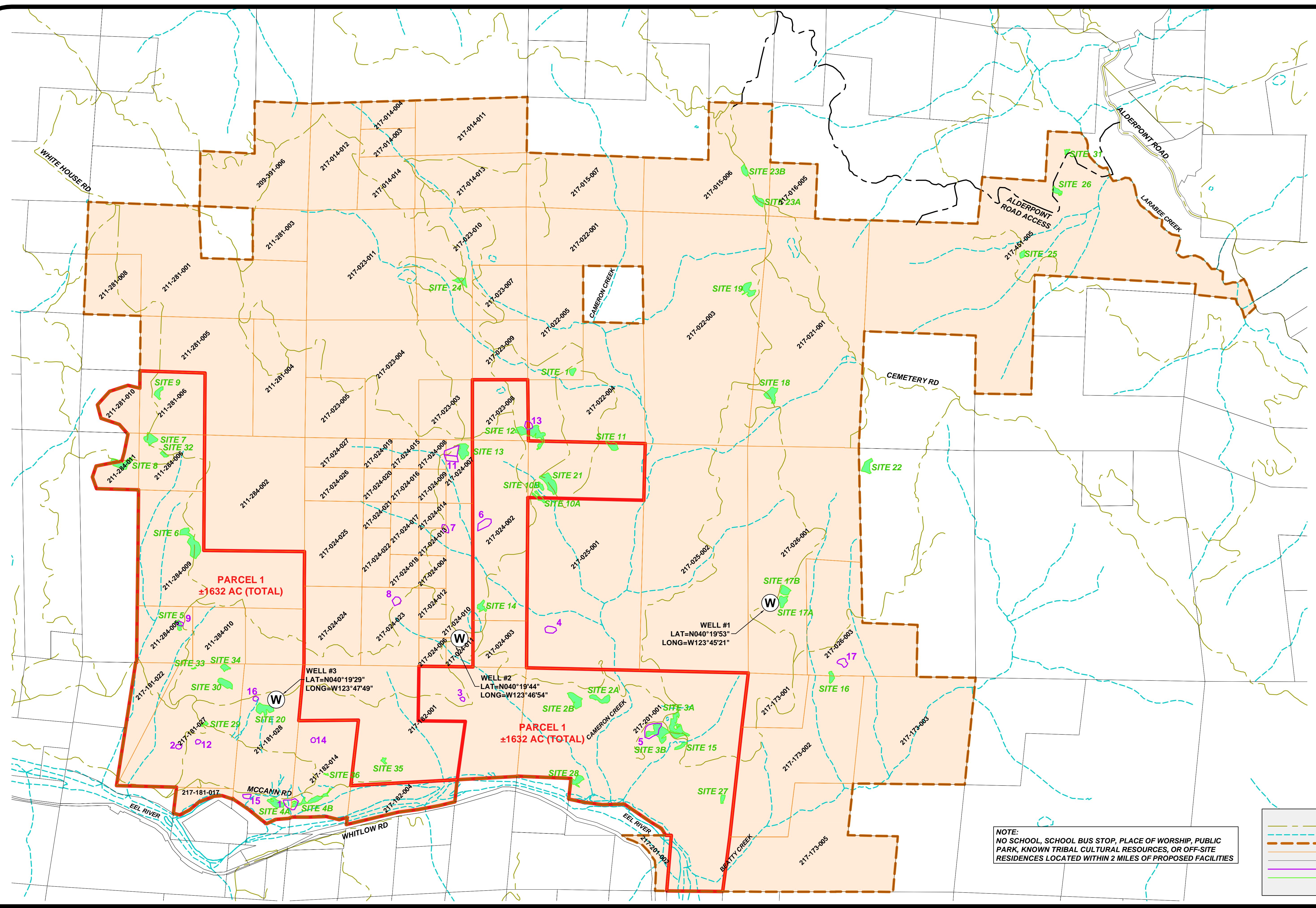
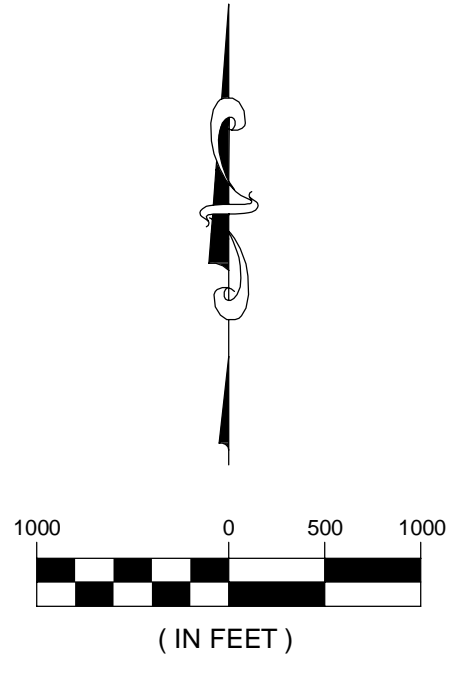
The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
100	Water and Fluvents, 0 to 2 percent slopes	193.3	6.6%
143	Shivelyflat, 0 to 2 percent slopes	22.5	0.8%
151	Parkland-Garberville complex, 2 to 9 percent slopes	22.0	0.8%
179	Eelriver and Cottoneva soils, 0 to 2 percent slopes	17.7	0.6%
402	Tannin-Wohly-Rockyglen complex, 50 to 75 percent slopes	88.9	3.0%
405	Tannin-Wohly-Rockyglen complex, 30 to 50 percent slopes	216.3	7.4%
407	Tannin-Wohly complex, 9 to 30 percent slopes	17.6	0.6%
410	Rockyglen-Hollowtree-Rock outcrop complex, 50 to 100 percent slopes	64.9	2.2%
452	Burgsblock-Coolyork-Tannin complex, 30 to 50 percent slopes	309.8	10.6%
513	Redwoodhouse-Yagercreek-Mailridge complex, 30 to 50 percent slopes	27.5	0.9%
514	Redwoodhouse-Yagercreek-Mailridge complex, 50 to 75 percent slopes	61.2	2.1%
570	Sproulis-Canoecreek-Redwohly complex, 15 to 30 percent slopes	142.5	4.9%
571	Sproulis-Canoecreek-Redwohly complex, 30 to 50 percent slopes	121.8	4.2%
572	Canoecreek-Sproulis-Redwohly complex, 50 to 75 percent slopes	97.5	3.3%
573	Sproulis-Canoecreek-Redwohly complex, 15 to 30 percent slopes, warm	217.4	7.4%
574	Sproulis-Canoecreek-Redwohly complex, 30 to 50 percent slopes, warm	255.6	8.7%
575	Canoecreek-Sproulis-Redwohly complex, 50 to 75 percent slopes, warm	668.4	22.9%

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
646	Wirefence-Windynip- Devilshole complex, 5 to 30 percent slopes	1.8	0.1%
655	Yorknorth-Withereil complex, 15 to 30 percent slopes	56.9	1.9%
657	Yorknorth-Withereil complex, 2 to 15 percent slopes	8.0	0.3%
662	Yorknorth-Withereil complex, 30 to 50 percent slopes	136.3	4.7%
663	Yorknorth-Windynip complex, 15 to 50 percent slopes	133.9	4.6%
667	Dryfield-Yorknorth-Withereil complex, 5 to 30 percent slopes	40.3	1.4%
Totals for Area of Interest		2,922.1	100.0%

Appendix D. Proposed Project Plans



NOTE:
 NO SCHOOL, SCHOOL BUS STOP, PLACE OF WORSHIP, PUBLIC PARK, KNOWN TRIBAL CULTURAL RESOURCES, OR OFF-SITE RESIDENCES LOCATED WITHIN 2 MILES OF PROPOSED FACILITIES

LEGEND	
	EXISTING ROAD/TRAIL
	EXISTING WATER FEATURE
	OVERALL RANCH BOUNDARY
	PARCELS (APN) WITHIN RANCH
	PARCELS (APN)
	PRE-EXISTING CULTIVATION SITE
	PRIME SOILS SITE

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**ROLLING MEADOW RANCH
 HUMBOLDT COUNTY, CA**



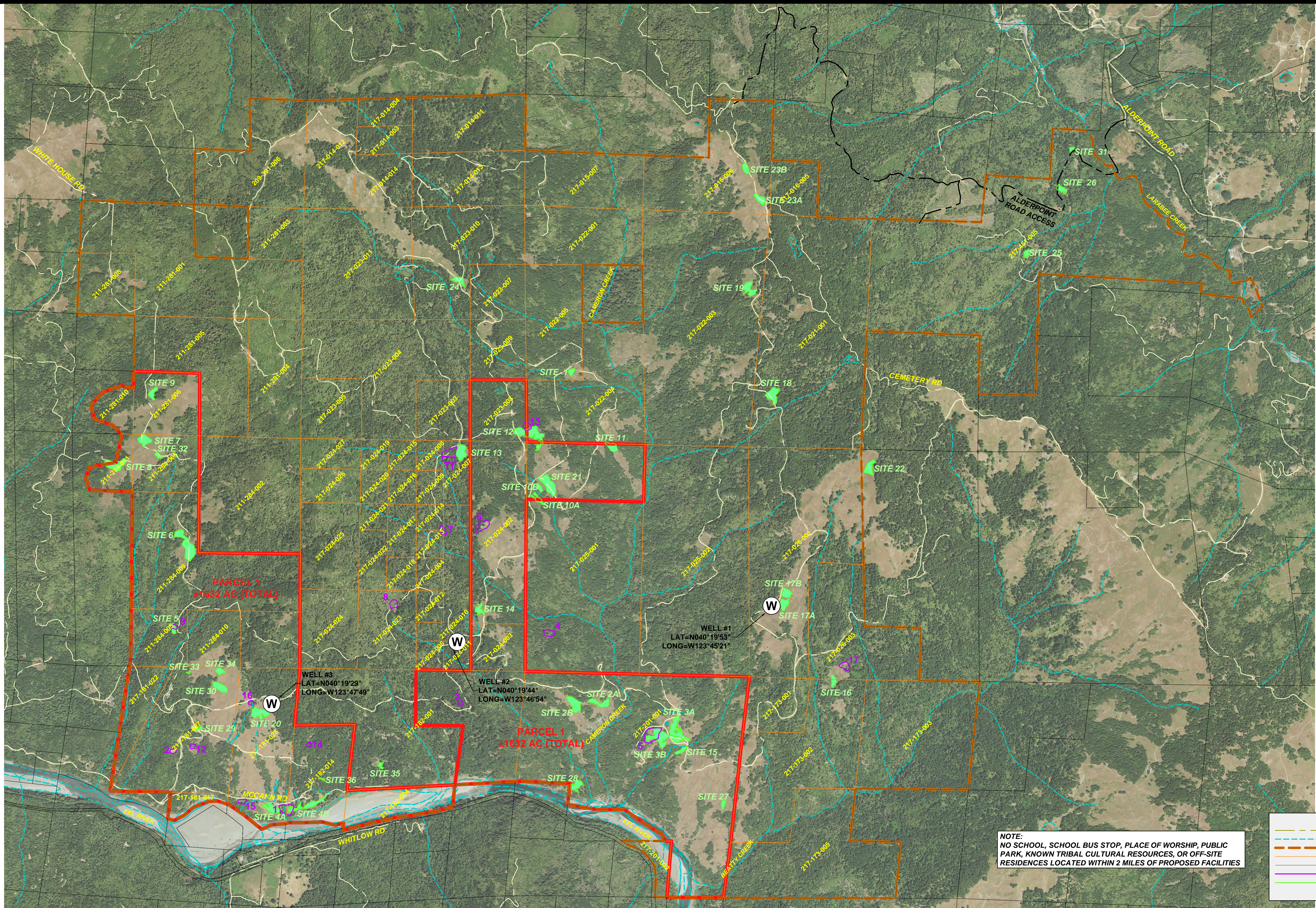
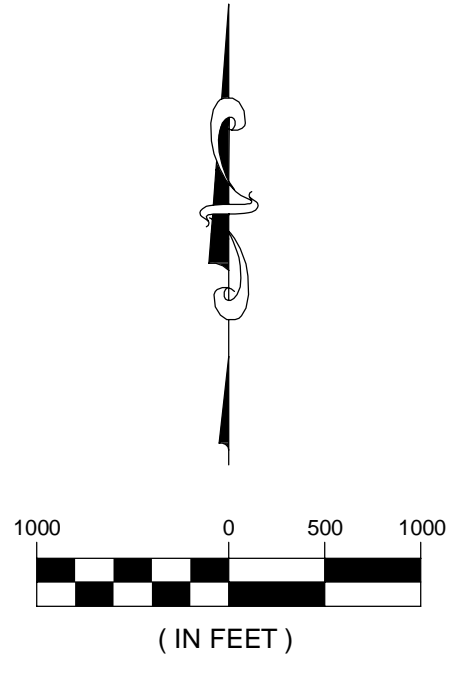
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**OVERALL CANNABIS
 DEVELOPMENT**

DRAWING NO.
 11367_200_003
 SHEET
 1 of 1
 PROJECT NO.
 11367

DESIGN/DRAWN: SMG/DRB 11/08/19



PARCEL 1
 ±1652 AC (TOTAL)

PARCEL 1
 ±1637 AG (TOTAL)

WELL #3
 LAT=N040°19'29"
 LONG=W123°47'49"

WELL #2
 LAT=N040°19'44"
 LONG=W123°46'54"

WELL #1
 LAT=N040°19'53"
 LONG=W123°45'21"

NOTE:
 NO SCHOOL, SCHOOL BUS STOP, PLACE OF WORSHIP, PUBLIC PARK, KNOWN TRIBAL CULTURAL RESOURCES, OR OFF-SITE RESIDENCES LOCATED WITHIN 2 MILES OF PROPOSED FACILITIES

LEGEND	
	EXISTING ROAD/TRAIL
	EXISTING WATER FEATURE
	OVERALL RANCH BOUNDARY
	PARCELS (APN) WITHIN RANCH
	PARCELS (APN)
	PRE-EXISTING CULTIVATION SITE
	PRIME SOILS SITE

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DESIGN/DRAWN: SMG/DRB	11/06/19
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ROLLING MEADOW RANCH
HUMBOLDT COUNTY, CA

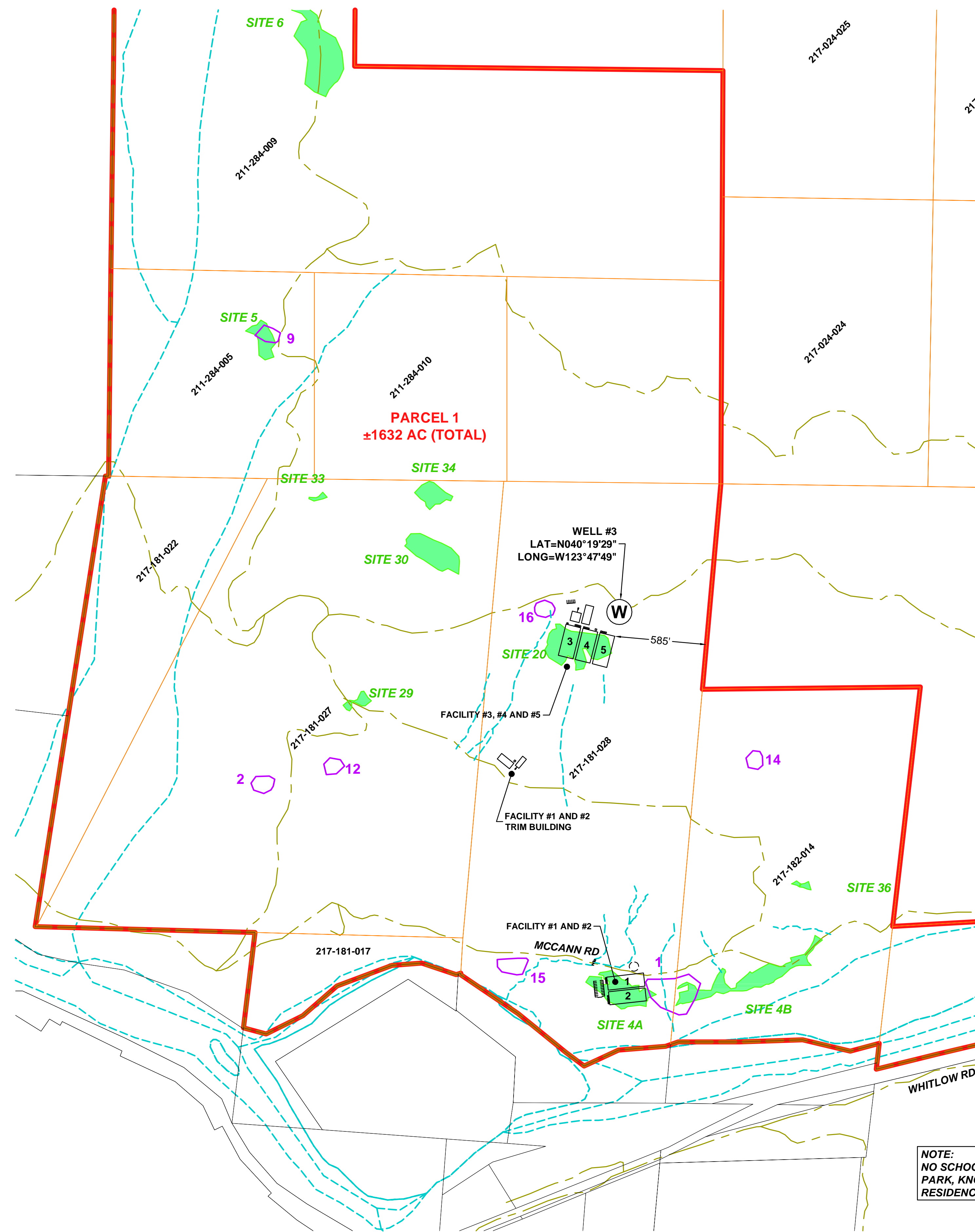


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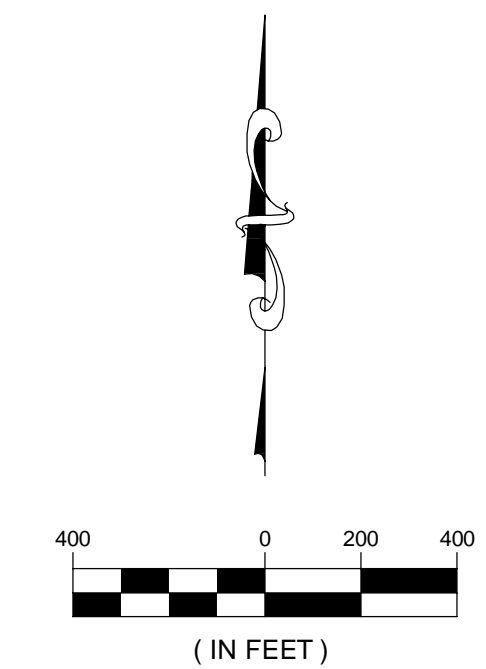


OVERALL CANNABIS
DEVELOPMENT (AERIAL)

DRAWING NO.
 11367_200_003
 SHEET
 1 of 1
 PROJECT NO.
 11367



NOTE:
 NO SCHOOL, SCHOOL BUS STOP, PLACE OF WORSHIP, PUBLIC PARK, KNOWN TRIBAL CULTURAL RESOURCES, OR OFF-SITE RESIDENCES LOCATED WITHIN 2 MILES OF PROPOSED FACILITIES



LEGEND	
	EXISTING ROAD/TRAIL
	EXISTING WATER FEATURE
	OVERALL RANCH BOUNDARY
	PARCELS (APN) WITHIN RANCH
	PARCELS (APN)
	PRE-EXISTING CULTIVATION SITE
	PRIME SOILS SITE

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**ROLLING MEADOW RANCH
 HUMBOLDT COUNTY, CA**

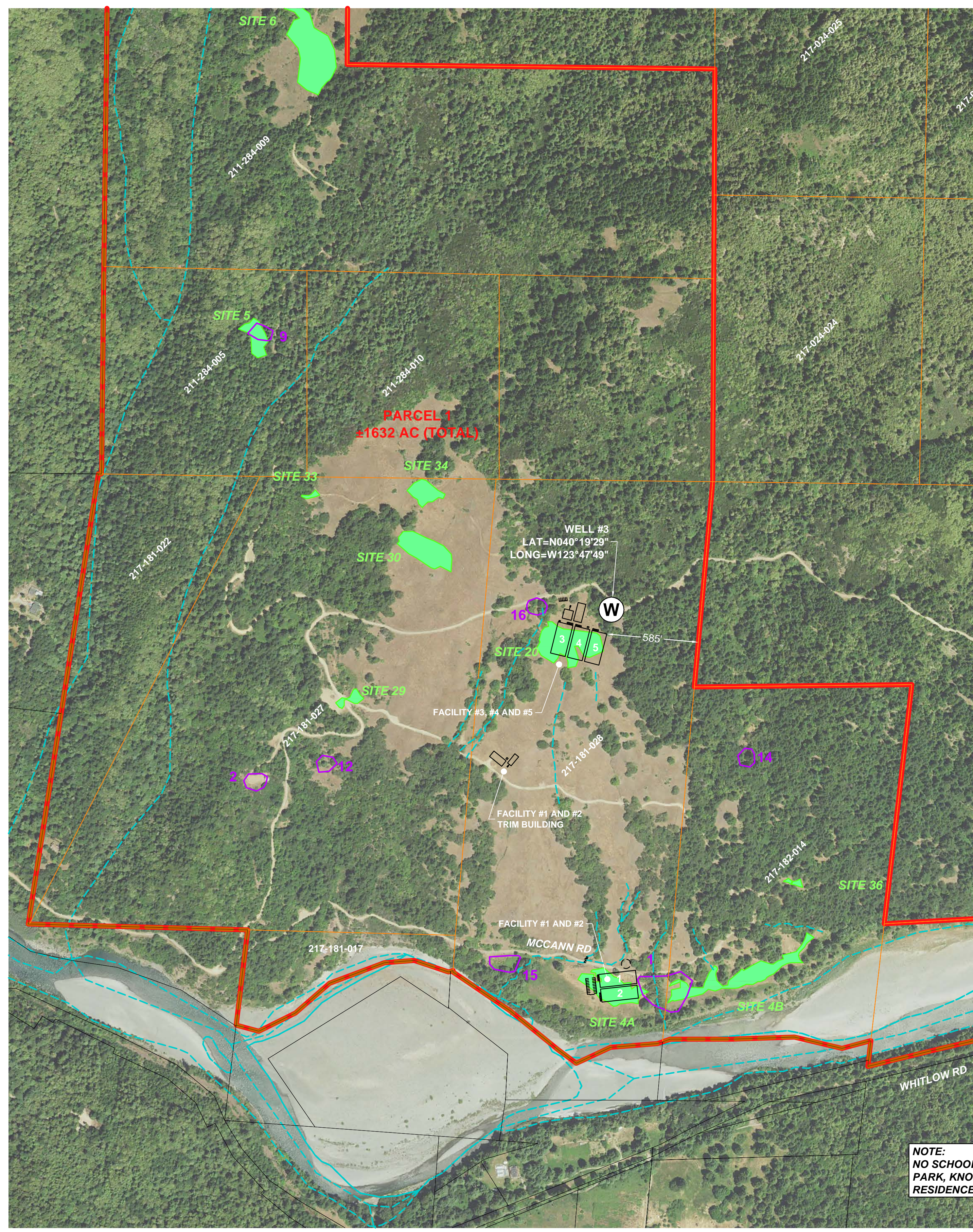


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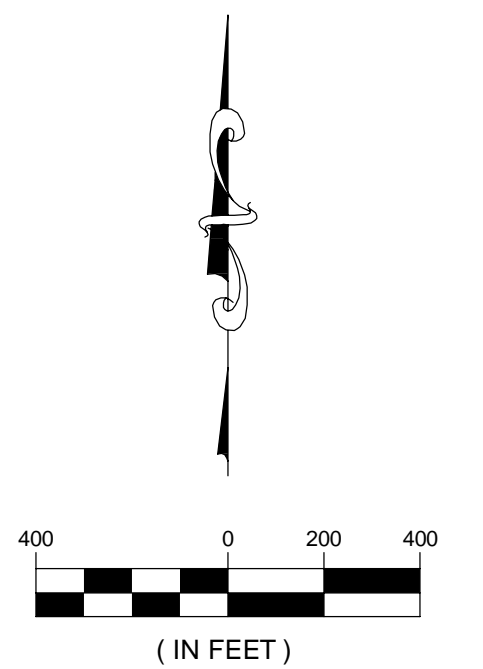


**PARCEL 1
 FACILITY #1 THROUGH #5**

DRAWING NO.
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 SHEET
 1 of 1
 PROJECT NO.
 11367



NOTE:
NO SCHOOL, SCHOOL BUS STOP, PLACE OF WORSHIP, PUBLIC PARK, KNOWN TRIBAL CULTURAL RESOURCES, OR OFF-SITE RESIDENCES LOCATED WITHIN 2 MILES OF PROPOSED FACILITIES



LEGEND	
	EXISTING ROAD/TRAIL
	EXISTING WATER FEATURE
	OVERALL RANCH BOUNDARY
	PARCELS (APN) WITHIN RANCH
	PARCELS (APN)
	PRE-EXISTING CULTIVATION SITE
	PRIME SOILS SITE

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DESIGN/DRAWN: SMG/DRB	11/06/19
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**ROLLING MEADOW RANCH
HUMBOLDT COUNTY, CA**

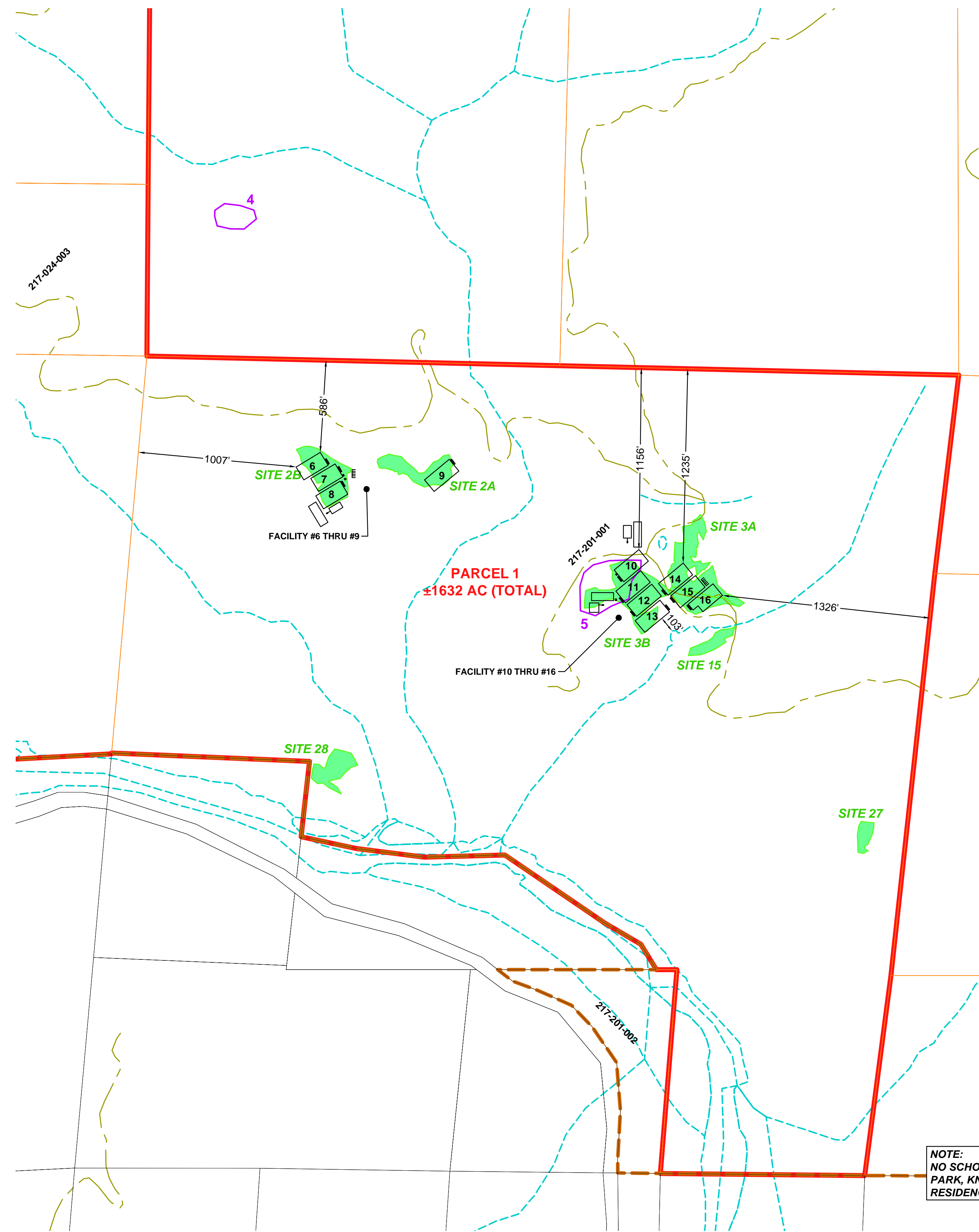


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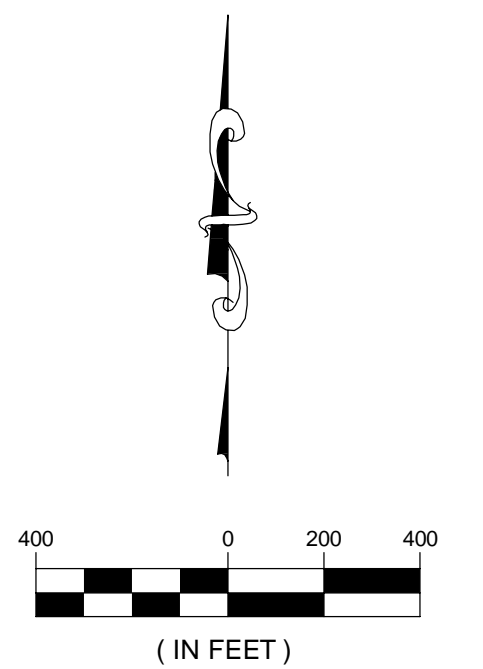


**PARCEL 1 (AERIAL)
FACILITY #1 THROUGH #5**

DRAWING NO.
11367_200_003
SHEET
1 of 1
PROJECT NO.
11367



NOTE:
 NO SCHOOL, SCHOOL BUS STOP, PLACE OF WORSHIP, PUBLIC PARK, KNOWN TRIBAL CULTURAL RESOURCES, OR OFF-SITE RESIDENCES LOCATED WITHIN 2 MILES OF PROPOSED FACILITIES



LEGEND	
	EXISTING ROAD/TRAIL
	EXISTING WATER FEATURE
	OVERALL RANCH BOUNDARY
	PARCELS (APN) WITHIN RANCH
	PARCELS (APN)
	PRE-EXISTING CULTIVATION SITE
	PRIME SOILS SITE

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**ROLLING MEADOW RANCH
 HUMBOLDT COUNTY, CA**

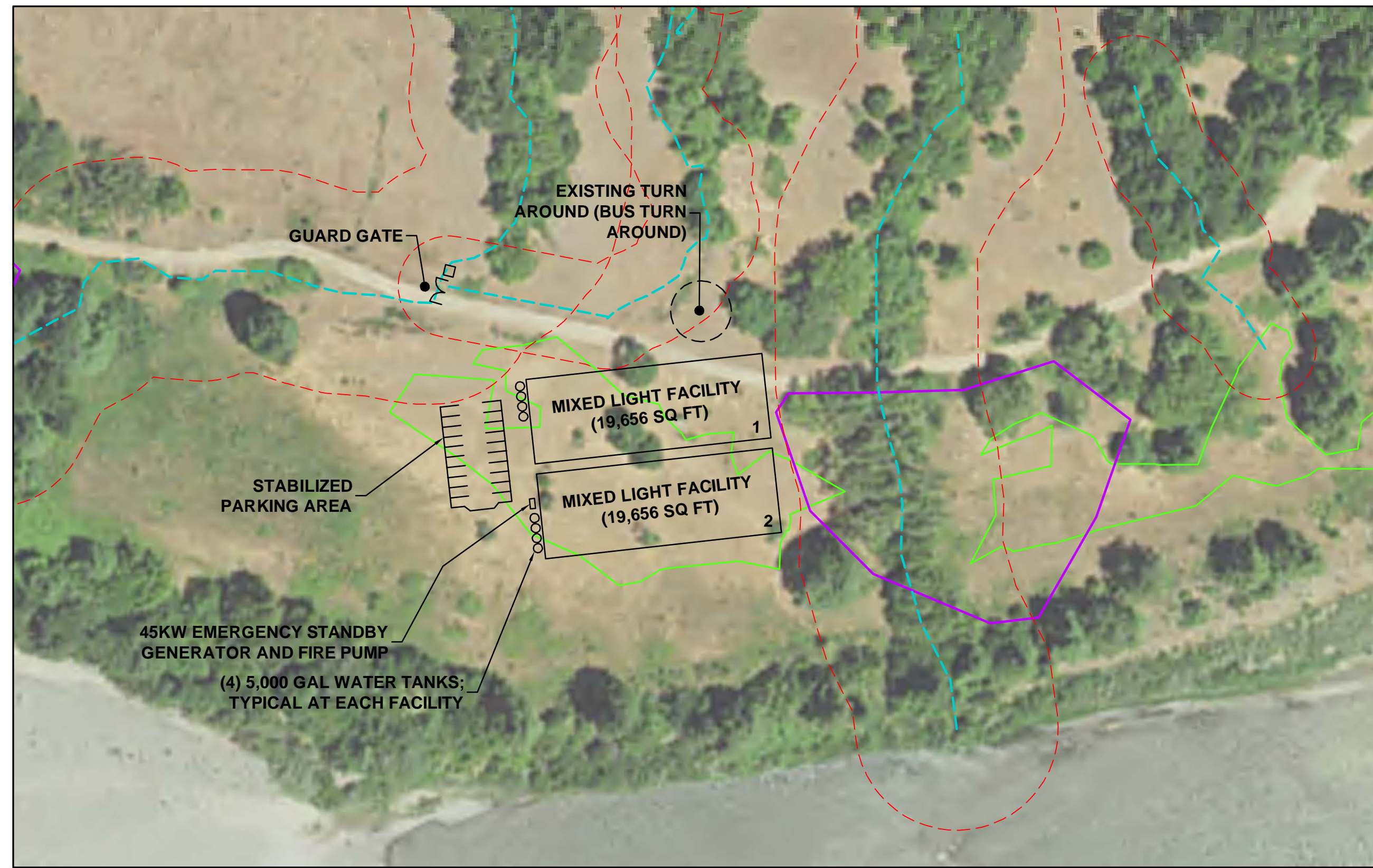


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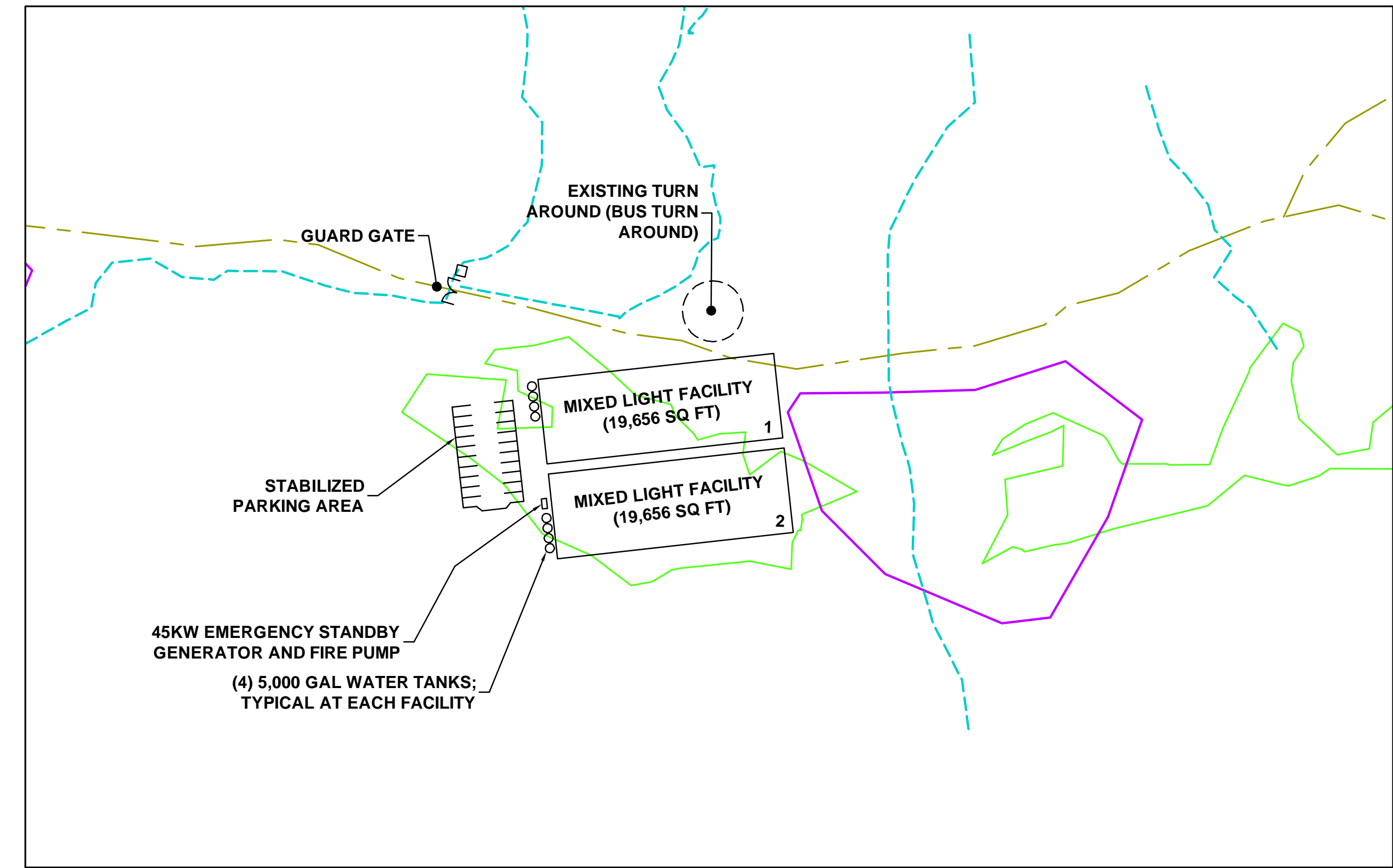


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 FACILITY #6 THROUGH #16**

DRAWING NO.
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 1 of 1
 PROJECT NO.
 11367

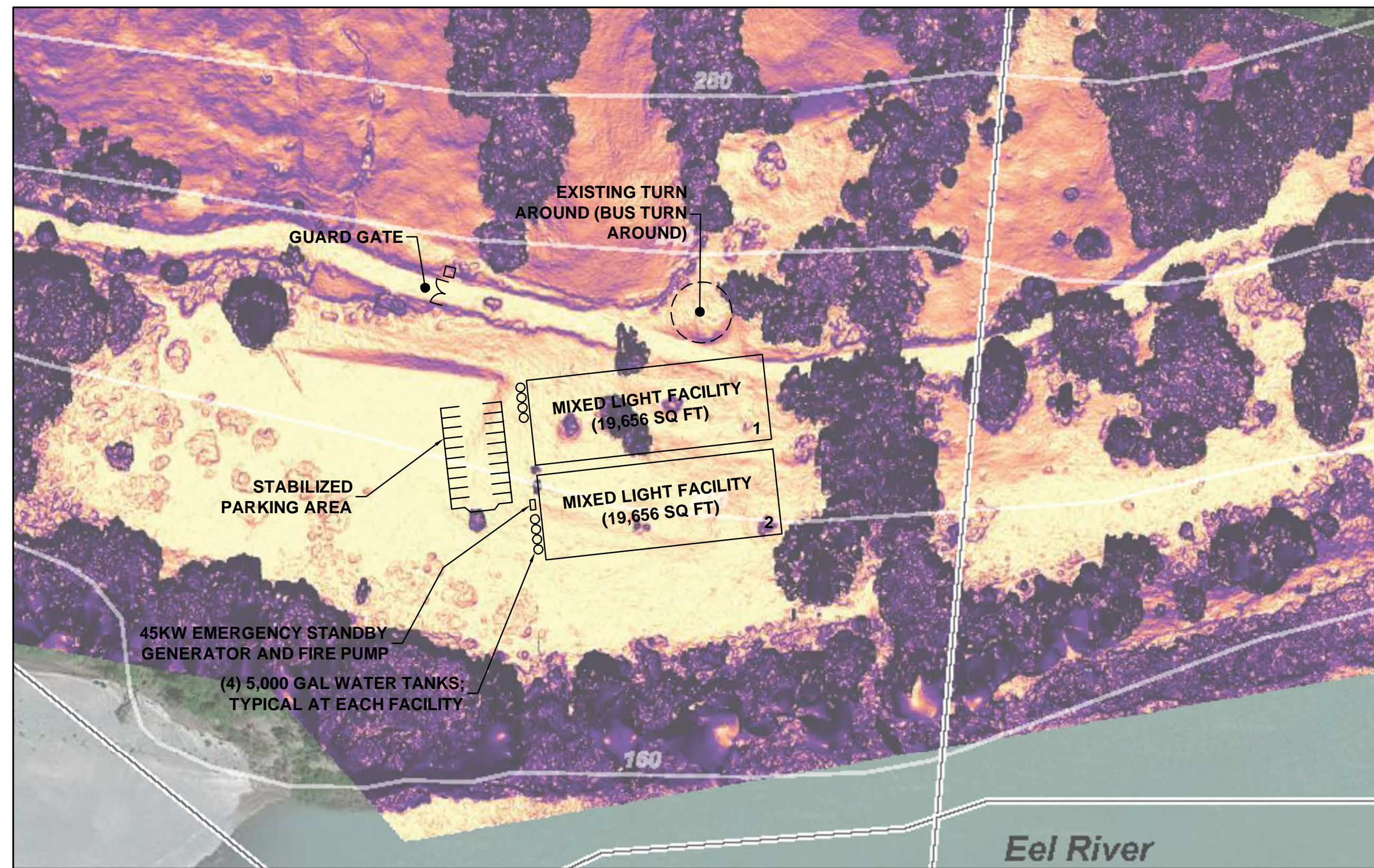


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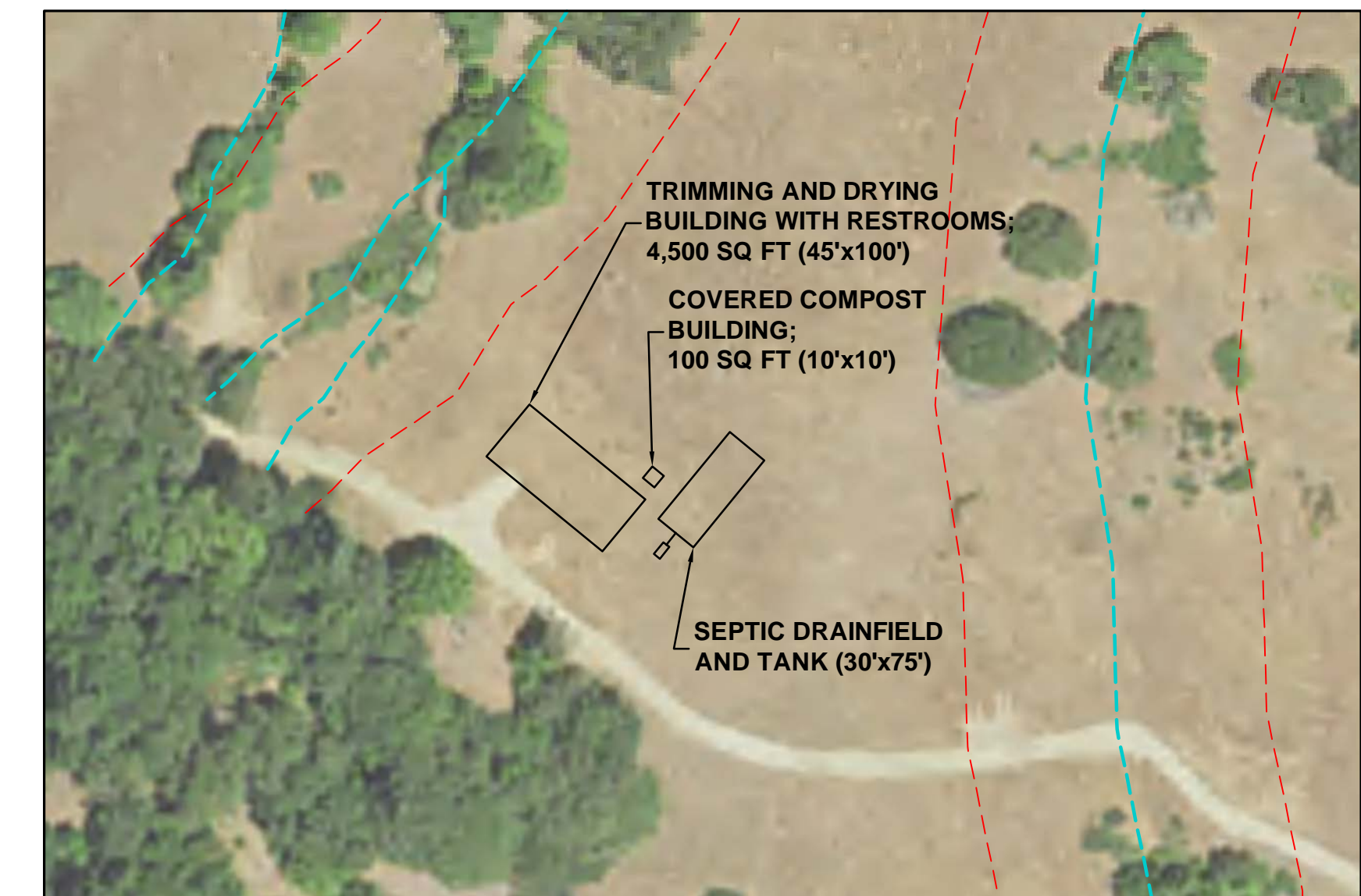
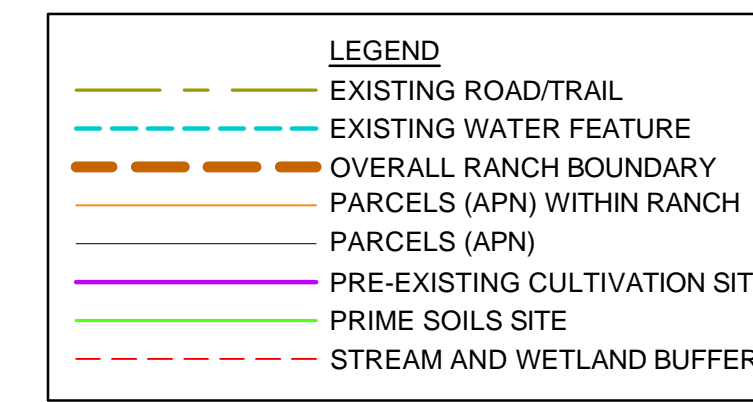
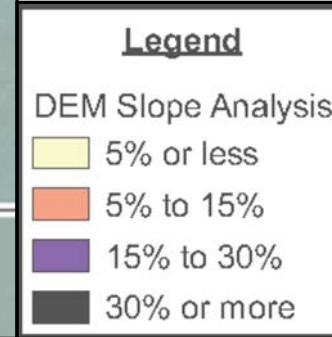


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NOTE: SITE FACILITIES TO BE ENCLOSED BY PERIMETER FENCING



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HUMBOLDT COUNTY, CA**



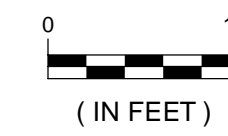
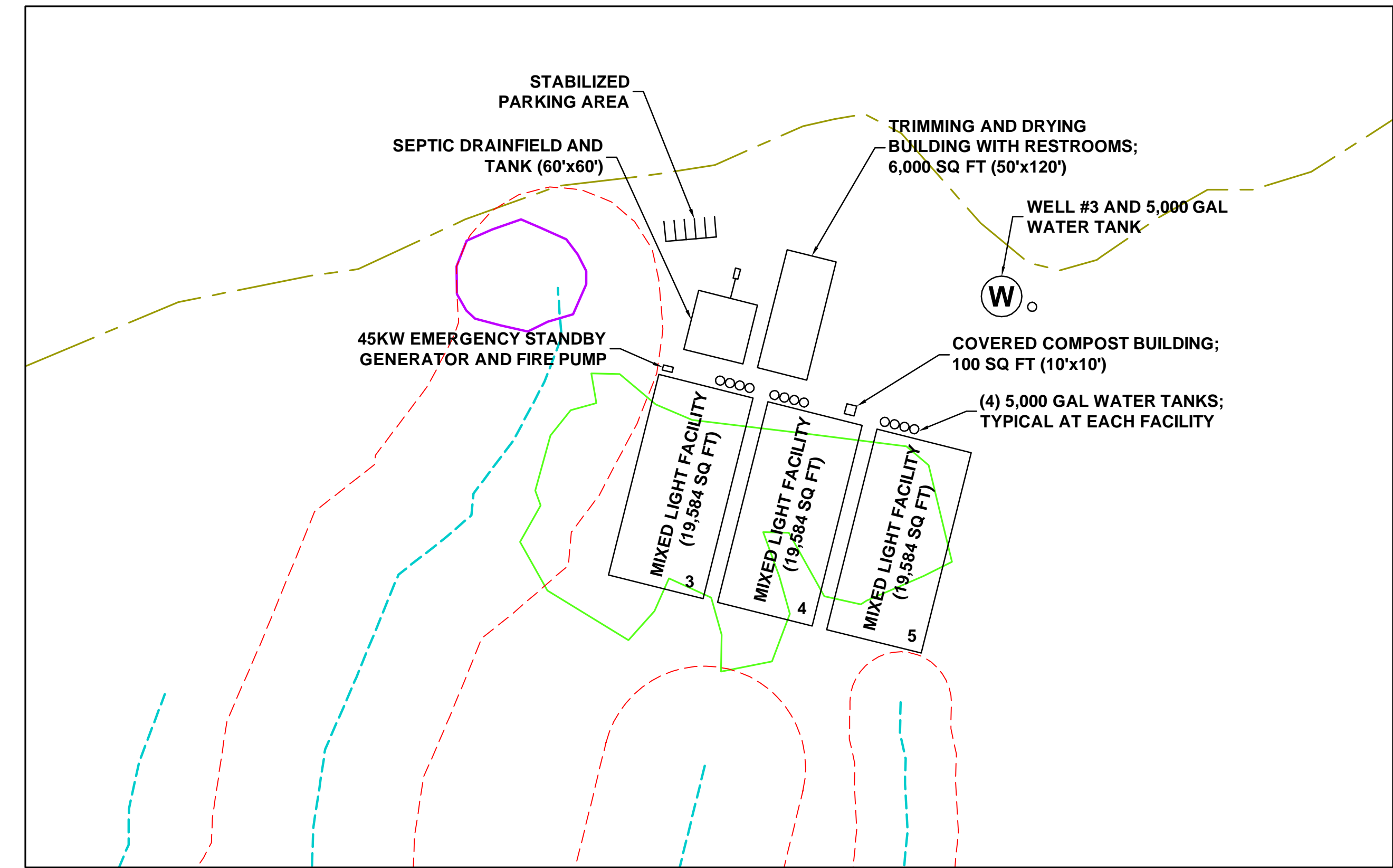
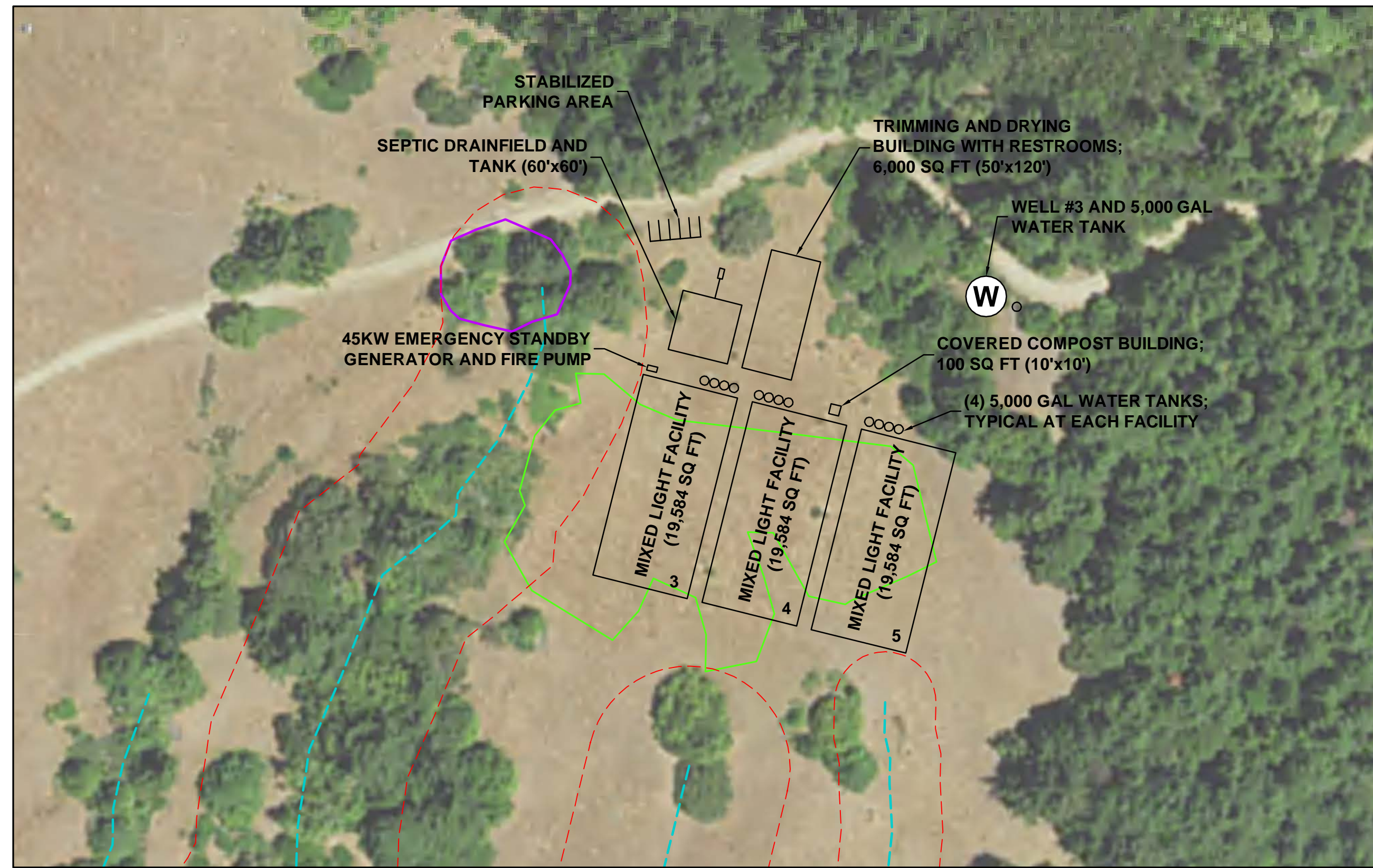
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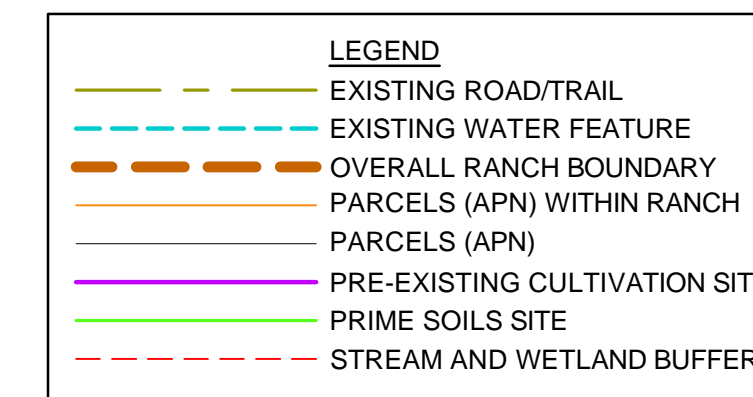
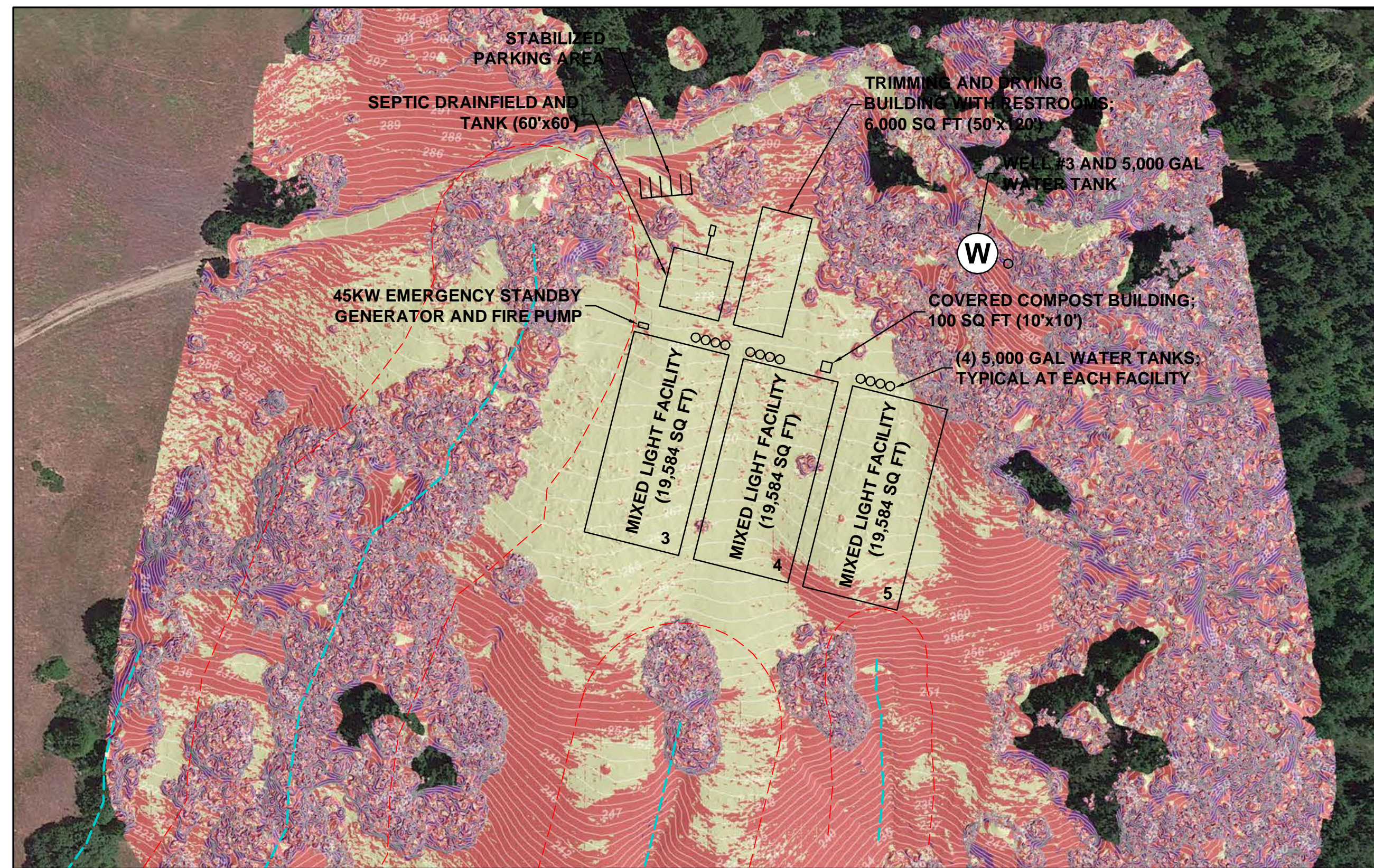
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DRAWING NO.
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PROJECT NO.
11367

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ROLLING MEADOW RANCH HUMBOLDT COUNTY, CA

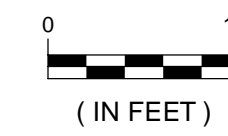
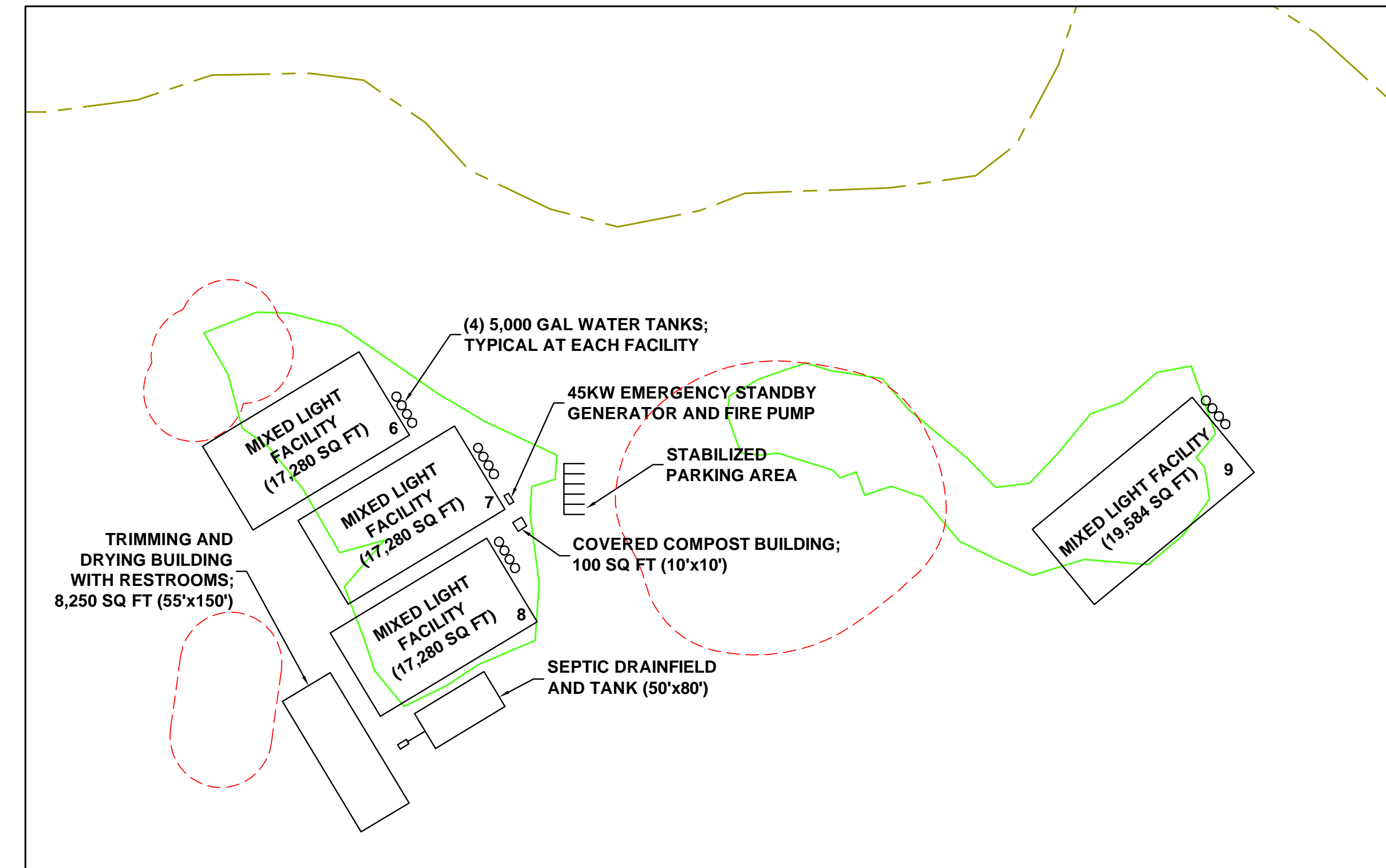


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CERTIFICATE OF LAND SURVEYING BUSINESS AUTHORIZATION: LB0004905

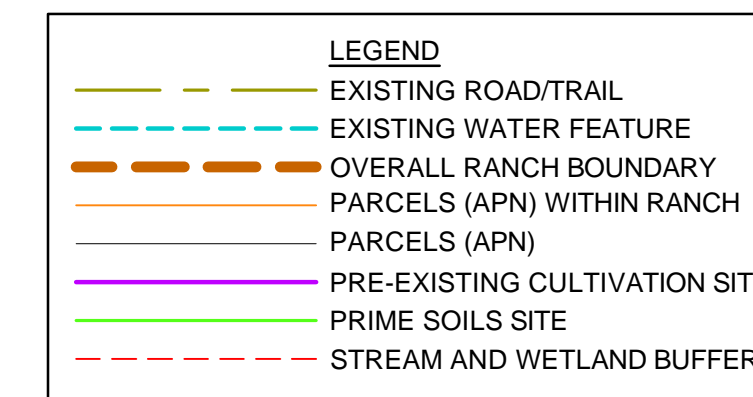
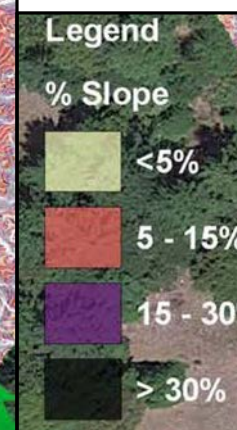
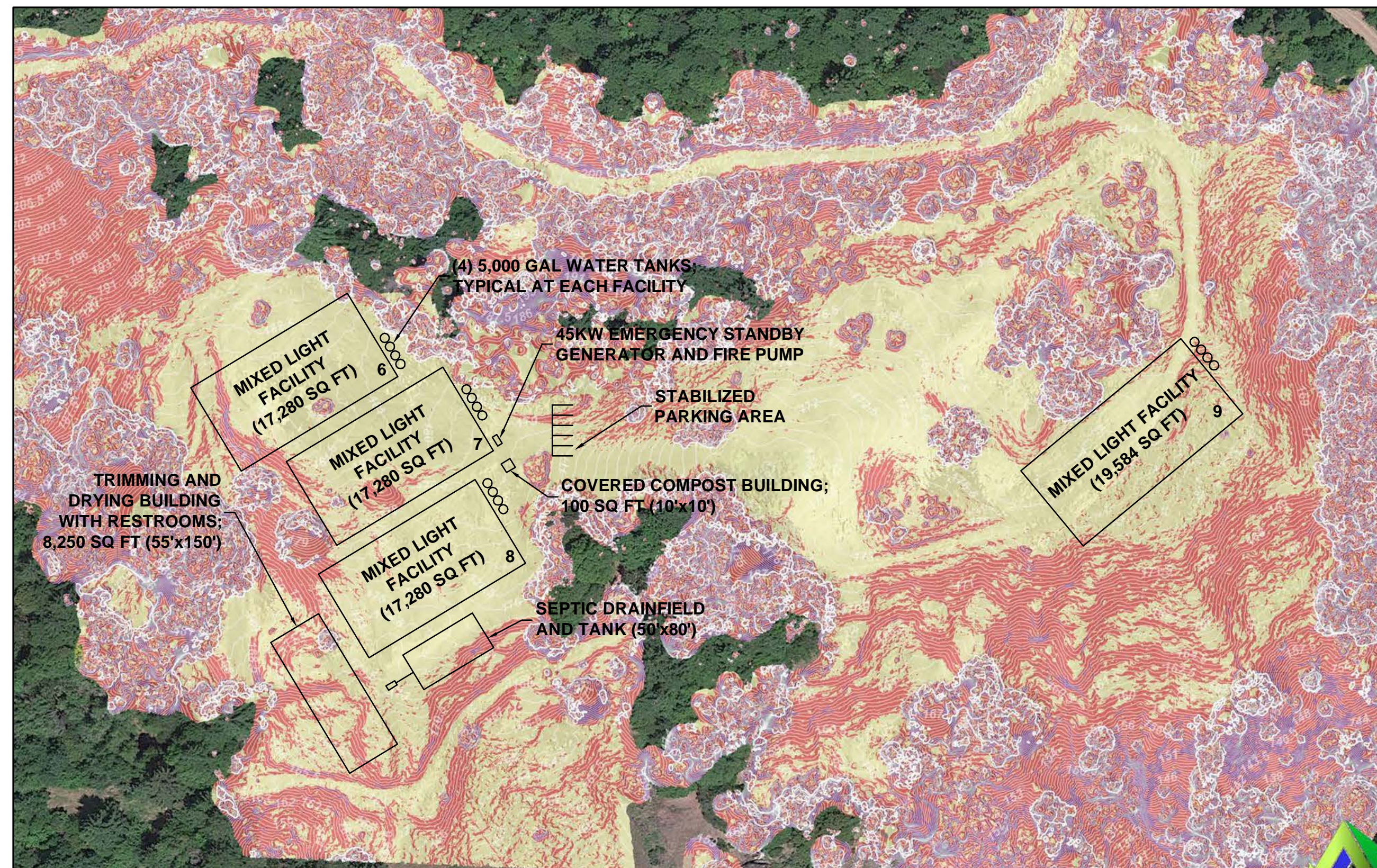


FACILITY #3, #4, AND #5 DETAILS

DRAWING NO.
11367_200_003
SHEET
1 of 1
PROJECT NO.
11367



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ROLLING MEADOW RANCH HUMBOLDT COUNTY, CA



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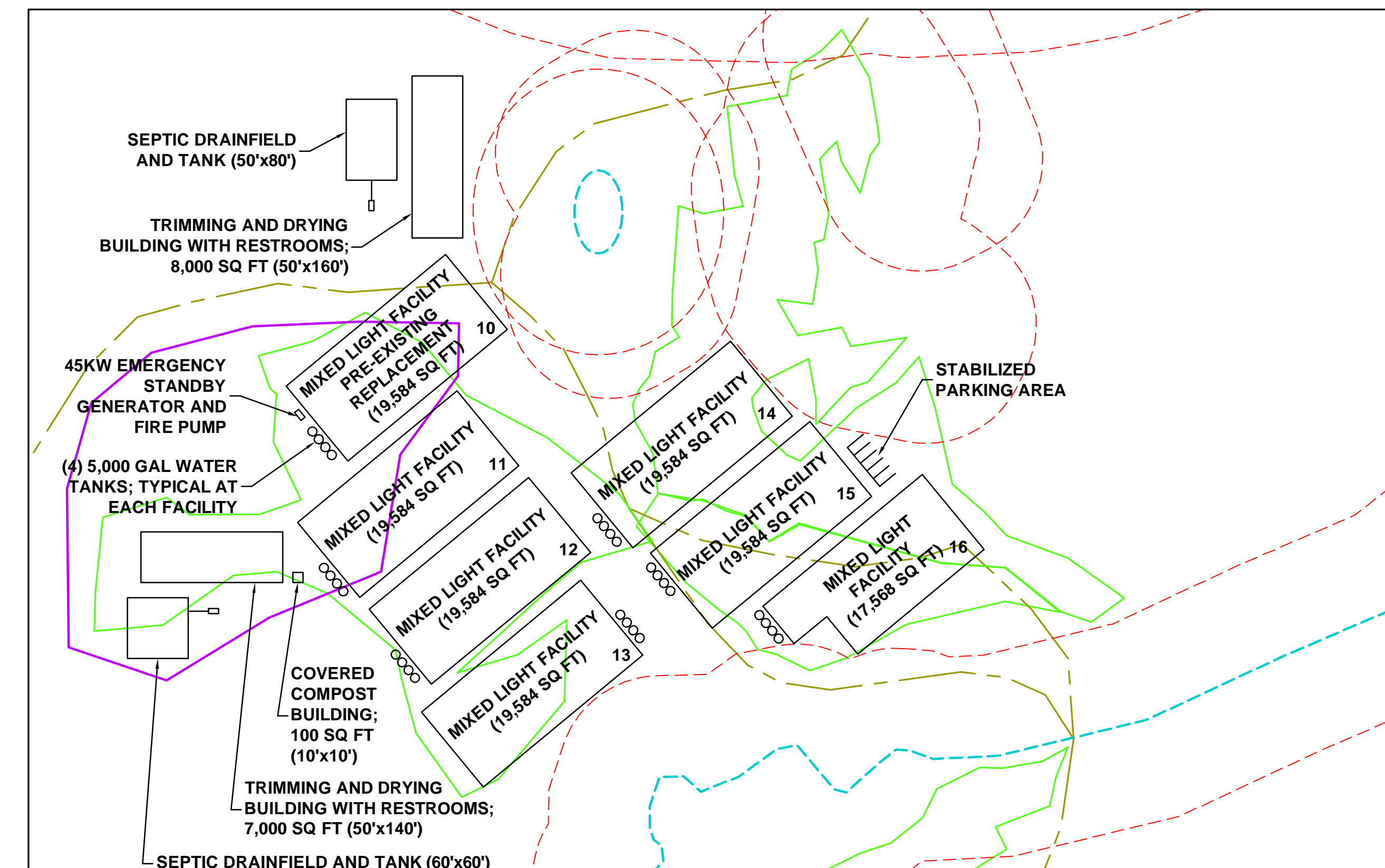
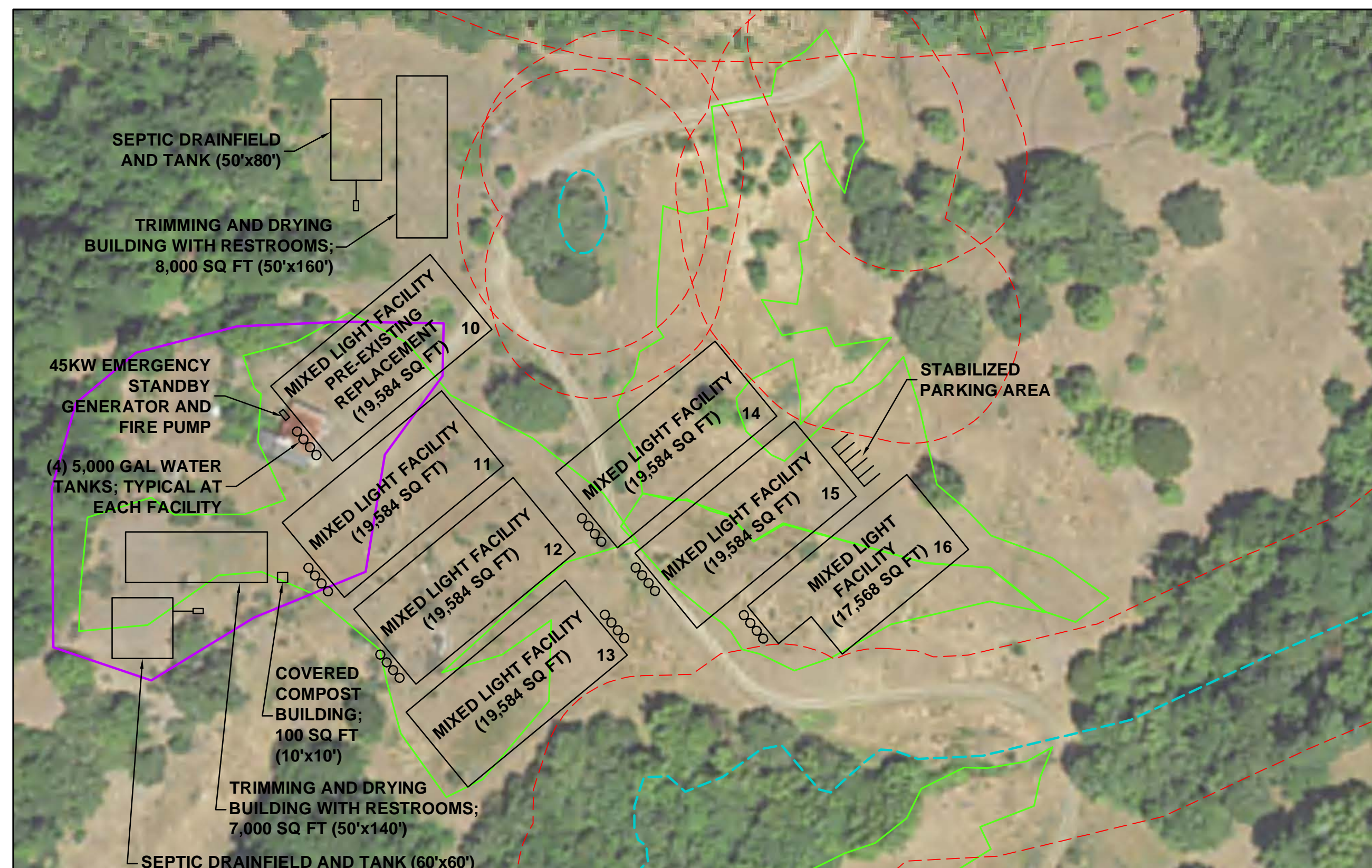


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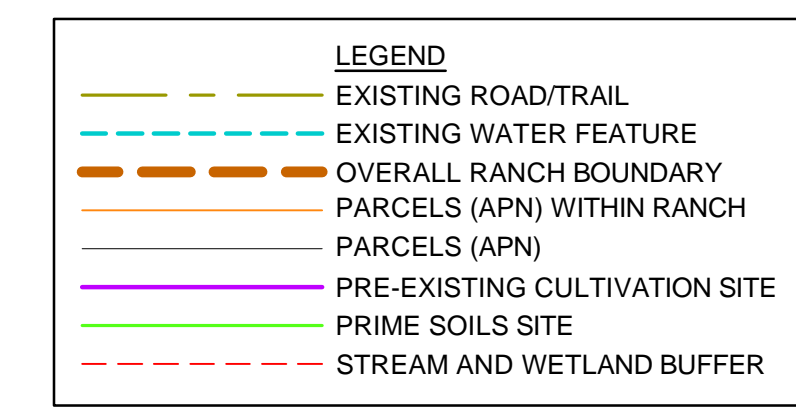
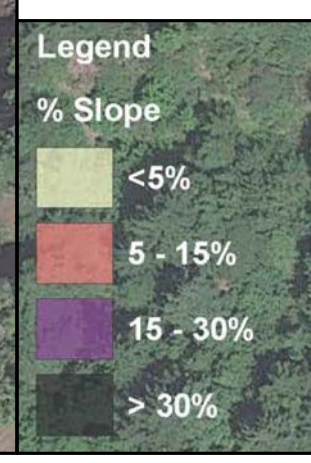
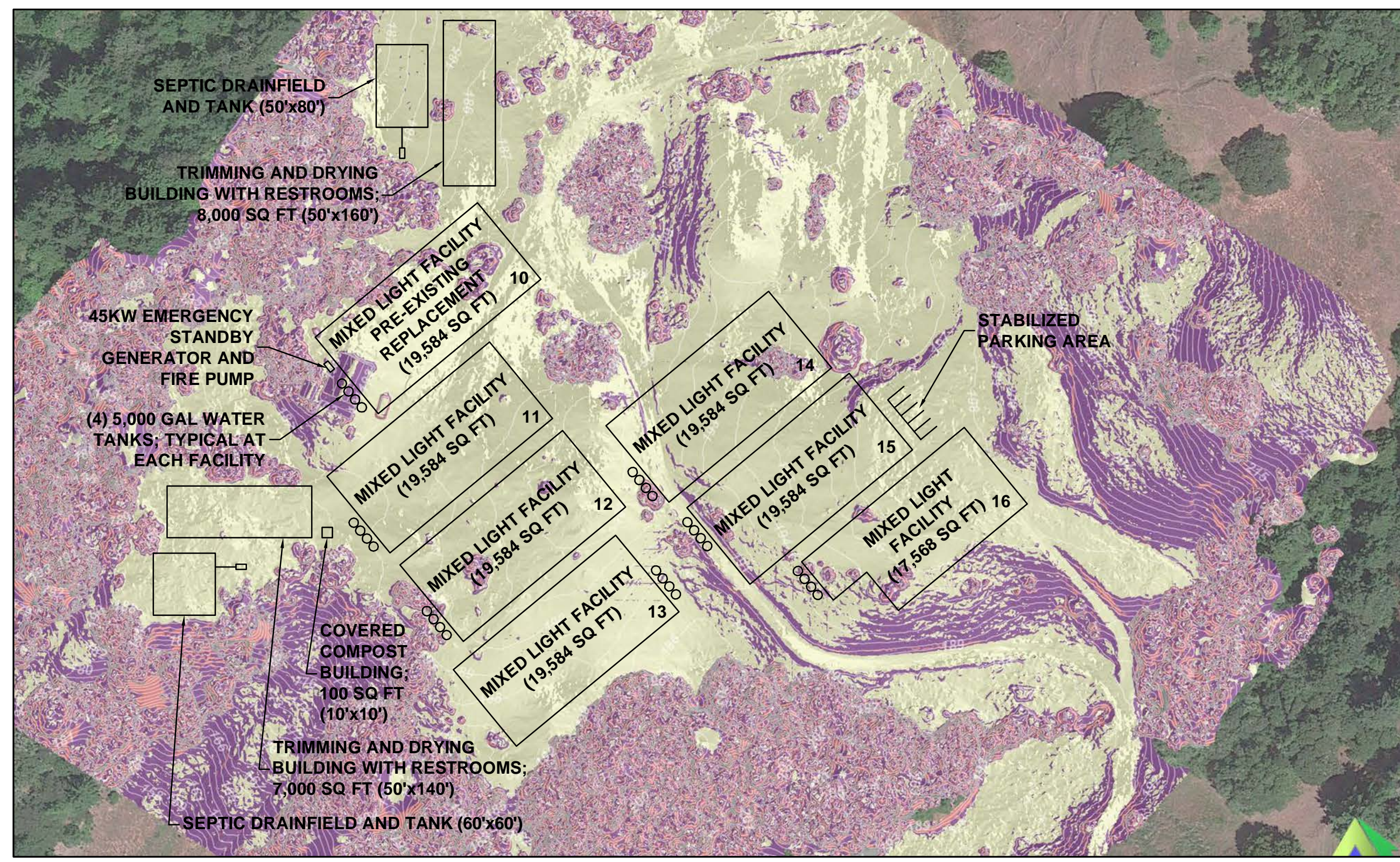
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SHEET 1 of 1
PROJECT NO. 11367

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DESIGN/DRAWN: SMG/DRB	11/06/19
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NOTE: SITE FACILITIES TO BE ENCLOSED BY PERIMETER FENCING



BACKGROUND AERIAL IMAGE AND SLOPE DATA PROVIDED BY PLAN IT TECHS, LLC DEC. 2019; JOSHUA ALLEN; FAA PART 107 #4152800

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**ROLLING MEADOW RANCH
HUMBOLDT COUNTY, CA**

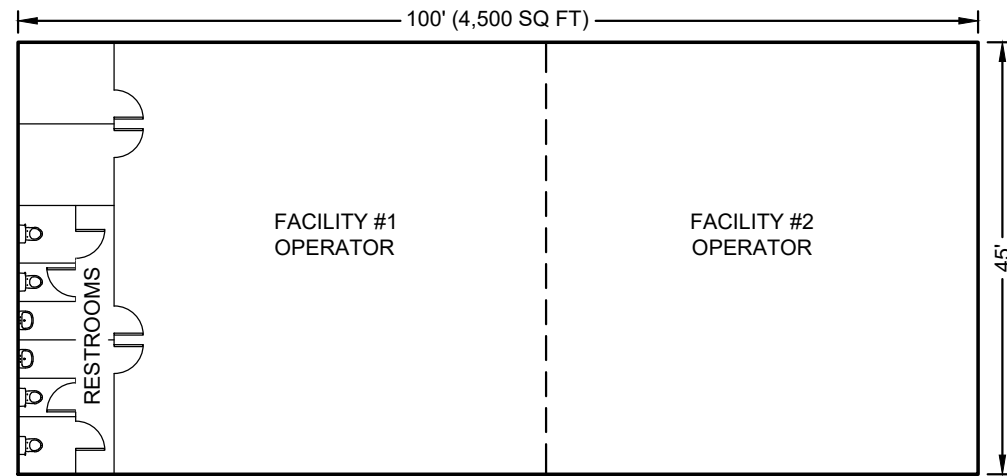


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312 SOUTH HARBOR CITY BOULEVARD, SUITE 4
MELBOURNE, FLORIDA 32901 PHONE: (321) 725-3674 FAX: (321) 723-1159
CERTIFICATE OF PROFESSIONAL ENGINEERS BUSINESS AUTHORIZATION: 4905
CERTIFICATE OF LAND SURVEYING BUSINESS AUTHORIZATION: LB0004905

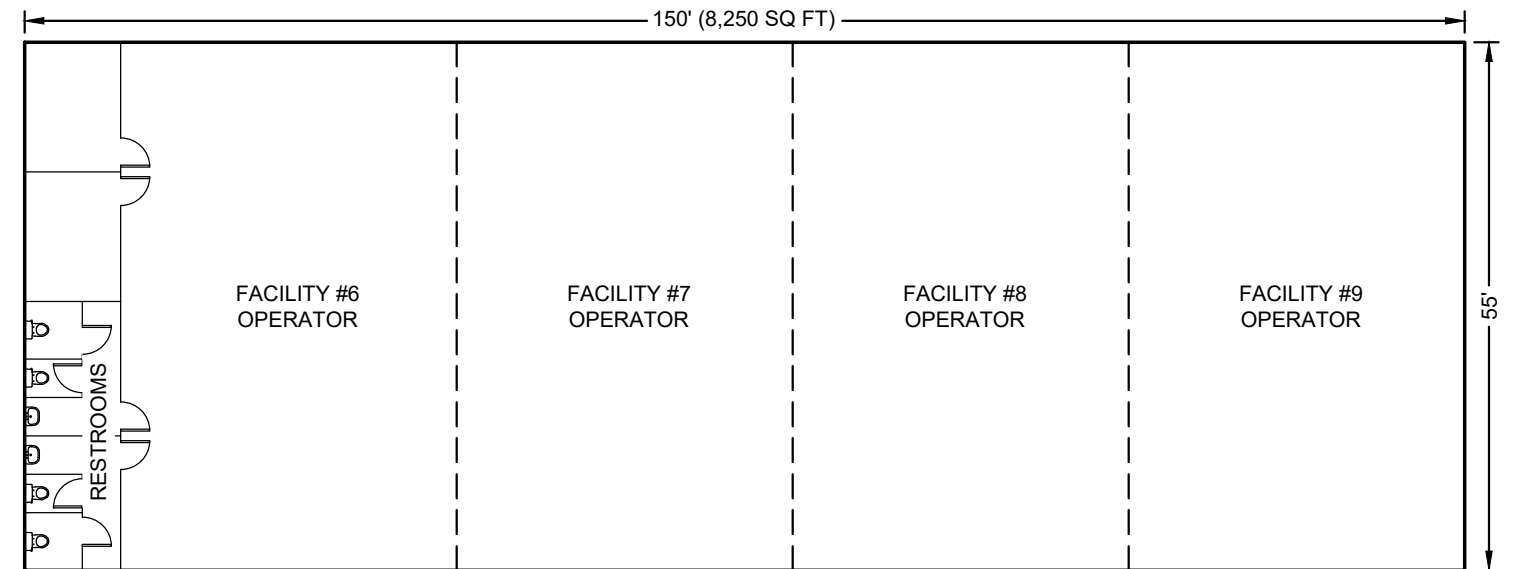


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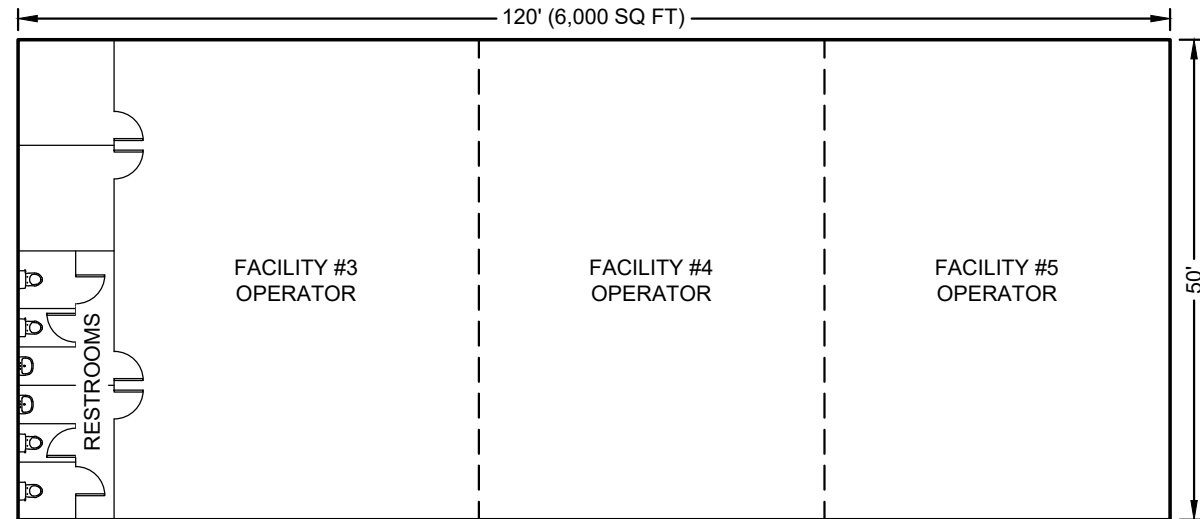
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11367_200_003
SHEET
1 of 1
PROJECT NO.
11367



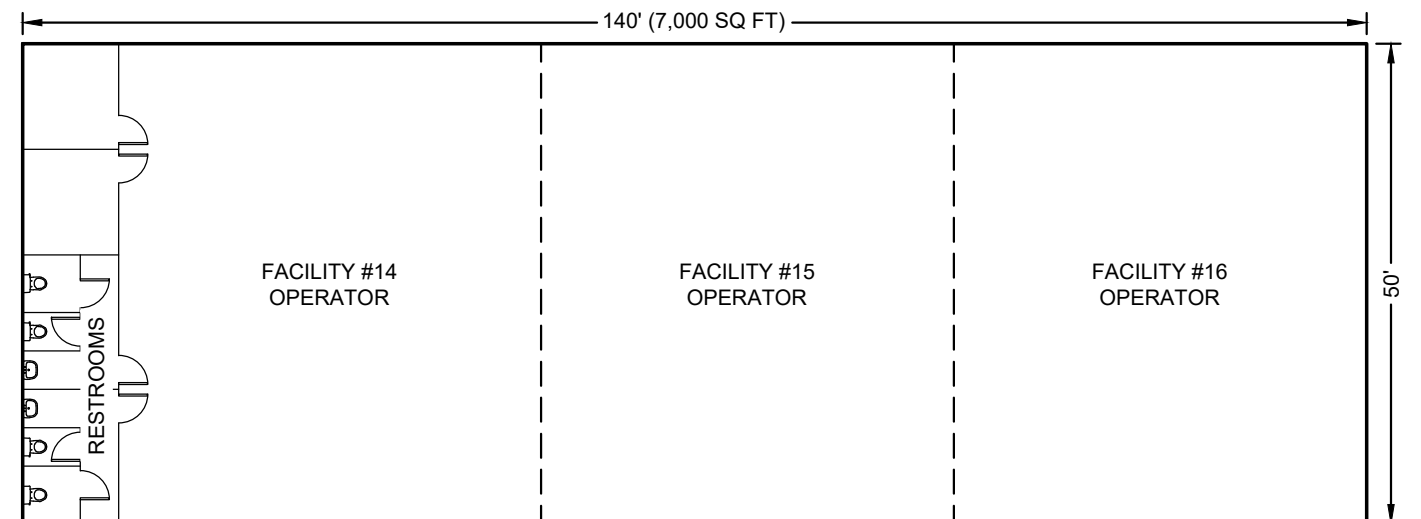
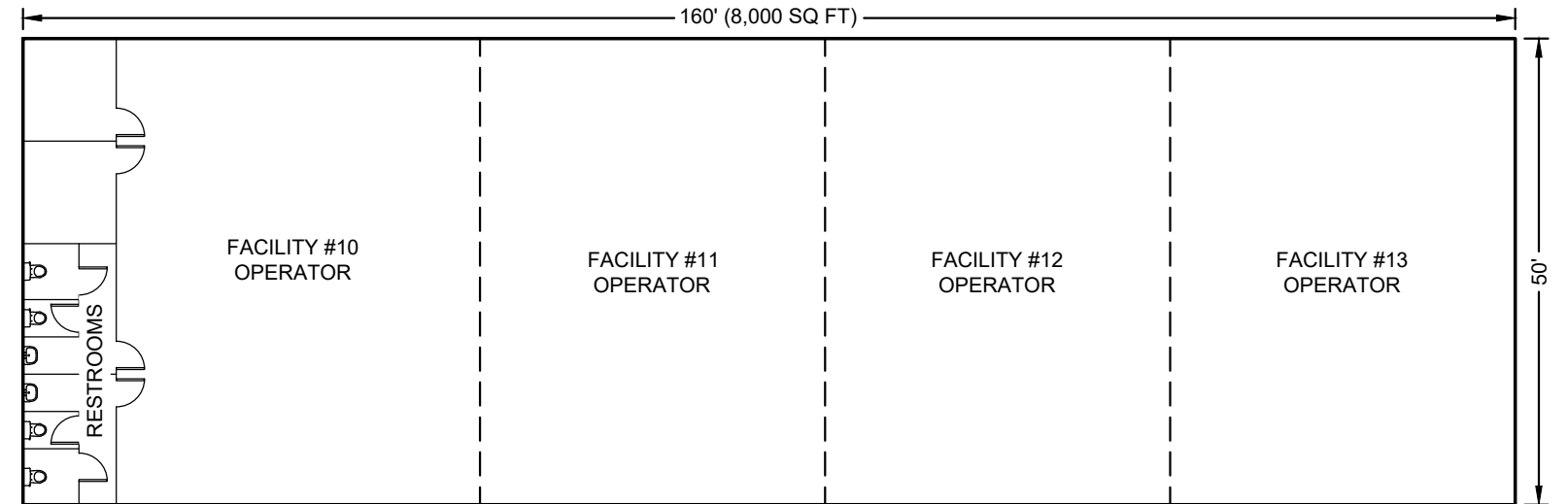
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TRIMMING AND DRYING BUILDING WITH RESTROOMS AT FACILITY #6, #7, #8, AND #9



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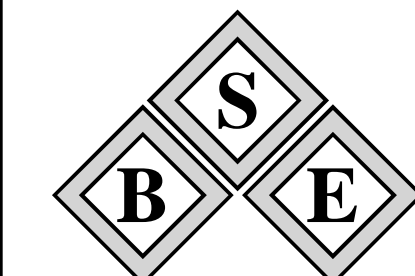
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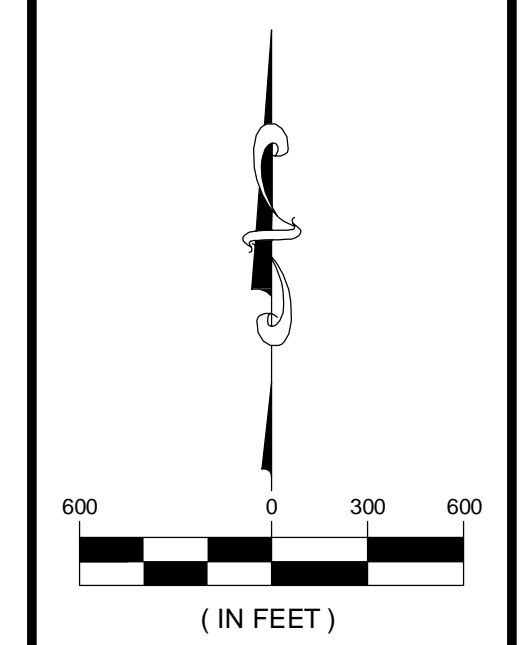


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CERTIFICATE OF LAND SURVEYING
BUSINESS AUTHORIZATION: LB000605

SCOTT M. GLAUBITZ, P.E. & P.L.S.
STATE OF FLORIDA, No. 33659 No. 4151

HASSAN A. KAMAL, P.E.
STATE OF FLORIDA, No. 41951



△		
△		
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△	REVISED FACILITY LOCATIONS	06/02/20
△	REVISED FACILITY LOCATIONS	12/13/19
△	REVISED FACILITY LOCATIONS	11/08/19
△	REVISED FACILITY LOCATIONS	02/15/19
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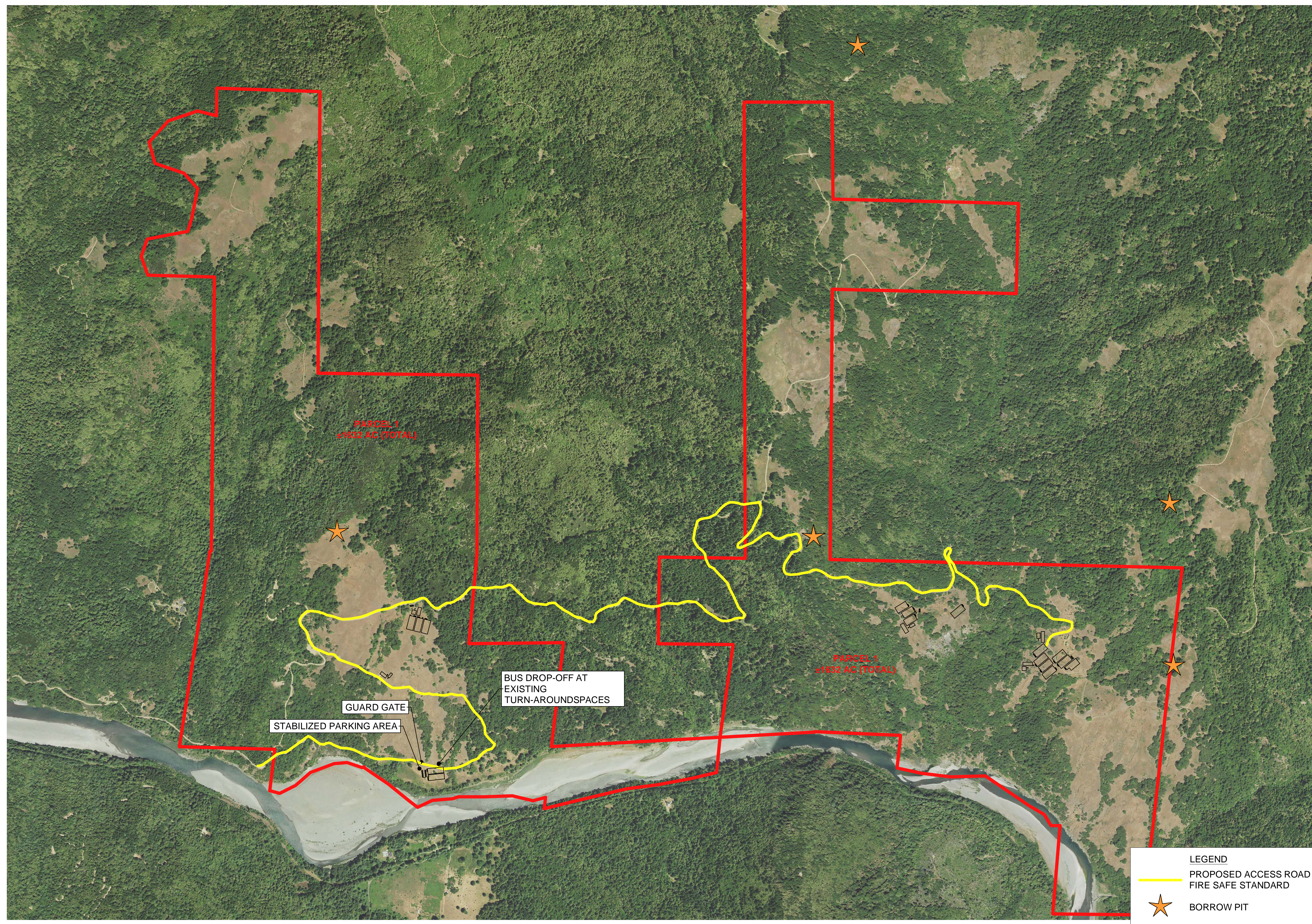
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ROLLING MEADOW RANCH HUMBOLDT COUNTY, CA

SHEET TITLE
ACCESS ROAD EXHIBIT

PROJECT NO.
11367

DRAWING NO.
11367_200_005

SHEET
1 of 1



LEGEND

- PROPOSED ACCESS ROAD FIRE SAFE STANDARD
- ★ BORROW PIT

BUS DROP-OFF AT EXISTING TURN-AROUNDSPACES

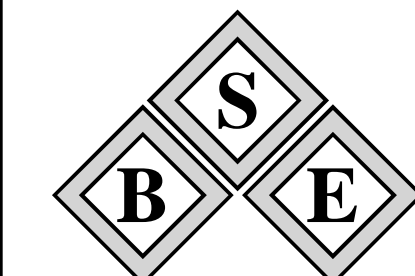
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STABILIZED PARKING AREA

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PARCEL 2
4832 AC (TOTAL)

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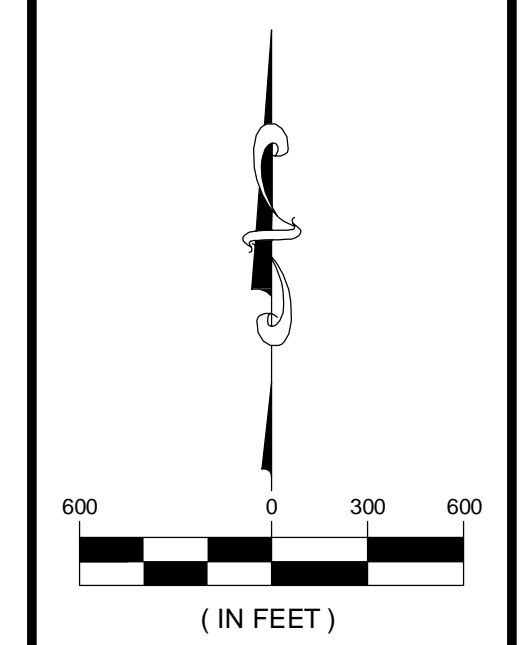


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STATE OF FLORIDA, No. 41951



△		
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△	REVISED FACILITY LOCATIONS	06/02/20
△	REVISED FACILITY LOCATIONS	12/13/19
△	REVISED FACILITY LOCATIONS	11/08/19
△	REVISED FACILITY LOCATIONS	02/15/19
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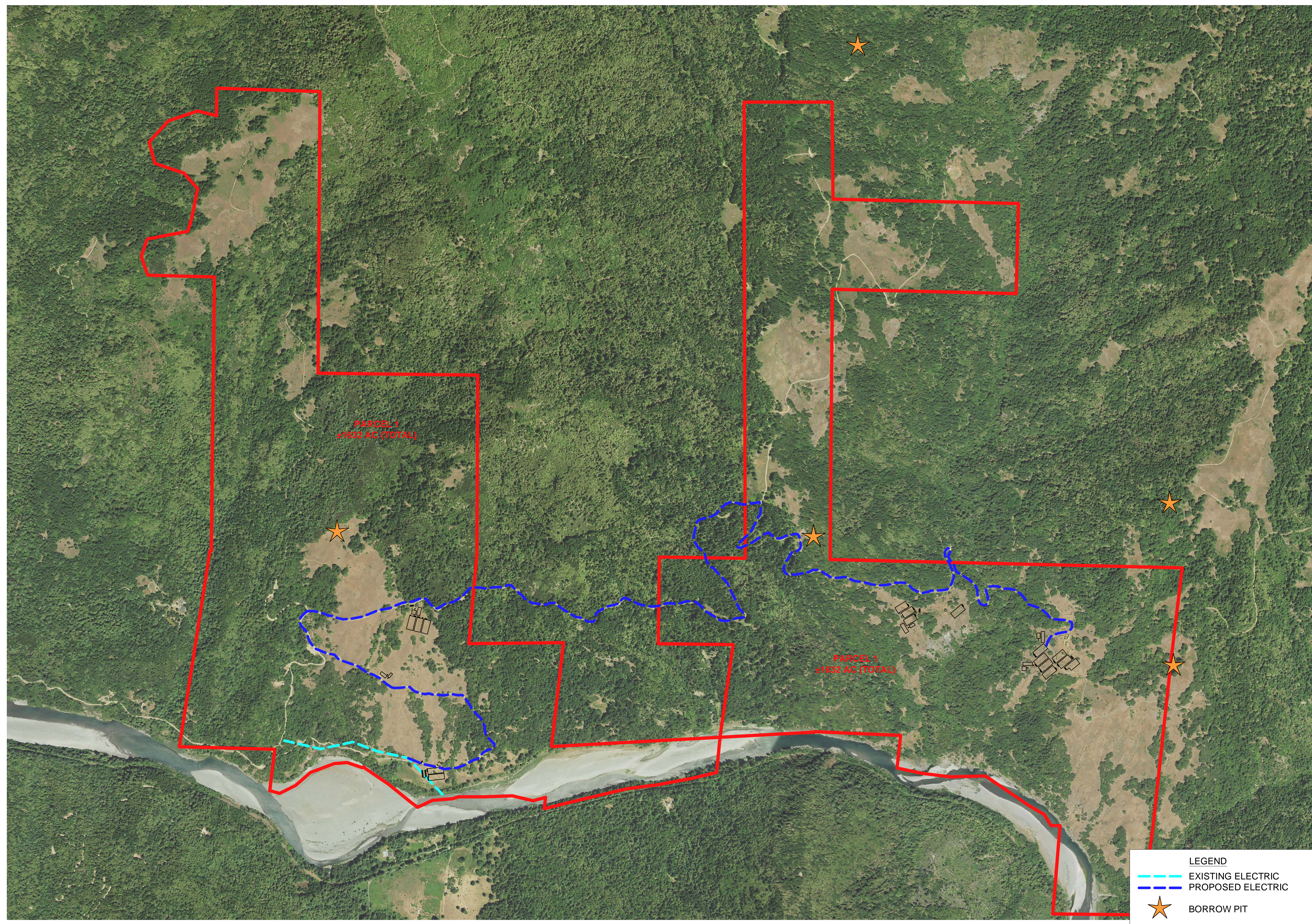
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**ROLLING
MEADOW RANCH
HUMBOLDT
COUNTY, CA**

SHEET TITLE
**ELECTRIC
EXHIBIT**

PROJECT NO.
11367

DRAWING NO.
11367_200_005

SHEET
1 of 1



LEGEND

	EXISTING ELECTRIC
	PROPOSED ELECTRIC
	BORROW PIT

SYMBOLS SHOWN ARE GRAPHIC IN NATURE; DUE TO SCALE, ALL DESIGN ELEMENTS ARE NOT NECESSARILY SHOWN ON PLAN VIEWS. THE CONTRACTOR SHALL ALSO REFER TO SPECIFICATION AND DETAIL SHEETS AS WELL AS THE COMPLETE PLAN SET.

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Botanical Survey Report: Rolling Meadow Ranch

Tract 1/4: Humboldt County APN 217-201-001
Tract 2/3: Humboldt County APNs 217-181-028, 217-182-014, and 211-284-009

Prepared by
Natural Resources Management Corporation
1434 Third Street, Eureka, CA 95501

Prepared for
Rolling Meadow Ranch

July 20, 2018

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Introduction

We conducted a botanical survey to determine the presence of sensitive species or natural communities within the proposed project areas. Survey findings are useful in assessing the potential for significant negative impacts on botanical resources and are critical in mitigating those impacts to a less than significant level. The following

report conforms to the California Department of Fish and Wildlife's (CDFW) *Protocols for Surveying and Evaluating Impacts to Special Status Native Plant Populations and Sensitive Natural Communities* (CDFW, 2018).

Project Description

The project is located on the north side of the main stem of the Eel River in southeastern Humboldt County, approximately 5 miles east of Highway 101, and is accessed via McCann Rd. (Figure 1). The legal description of the proposed *Cannabis* cultivation area (herein "project") is the USGS 7.5' quadrangle Myers Flat T2S R3E Sections 1, 2, 35 HB&M and T2S R4E section 6 HB&M (see Fig. 1, Location Map). Elevations within the project area range from approximately 60 to 425 m (200 to 1400 ft), and slopes range from approximately 5 to 50 percent. Aspects are generally southern.

Proposed new construction consists of four *Cannabis* cultivation sites, distributed between two portions of the total ownership, referred to as "Tracts" in the engineering plans (and herein) which combine portions of several parcels. The project areas consist of Tracts 1 and 4 combined and Tracts 2 and 3 combined. Only those APNs with proposed projects are included in this report.

Tract 2/3 combined is located on APN's 217-181-028, 217-182-014, and 211-284-009. At this location it is proposed to construct seven 22,000 square foot mixed light facilities and one 21,600 square foot mixed light facility for a total of 175,600 square feet for facility space and 143,496 square feet (3.29 acres) of cultivation space. These facilities will be located in three areas, hereafter referred to as South, Middle and North (Figure 2). At this location three 2000 square foot drying and processing buildings with restrooms will also be constructed. Three permitted septic systems will also be installed. Two wells will be drilled to provide water for both the irrigation and building needs.

Tract 1/4 combined is located on APN 217-201-001. At this location it is proposed to construct eight 22,000 square foot mixed light facilities for a total of 176,000 square feet of facility space and 144,000 (3.3 acres) of cultivation space. At this location two 2000 square foot drying and trimming buildings with restrooms will also be constructed. Two permitted septic systems will also be installed. A well will be drilled to provide water for both the irrigation and building needs.

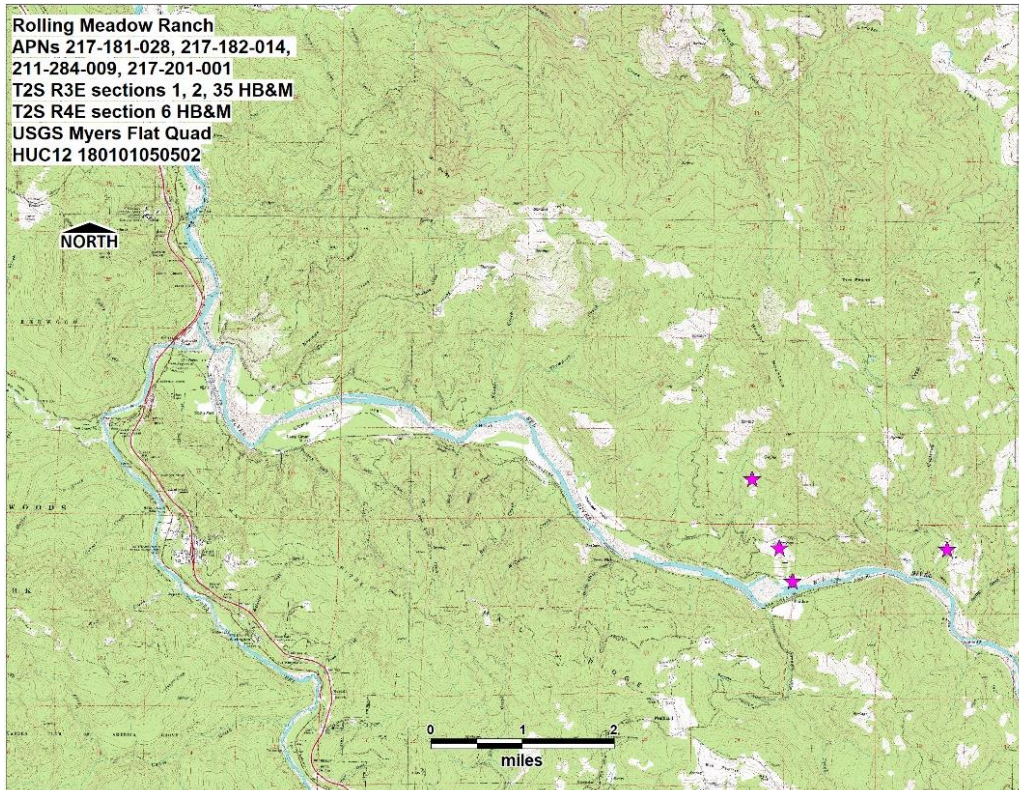


Figure 1. Location Map, Rolling Meadow Ranch, Topographic View.

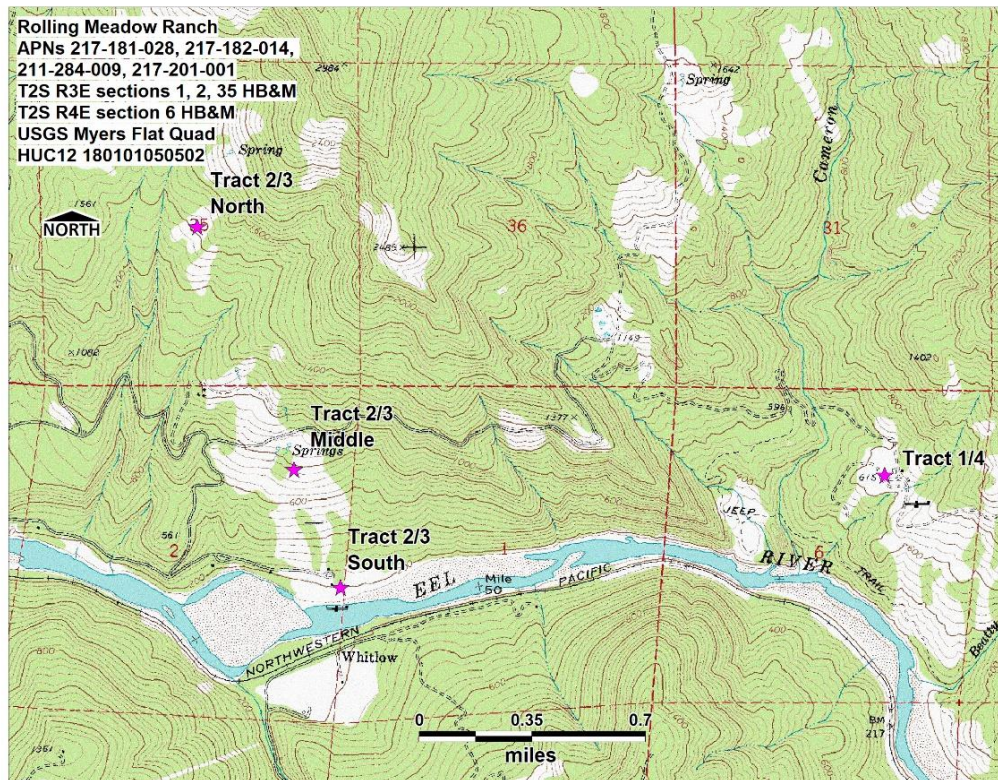


Figure 2a. Proposed Project Sites Rolling Meadow Ranch, Topographic View.



Figure 2b. Proposed Project Sites Rolling Meadow Ranch, Orthographic View. 2016 NAIP image.

Biological Description

Hydrology

The proposed project area is in the Eel River watershed (see Fig. 1, Location Map). Cameron & Beatty Creeks and numerous unnamed ephemeral streams drain the property. Several potential wetland areas were identified in and around the project area (Figures 4a-4d).

Soils

Soils within the proposed infrastructure footprint in the North section of Tract 2/3 are of the Wirefence-Windynip-Devilshole complex (5 to 30 percent slopes), with parent material of colluvium and residuum derived from sandstone (NRCS, 2018). These soils are described as well drained loams and underlain by gravelly loams and very gravelly fine sandy loams (NRCS, 2018). See Figure 3a, Tract 2/3 Project Area Soils Map.

Soils within the proposed infrastructure footprint in the Middle and South sections of Tract 2/3 are of the Yorknorth-Windynip complex (15 to 30 percent slopes), with parent material of colluvium derived from sandstone and/or earthflow deposits derived from schist (NRCS, 2018). These soils are described as moderately well drained silt loams underlain by silty clay loams (NRCS, 2018). See Figure 3a, Tract 2/3 Project Area Soils Map.

Soils within the proposed infrastructure footprint in Tract 1/4 are of the Yorknorth-Witherell complex (2 to 15 percent slopes) and the Yorknorth-Witherell complex (30 to 50 percent slopes), with parent material of colluvium derived from sandstone and/or earthflow deposits derived from schist (NRCS, 2018). The Yorknorth-Witherell complex (30 to 50 percent slopes) are described as moderately well drained silt loams underlain by silty clay loams, clay, and gravelly clay loams, while the Yorknorth-Witherell complex (2 to 15 percent slopes)

are described as moderately well drained loams underlain by layers of clays and clay loams (NRCS, 2018). See Figure 3b, Tract 1/4 Project Area Soils Map.

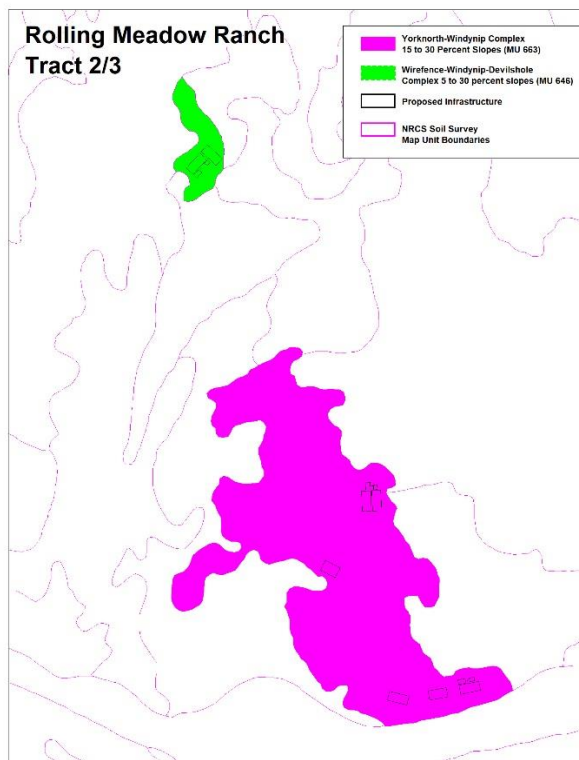


Figure 3a. Soils Map for Tract 2/3



Figure 3b. Soils Map for Tract 1/4

Vegetation

The project area lies within a mosaic of redwood forest, mixed evergreen forest and coastal prairie and nonnative grassland, with inclusions of black oak woodland (Holland, 1986). Red alder forest forms the main vegetation type along and mainstem Eel. The forest is primarily composed of the *Pseudotsuga menziesii* - *Notholithocarpus densiflorus* Forest Alliance (S4) at upper elevations and the *Sequoia sempervirens* Forest Alliance (S3.2) at lower elevations (CNPS 2, 2018). Tree species present but not dominant within both alliances include *Umbellularia californica*, *Acer macrophyllum*, *Arbutus menziesii*, and *Notholithocarpus densiflorus* var. *densiflorus*. The oak woodland inclusions are composed of the *Quercus kelloggii* Forest Alliance (S4), containing a *Quercus kelloggii*-*Quercus chrysolepis* association and a *Quercus kelloggii*/*Toxicodendron diversilobum*/grass association (CNPS 2, 2018). *Umbellularia californica*, *Acer macrophyllum*, *Quercus garryana* and *Aesculus californica* trees and *Baccharis pilularis*, *Rubus armeniacus* and *Heteromales arbutifolia* shrubs are also present within this vegetation type. These forested areas have been extensively logged by previous property owners and are largely composed of even-aged stands of second or third-growth trees.

The proposed project footprint lies almost entirely within the prairie and grassland portions of this mosaic, which are primarily composed of the *Holcus lanatus*-*Anthoxanthum odoratum* Herbaceous Semi-Natural Alliance (SR: NONE), areas dominated by *Dactylis glomerata*, and areas dominated by *Briza maxima*-*Bromus hordeaceus*. Within these larger communities were inclusions of *Elymus glaucus* stands (S3), the *Centaurea (solstitialis, melitensis)* Herbaceous Semi-Natural Alliance, the *Danthonia californica* Herbaceous Alliance and areas dominated by *Arrhenatherum elatius*, (S3) (CNPS 2, 2018). Common forb species present include *Brodiaea elegans*, *Crepis capillaris*, and *Linum bienne*. Shrubs such as *Baccharis pilularis*, *Rubus armeniacus*, *Heteromales arbutifolia* and *Toxicodendron diversilobum* are present as scattered thickets. These prairies have been heavily utilized for cattle grazing in recent decades. There is no active livestock management under the current owner, however the areas continue to be utilized by trespassing cattle.

Potential wetland areas identified in the project areas are defined by the dominance of Obligate (OBL) and Facultative-Wetland (FACW) and Facultative (FAC) species, as listed in the United States Army Core of Engineers Western Mountains, Valleys & Coast 2016 Regional Wetland Plant List (Lichvar et al., 2016). These areas are found primarily within the open prairie and are generally dominated by *Mentha pulegium* (OBL), *Cyperus eragrostis* (FACW), *Juncus effusus* (FACW), and *Holcus lanatus* (FAC).

Streams were identified and mapped during a site visit preceding the survey dates, according to the United States Army Core of Engineers *A Guide to Ordinary HighWater Mark (OHWM) Delineation for Non-Perennial Streams in the Western Mountains, Valleys, and Coast Region of the United States* (Merzel and Lichvar, 2014). There is one questionable stream like feature within Tract 2/3 North, where there is what appears like an ephemeral stream on possibly an old road bed. The landowner believes this feature is the manmade result of water captured on an old road. The topography in this area has been disrupted by road building in the past.

Botanical Survey Methods

Scoping

The current inventories of the California Native Plant Society's (CNPS) *Inventory of Rare and Endangered Plants of California* (CNPS 1, 2018), the CDFW California Natural Diversity Database (CNDDDB, 2018) were consulted to determine which special status plant species may occur within the project area and to compile a target species list. A nine-Quad query of CNDDDB and CNPS *Inventory* records resulted in 29 listed vascular and nonvascular plant species and one Sensitive Natural Community. This list was used to create a target species and communities list (Table 1). Species for which habitat does not exist in the project area (e.g., alpine habitat, coastal dunes) were not included in the target species list, resulting in a final list of 27 species (Table 1) and one Sensitive Natural

Community (Table 2). This list includes species listed, candidates for listing, or proposed for listing under the ESA, CESA and the California Native Plant Protection Act. These scoping strategies are consistent with the California Department of Fish and Wildlife protocols (CDFW, 2018) and the California Environmental Quality Act (State of California, 2001).

Table 1. Target Species List: CNPS Rare Plant Rank (CNPR) 1-4 Plants Known to Occur in the 9-quad Area Surrounding Project.

Scientific Name	Common Name	CRPR*	Bloom Period	Habitat	Micro Habitat	Elevation Low (m)	Elevation High (m)
<i>Astragalus agnicidus</i>	Humboldt County milk-vetch	1B.1	Apr-Sep	Broadleafed upland forest, North Coast coniferous forest	openings, disturbed areas, sometimes roadsides	120	800
<i>Carex arcta</i>	northern clustered sedge	2B.2	Jun-Sep	Bogs and fens, North Coast coniferous forest (mesic)		60	1400
<i>Castilleja ambigua</i> var. <i>ambigua</i>	johnny-nip	4.2	Mar-Aug	Coastal bluff scrub, Coastal prairie, Coastal scrub, Marshes and swamps, Valley and foothill grassland, Vernal pools margins		0	435
<i>Coptis laciniata</i>	Oregon goldthread	4.2	(Feb)Mar-May(Sep-Nov)	Meadows and seeps, North Coast coniferous forest (streambanks)	Mesic	0	1000
<i>Cypripedium fasciculatum</i>	clustered lady's-slipper	4.2	Mar-Aug	Lower montane coniferous forest, North Coast coniferous forest	usually serpentinite seeps and streambanks	100	2435
<i>Epilobium septentrionale</i>	Humboldt County fuchsia	4.3	Jul-Sep	Broadleafed upland forest, North Coast coniferous forest	sandy or rocky	45	1800
<i>Erythronium oregonum</i>	giant fawn lily	2B.2	Mar-Jun(Jul)	Cismontane woodland, Meadows and seeps	sometimes serpentinite, rocky, openings	100	1150
<i>Erythronium revolutum</i>	coast fawn lily	2B.2	Mar-Jul(Aug)	Bogs and fens, Broadleafed upland forest, North Coast coniferous forest	Mesic, streambanks	0	1600
<i>Gilia capitata</i> ssp. <i>pacifica</i>	Pacific gilia	1B.2	Apr-Aug	Coastal bluff scrub, Chaparral (openings), Coastal prairie, Valley and foothill grassland		5	1665
<i>Kopsiopsis hookeri</i>	small groundcone	2B.3	Apr-Aug	North Coast coniferous forest		90	885
<i>Lathyrus glandulosus</i>	sticky pea	4.3	Apr-Jun	Cismontane woodland		300	800
<i>Lilium kelloggii</i>	Kellogg's lily	4.3	May-Aug	Lower montane coniferous forest, North Coast coniferous forest	Openings, roadsides	3	1300
<i>Lilium rubescens</i>	redwood lily	4.2	Apr-Aug(Sep)	Broadleafed upland forest, Chaparral, Lower montane coniferous forest, North Coast coniferous forest, Upper montane coniferous forest	Sometimes serpentinite, sometimes roadsides	30	1910
<i>Listera cordata</i>	heart-leaved twayblade	4.2	Feb-Jul	Bogs and fens, Lower montane coniferous forest, North Coast coniferous forest		5	1370
<i>Lycopodium clavatum</i>	running-pine	4.1	Jun-Aug(Sep)	Lower montane coniferous forest (mesic), Marshes and swamps, North Coast coniferous forest (mesic)	often edges, openings, and roadsides	45	1225
<i>Mitellastra caulescens</i>	leafy-stemmed mitrewort	4.2	(Mar)Apr-Oct	Broadleafed upland forest, Lower montane coniferous forest, Meadows and seeps, North Coast coniferous forest	mesic, sometimes roadsides	5	1700

<i>Montia howellii</i>	Howell's montia	2B.2	(Feb)Mar-May	Meadows and seeps, North Coast coniferous forest, Vernal pools	vernally mesic, sometimes roadsides	0	835
<i>Packera bolanderi</i> var. <i>bolanderi</i>	seacoast ragwort	2B.2	(Jan-Apr)May-Jul(Aug)	Coastal scrub, North Coast coniferous forest	Sometimes roadsides	30	650
<i>Piperia candida</i>	white-flowered rein orchid	1B.2	(Mar)May-Sep	Broadleafed upland forest, Lower montane coniferous forest, North Coast coniferous forest	sometimes serpentinite	30	1310
<i>Pityopus californicus</i>	California pinefoot	4.2	(Mar-Apr)May-Aug	Broadleafed upland forest, Lower montane coniferous forest, North Coast coniferous forest, Upper montane coniferous forest	mesic	15	2225
<i>Pleuropogon refractus</i>	nodding semaphore grass	4.2	(Mar)Apr-Aug	Lower montane coniferous forest, Meadows and seeps, North Coast coniferous forest, Riparian forest	mesic	0	1600
<i>Sanicula tracyi</i>	Tracy's sanicle	4.2	Apr-Jul	Cismontane woodland, Lower montane coniferous forest, Upper montane coniferous forest	openings	100	1585
<i>Sidalcea malachroides</i>	maple-leaved checkerbloom	4.2	(Mar)Apr-Aug	Broadleafed upland forest, Coastal prairie, Coastal scrub, North Coast coniferous forest, Riparian woodland	often in disturbed areas	0	730
<i>Sidalcea malviflora</i> ssp. <i>patula</i>	Siskiyou checkerbloom	1B.2	May-Aug	Coastal bluff scrub, Coastal prairie, North Coast coniferous forest	often roadcuts	15	880
<i>Tracyina rostrata</i>	beaked tracyina	1B.2	May-Jun	Chaparral, Cismontane woodland, Valley and foothill grassland		90	790
<i>Usnea longissima</i>	Methuselah's beard lichen	4.2		Broadleafed upland forest, North Coast coniferous forest	On tree branches; usually on old growth hardwoods and conifers	50	1460
<i>Wyethia longicaulis</i>	Humboldt County wyethia	4.3	May-Jul	Broadleafed upland forest, Coastal prairie, Lower montane coniferous forest	sometimes roadsides	750	1525

*Listing codes are as follows: CRPR 1B = rare, threatened, or endangered in CA and elsewhere; CRPR 2B = rare, threatened, or endangered in CA, but more common elsewhere; CRPR 3 = plants about which more information is needed; a review list; CRPR 4 = of limited distribution or infrequent throughout a broader area in California. Ranks at each level also include a threat rank and are determined as follows: 0.1-Seriously threatened in California; 0.2-Moderately threatened in California; 0.3-Not very threatened in California (CNPS 1, 2018).

Table 2. Target Sensitive Natural Communities List: Communities Known to Occur in the 9-quad Area Surrounding Project.

Community Name	State Rank*	Legacy CNDDDB Occurrence?	Alliance Name (Sawyer and Keeler-Wolf, 2009)
Upland Douglas -fir forest (Holland, 1986)	S3.1	Yes	<i>Pseudotsuga menziesii</i> Forest Alliance

*Listing codes are as follows: S1: Fewer than 6 viable occurrences worldwide/ statewide, and/ or up to 518 hectares; S2: 6-20 viable occurrences worldwide/ statewide, and/ or more than 518-2,590 hectares; S3: 21-100 viable occurrences worldwide/ statewide, and/ or more than 2,590-12,950 hectares; S4: Greater than 100 viable occurrences worldwide/ statewide, and/ or more than 12,950 hectares; S5: Demonstrably secure because of its worldwide/ statewide abundance. Additional Threat Ranks: 0.1=Very threatened; 0.2=Threatened; 0.3= No current threat known.

Surveys

Surveys were conducted according to the CDFW *Protocols* (CDFW, 2018) by Claire Brown on May 28 and July 3, 2018. Claire holds a Bachelor of Science Degree in Ecology and Evolutionary Biology from the University of Tennessee and has 6 years of experience performing botanical surveys in California, including in the North Coast region. Field survey hours totaled 16. The comprehensive survey method was used to cover the proposed project

areas intensively (Figures 4a-4d). The survey was seasonally appropriate (i.e., conducted during target species' blooming windows or when plants were readily identifiable by vegetative characteristics) for most target species (Table 1). Suitable habitat (when present) for each target species was identified. It was not possible to visit reference populations of target species. Vascular plants encountered in the field were identified to the lowest taxonomic level necessary for a rare species determination. Species were identified using the *Jepson Manual* 2nd edition (Baldwin et al., 2012) A comprehensive species list for the project area was recorded and is attached (Table 4).

Vegetation types within and around the project area were identified and recorded according to the conventions of *A Manual of California Vegetation, Second Edition* (Sawyer and Keeler-Wolf, 2009). CDFW's *California Sensitive Natural Communities* list (CDFW 3, 2018) was referenced to determine if Sensitive Communities were included in the vegetation alliances and associations found on-site.

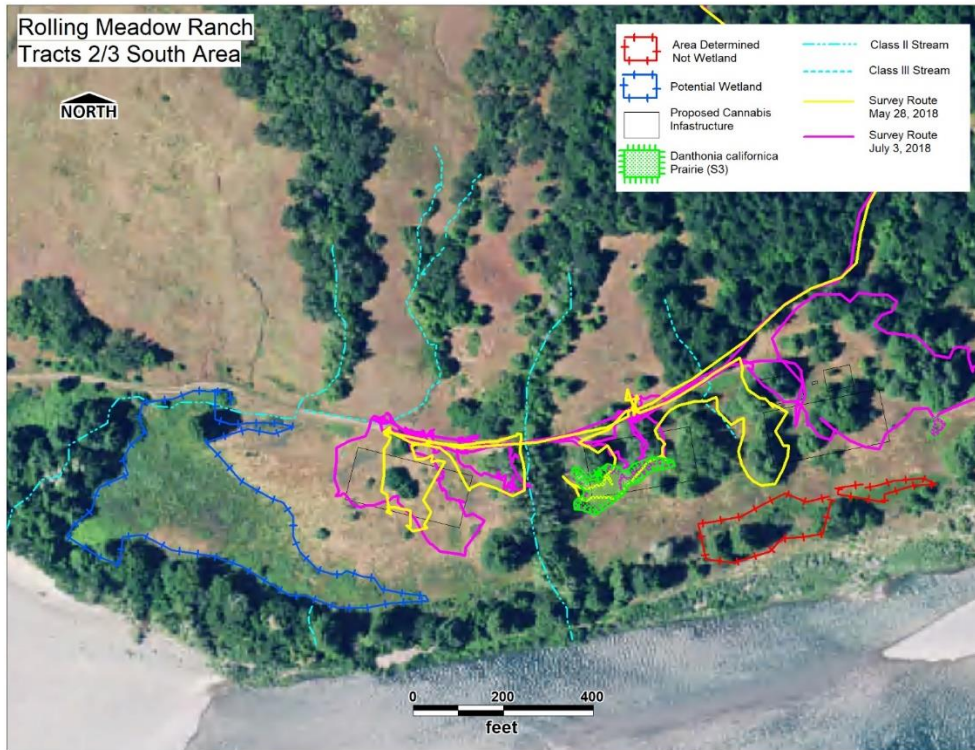


Figure 4a. Survey Routes, Tracts 2/3 South. 2016 NAIP image.



Figure 4b. Survey Routes, Tracts 2/3 Middle. 2016 NAIP image.

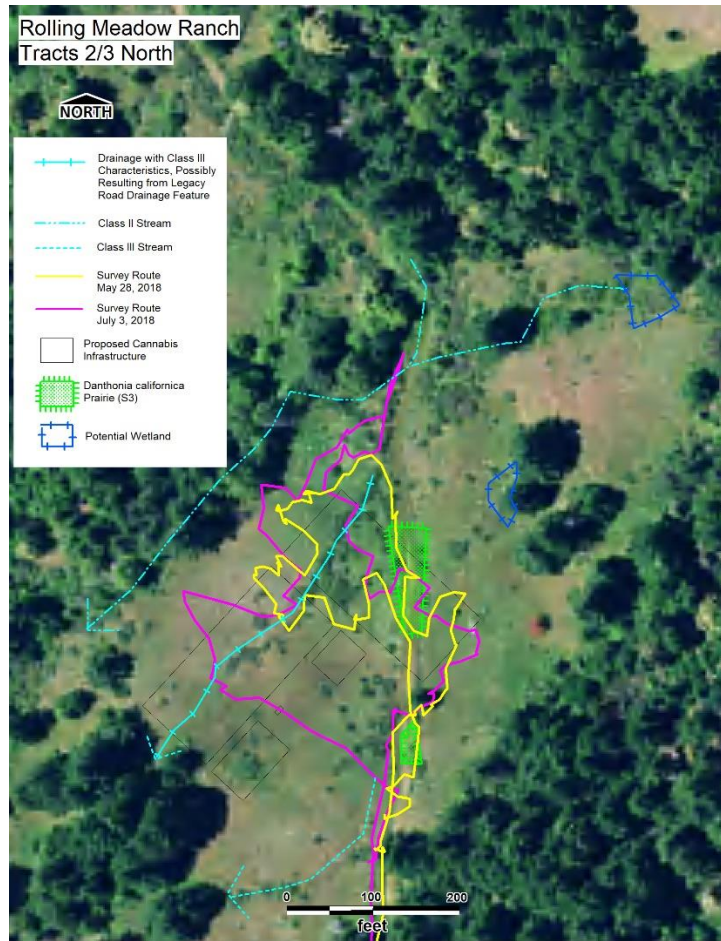


Figure 4c. Survey Routes, Tracts 2/3 North. 2016 NAIP image.



Figure 4d. Survey Routes, Tracts 1/4. 2016 NAIP image.

Survey Results

Special Status Species

No rare, endangered, or CNPS list 1, 2, 3 or 4 plants were found during the surveys. The overall survey results are summarized in Table 3. A total of 140 plant taxa were identified within the project area. All taxa are listed in Table 4. Weather patterns and climate conditions in the months prior to the surveys were average, and conditions should have been suitable for growth and flowering of most species for which habitat was present. The early survey was potentially too late in the season to detect Howell's Montia (*Montia howellii*) but only marginal habitat was found on site.

Table 3. Summary of Findings for Special Status Plant Species

Scientific Name	Common Name	CRPR	Blooming Period	Species Detected?	Potential Habitat Present?
<i>Astragalus agnicidus</i>	Humboldt County milk-vetch	1B.1	Apr-Sep	No	Yes-roadsides and forest openings
<i>Carex arcta</i>	northern clustered sedge	2B.2	Jun-Sep	No	Marginal – seasonal wetlands present, no fens or bogs.
<i>Castilleja ambigua</i> var. <i>ambigua</i>	johnny-nip	4.2	Mar-Aug	No	Yes-prairie areas with thin soils
<i>Coptis laciniata</i>	Oregon goldthread	4.2	(Feb)Mar-May(Sep-Nov)	No	Marginal -project footprint largely within prairie, away from streambanks
<i>Cypripedium fasciculatum</i>	clustered lady's-slipper	4.2	Mar-Aug	No	Marginal - no serpentine soils present
<i>Epilobium septentrionale</i>	Humboldt County fuchsia	4.3	Jul-Sep	No	Marginal – no sandy or rocky outcroppings present, only rocky thin soils
<i>Erythronium oregonum</i>	giant fawn lily	2B.2	Mar-Jun(Jul)	No	Marginal -project footprint largely within prairie, away from streambanks
<i>Erythronium revolutum</i>	coast fawn lily	2B.2	Mar-Jul(Aug)	No	Marginal -project footprint largely within prairie, away from streambanks
<i>Gilia capitata</i> ssp. <i>pacifica</i>	Pacific gilia	1B.2	Apr-Aug	No	Yes-some rocky areas with thin soils present within prairie
<i>Kopsiopsis hookeri</i>	small groundcone	2B.3	Apr-Aug	No	Marginal- madrone present but not within project footprint
<i>Lathyrus glandulosus</i>	sticky pea	4.3	Apr-Jun	No	Marginal- usually found at higher elevations than project area.
<i>Lilium kelloggii</i>	Kellogg's lily	4.3	May-Aug	No	Yes - shady roadside habitat present
<i>Lilium rubescens</i>	redwood lily	4.2	Apr-Aug(Sep)	No	Marginal-forest edge habitat present but project footprint largely within prairie
<i>Listera cordata</i>	heart-leaved twayblade	4.2	Feb-Jul	No	Marginal -project footprint largely within prairie
<i>Lycopodium clavatum</i>	running-pine	4.1	Jun-Aug(Sep)	No	Marginal-habitat present along roadsides
<i>Mitellastra caulescens</i>	leafy-stemmed mitrewort	4.2	(Mar)Apr-Oct	No	Marginal -project footprint largely within prairie, away from streambanks
<i>Montia howellii</i>	Howell's montia	2B.2	(Feb)Mar-May	No	Marginal- seasonal wetlands present but few low-cover vernal pools. Roads grassy.
<i>Packera bolanderi</i> var. <i>bolanderi</i>	seacoast ragwort	2B.2	(Jan-Apr)May-Jul(Aug)	No	Marginal -project footprint largely within prairie, potential habitat found along roadsides
<i>Piperia candida</i>	white-flowered rein orchid	1B.2	(Mar)May-Sep	No	Marginal -project footprint largely within prairie, some habitat under trees in Tract 2/3 South and along roadsides
<i>Pityopus californicus</i>	California pinefoot	4.2	(Mar-Apr)May-Aug	No	Marginal -project footprint largely within prairie
<i>Pleuropogon refractus</i>	nodding semaphore grass	4.2	(Mar)Apr-Aug	No	Marginal -project footprint largely within prairie

<i>Sanicula tracyi</i>	Tracy's sanicle	4.2	Apr-Jul	No	Marginal -project footprint largely within prairie
<i>Sidalcea malachroides</i>	maple-leaved checkerbloom	4.2	(Mar)Apr-Aug	No	Yes-roadsides
<i>Sidalcea malviflora ssp. patula</i>	Siskiyou checkerbloom	1B.2	May-Aug	No	Yes-prairie and roadsides
<i>Tracyina rostrata</i>	beaked tracyina	1B.2	May-Jun	No	Yes- prairie, oak woodland
<i>Usnea longissima</i>	Methuselah's beard lichen	4.2		No	Marginal -project footprint largely within prairie
<i>Wyethia longicaulis</i>	Humboldt County wyethia	4.3	May-Jul	No	Marginal -Usually found at elevations higher than within the project area

Sensitive Natural Communities

Pseudotsuga menziesii - *Notholithocarpus densiflorus* Forest Alliance (S4) and the *Sequoia sempervirens* Forest Alliance (S3.2) are found in the vicinity of the project area. The proposed construction footprint does not directly impact these communities with the exception of the small portion of the footprint within the Tract 2/3 South area, where several *Sequoia sempervirens* trees are within the footprint (Figure 4a).

Stands of *Danthonia californica* Prairie (S3, Alliance Code 41.050.00) and the *Elymus glaucus* association (S3 association code 41.640.01) were identified within several of the project sites. Each of these stands were smaller than the conventional minimum mapping unit of 1 acre and cannot therefore be conventionally mapped as a Natural Community and submitted to VegCAMP (CDFW 2, 2018). However, the size and location of these stands was included within the survey maps (Figures 4a-4d).

Discussion

No rare, endangered, or CNPS list 1, 2, 3 or 4 plants were found during the surveys. Climate conditions in the months preceding the surveys were within the range of average. *Tracyina rostrata*, for example, bears close resemblance to other common weedy Asteraceae species when fruiting, and despite careful searching could be overlooked if survey timing did not align perfectly with blooming. As no reference populations were available, bloom time predictions were made based on elevation, aspect and position within the geographic range of each species.

Sensitive natural communities (with a State Rank of S1-3) were only found to exist in stands less than one acre in size (Figures 4a-4b). Development at all sites would impact small stands of *Danthonia californica* Prairie (S3), and development in Tract 1/4 would impact several small stands of *Elymus glaucus* (S3) (Figure 4d).

The proposed project footprint is outside of any stream or wetland areas, except for within Tract 2/3 North, where a drainage with the characteristics of an ephemeral (Class III) stream runs through the proposed cultivation area. The landowner believes this feature is the result of a legacy drainage issue in an old road. The topography in the area has been disrupted by road building in the past (Figure 4c).

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Table 4. Overall list of vascular and non-vascular plant species and lichens noted within project area

Trees

Species Name	Common Name	Family
<i>Acer macrophyllum</i>	Bigleaf maple	Sapindaceae
<i>Aesculus californica</i>	Buckeye	Sapindaceae
<i>Alnus rubra</i>	Red alder	Betulaceae
<i>Arbutus menziesii</i>	Madrone	Ericaceae
<i>Notholithocarpus densiflorus var. densiflorus</i>	Tanoak	Fagaceae
<i>Prunus cerasifera</i>	Cherry plum	Rosaceae

<i>Pseudotsuga menziesii</i>	Douglas-fir	Pinaceae
<i>Quercus garryana</i>	Oregon Oak	Fagaceae
<i>Quercus kelloggii</i>	Black oak	Fagaceae
<i>Sequoia sempervirens</i>	Coast redwood	Cupressaceae
<i>Umbellularia californica</i>	California bay laurel	Lauraceae

Shrubs

Species Name	Common name	Family
<i>Bacharis pilularis</i>	Coyote brush	Asteraceae
<i>Bacharis pilularis</i>	Coyote bush	Asteraceae
<i>Gaultheria shallon</i>	Salal	Ericaceae
<i>Genista monspessulana</i>	French broom	Fabaceae
<i>Heteromeles arbutifolia</i>	Toyon	Rosaceae
<i>Holodiscus discolor</i> var. <i>discolor</i>	Oceanspray	Rosaceae
<i>Kniphofia uvaria</i>	Red hot poker	Asphodelaceae
<i>Mimulus aurantiacus</i>	Sticky monkeyflower	Phrymaceae
<i>Oemlaria cerasiformis</i>	Oso berry	Rosaceae
<i>Ribes menziesii</i>	Gooseberry	Grossulariaceae
<i>Ribes roezlii</i> var. <i>cruentum</i>	Spiny fruited gooseberry	Grossulariaceae
<i>Rosa californica</i>	California wild rose	Rosaceae
<i>Rosa canina</i>	Dog rose	Rosaceae
<i>Rubus armeniacus</i>	Himalayan blackberry	Rosaceae
<i>Rubus leucodermis</i>	Whitebark raspberry	Rosaceae
<i>Rubus parviflorus</i>	Thimbleberry	Rosaceae
<i>Rubus ursinus</i>	California blackberry	Rosaceae
<i>Toxicodendron diversilobum</i>	Poison oak	Anacardiaceae

Herbaceous Plants

Species Name	Common Name	Family
<i>Carduus pycnocephalus</i>	Italian thistle	Asteraceae
<i>Acmispon americanus</i> var. <i>americanus</i>	American lotus	Fabaceae
<i>Acmispon parviflorus</i>	Hill lotus	Fabaceae
<i>Agoseris</i> sp.	Dandelion	Asteraceae

<i>Amaryllis belladonna</i>	Pink naked ladies	Amaryllidaceae
<i>Ansiocarpus madiodes</i>	Woodland Tarweed	Asteraceae
<i>Brodiaea elegans ssp. elegans</i>	Harvest Brodiaea	Themidaceae
<i>Centaurea solstitialis</i>	Yellow star thistle	Asteraceae
<i>Chlorogalum pomeridianum</i>	Soap plant	Asparagaceae
<i>Cichorium intybus</i>	Chicory	Asteraceae
<i>Cirsium vulgare</i>	Bull thistle	Asteraceae
<i>Clarkia purpurea</i>	Winecup clarkia	Onagraceae
<i>Claytonia perfoliata ssp. perfoliata</i>	Miner's lettuce	Montiaceae
<i>Convolvulus arvensis</i>	Bindweed	Convolvulaceae
<i>Crepis capillaris</i>	Hawks beard	Asteraceae
<i>Cyperus eragrostis</i>	Tall Flat Sedge	Cyperaceae
<i>Daucus carota</i>	Wild carrot	Apiaceae
<i>Daucus pusillus</i>	rattlesnake weed	Apiaceae
<i>Dipsacus fullonum</i>	Teasel	Dipsacaceae
<i>Elymus caput-medusae</i>	Medusa Head	Poaceae
<i>Epilobium ciliatum ssp. ciliatum</i>	Willow herb	Onagraceae
<i>Erodium botrys</i>	Broad leaved filaree	Geraniaceae
<i>Eschscholzia californica</i>	California poppy	Papaveraceae
<i>Foeniculum vulgare</i>	Fennel	Apiaceae
<i>Fragaria vesca</i>	Woodland strawberry	Rosaceae
<i>Geranium dissectum</i>	Cut leaved geranium	Geraniaceae
<i>Hordeum marinum</i>	Seaside Barley	Poaceae
<i>Hordeum murinum ssp. leporinum</i>	Barley	Poaceae
<i>Hypericum perforatum</i>	St. John's wort	Hypericaceae
<i>Hypochaeris radicata</i>	Cat's ear	Asteraceae
<i>Iris douglasiana</i>	Douglas iris	Iridaceae
<i>Iris germanica</i>	Bearded Iris	Iridaceae
<i>Lactuca virilis</i>	Bitter lettuce	Asteraceae
<i>Lactuca virosa</i>	Bitter lettuce	Asteraceae
<i>Leucanthemum vulgare</i>	Oxeye daisy	Asteraceae
<i>Linum bienne</i>	Pale flax	Linaceae

<i>Logfia filaginoides</i>	California cottonrose	Asteraceae
<i>Logfia gallica</i>	Narrowleaf cottonrose	Asteraceae
<i>Lonicera hispidula</i>	Pink honeysuckle	Caprifoliaceae
<i>Lythrum hyssopifolia</i>	Hyssop loosestrife	Lythraceae
<i>Madia exigua</i>	Small tarweed	Asteraceae
<i>Madia gracilis</i>	Grassy tarweed	Asteraceae
<i>Medicago polymorpha</i>	Medic	Fabaceae
<i>Mentha pulegium</i>	Pennyroyal	Lamiaceae
<i>Mimulus guttatus</i>	Seep monkeyflower	Phrymaceae
<i>Osmorhiza berteroi</i>	Sweet cicely	Apiaceae
<i>Plantago lanceolata</i>	English plantain	Plantaginaceae
<i>Polygala californica</i>	California milkwort	Polygalaceae
<i>Polygonum aviculare</i>	Prostrate knotweed	Polygonaceae
<i>Prunella vulgaris ssp. lanceolata</i>	Self-heal	Lamiaceae
<i>Prunella vulgaris ssp. vulgaris</i>	Self-heal	Lamiaceae
<i>Rumex acetosella</i>	Sheep sorrel	Polygonaceae
<i>Rumex pulcher</i>	Fiddle dock	Polygonaceae
<i>Sanicula crassicaulis</i>	Pacific sanicle	Apiaceae
<i>Silybum marianum</i>	Milk thistle	Asteraceae
<i>Sisyrinchium bellum</i>	Blue-eyes grass	Iridaceae
<i>Sonchus asper ssp. asper</i>	Spiny sow's thistle	Asteraceae
<i>Sonchus oleraceus</i>	Sow's thistle	Asteraceae
<i>Spergularia rubra</i>	Purple sand spurry	Caryophyllaceae
<i>Stachys rigida var. quercetorum</i>	Rough hedge nettle	Lamiaceae
<i>Torilis arvensis</i>	Hedge parsley	Apiaceae
<i>Trifolium dubium</i>	Shamrock clover	Fabaceae
<i>Trifolium hirtum</i>	Rose clover	Fabaceae
<i>Trifolium hybridum</i>	Aslike clover	Fabaceae
<i>Trifolium repens</i>	White clover	Fabaceae
<i>Triteleia hyacinthina</i>	Wild hyacinth	Themidaceae
<i>Triteleia laxa</i>	Ithuriel's spear	Themidaceae
<i>Verbena lasiostachys</i>	Western vervain	Verbenaceae

<i>Veronica serpyllifolia</i> ssp. <i>humifusa</i>	Bright Blue speedwell	Plantaginaceae
<i>Vicia sativa</i> subsp. <i>nigra</i>	Common vetch	Fabaceae
<i>Whipplea modesta</i>	Modesty	Hydrangeaceae
<i>Zeltnera muehlenbergii</i>	Centaury	Gentianaceae
<i>Wyethia angustifolia</i>	Narrow-leaf mule's ears	Asteraceae

Grasses and Graminoids

Species Name	Common Name	Family
<i>Agrostis capillaris</i>	Colonial bentgrass	Poaceae
<i>Aira caryophylla</i>	Silver hairgrass	Poaceae
<i>Anthoxanthum odoratum</i>	Sweet vernal grass	Poaceae
<i>Arrhenatherum elatius</i>	Tall Oatgrass	Poaceae
<i>Avena barbata</i>	Wild Oats	Poaceae
<i>Briza maxima</i>	Rattlesnake grass	Poaceae
<i>Bromus diandrus</i>	Rip gut brome	Poaceae
<i>Bromus hordeaceus</i>	Soft Chess	Poaceae
<i>Bromus madritensis</i> ssp. <i>rubens</i>	Foxtail brome	Poaceae
<i>Bromus sterilis</i>	Poverty Brome	Poaceae
<i>Carex barbarae</i>	Valley sedge	Cyperaceae
<i>Carex gynodynamis</i>	Wonder woman sedge	Cyperaceae
<i>Cynodon dactylon</i>	Burmuda Grass	Poaceae
<i>Cynosurus echinatus</i>	Hedgehog dogtail grass	Poaceae
<i>Dactylis glomerata</i>	Orchard grass	Poaceae
<i>Danthonia californica</i>	California oat grass	Poaceae
<i>Deschampsia elongata</i>	Hairgrass	Poaceae
<i>Elymus glaucus</i>	Blue wild rye	Poaceae
<i>Festuca arundinacea</i>	Tall fescue	Poaceae
<i>Festuca myuros</i>	Sixweeks grass	Poaceae
<i>Festuca perennis</i>	Italian Rye	Poaceae
<i>Holcus lanatus</i>	Purple velvet grass	Poaceae
<i>Juncus bufonius</i> var. <i>bufonius</i>	Toad rush	Juncaceae
<i>Juncus confusus</i>	Colorado rush	Juncaceae
<i>Juncus effusus</i> ssp. <i>pacificus</i>	Common rush	Juncaceae

<i>Juncus patens</i>	Grey rush	Juncaceae
<i>Luzula comosa</i>	Common wood rush	Juncaceae
<i>Melica harfordii</i>	Hartford's melic	Poaceae
<i>Melica torreyana</i>	Torrey's melica	Poaceae
<i>Stipa pulchra</i>	Purple needlegrass	Poaceae

Ferns and Allies

Species Name	Common name	Family
<i>Athyrium filix-femina</i>	Lady fern	Pteridaceae
<i>Dryopteris sp.</i>	Wood fern	Dryopteridaceae
<i>Equisetum laevigatum</i>	Smooth scouring rush	Equisetaceae
<i>Pentagramma triangularis ssp. triangularis</i>	Gold back fern	Pteridaceae
<i>Polypodium glycyrrhiza</i>	Licorice fern	Polypodiaceae
<i>Polystichum munitum</i>	Sword fern	Dryopteridaceae
<i>Pteridium aquilinum var. pubescens</i>	Western bracken fern	Dennstaedtiaceae

Bryophytes

Species Name	Common Name	Family
<i>Polytrichum sp.</i>	Star moss	Polytrichaceae

Lichens

Species Name	Common Name	Family
<i>Usnea sp.</i>	beard lichen	Parmeliaceae

Assessment of road improvement and maintenance activities impacts to botanical resources

Rolling Meadows Ranch

Supplemental to the Assessment for Compliance with Humboldt County Code Section 3112-12-
Fire Safe Regulations, Humboldt County, CA performed by NorthPoint Consulting, Inc. in
October 2020

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October 2020

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Table 1. Vegetation description and associated effects corresponding to RPs. Here, seedlings/saplings are defined as individuals <1.37 m tall and/or <4" dbh and trees are defined as individuals >1.37 m tall and /or >4" dbh.....	5
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1.0 Introduction and Site Description

This document contains an assessment of the effects of roadway construction and maintenance on existing vegetation for the roadway that is used to access the subject parcels (APNs: APNs 217-181-028, 217-201-001, within contiguous ownership including APNs 217-201-001, 217-181-027, 217-181-028, 217-182-001, 217-024-011, 217-024-010, and 217-024-003, 217-025-001), Humboldt County Planning and Building Department application number 12529. These parcels are collectively referred to as “the ranch.”

The road system within the project is a network of private roads. The main road is a recently rocked road while the side roads are semi-vegetated. Effects to vegetation was assessed in areas of proposed improvement or maintenance which were identified and flagged by NorthPoint Consulting Group, Inc.

The Project area is accessed via McCann road, which runs adjacent to the Eel River. During the summer months (typically March to October), the project area can be accessed via McCann road, across a low water bridge which spans the Eel River. During the winter months, when access via the bridge is not feasible, the Project area can be accessed via Alderpoint Road.

2.0 Road Points

Road Points (RPs) where effects to vegetation were assessed were identified by NorthPoint Consulting Group, Inc. and passed to NRM Botanists for evaluation. The majority of these RPs were located on the south western side of the Project and are associated with the main road, which is gravel and rocked, and one secondary road which is native surfaced, with some vegetation.

See Table 1 for a description of the RPs along the roadway and Figure 1 for locations of RPs.

3.0 Vegetation

Effects to vegetation where assessed at the RPs on October 7th, 2020 by NRM Botanist Jenell Jackson. Roads throughout the Project pass through land that is generally forested but is interspersed with open prairies. In forested areas, Douglas fir (*Pseudotsuga menziesii*), white oak (*Quercus garryana*), Big-leaf maple (*Acer macrophyllum*), and madrone (*Arbutus menziesii*) are the main components of the canopy, while the majority of the shrub and herbaceous layer have a high cover of non-native, invasive species. In forested areas, this is generally Himalayan Blackberry (*Rubus armeniacus*), starthistle (*Centaurea solstitialis*), and scotch broom (*Cytisus scoparius*), which dominate roadside areas and turnouts, with some native species present in lower numbers, such as Coyote brush (*Baccharis pilularis* ssp. *pilularis*), swordfern (*Polystichum munitum*), Sierra gooseberry (*Ribes roezlii*), and evergreen huckleberry (*Vaccinium ovatum*). In open, grassy areas, roadside vegetation is dominated by perennial, non-native and invasive grasses, including colonial bentgrass (*Agrostis capillaris*), common velvetgrass (*Holcus lanatus*), rippgut brome (*Bromus diandrus*), and others (see Appendix A a complete species list).

Proposed activities include blading and leveling existing turnouts, widening the road, road realignment, and brush clearing. At RPs, all effects to vegetation were assessed, including loss of seedlings and saplings, and effects to the herbaceous and shrub community, although they will not be mitigated for. Trees presented for mitigation here are those found in riparian areas and oaks which are > 4" dbh (Table 1). The loss of all other trees will be addressed in the Rolling Meadows Ranch: Initial Study, October 2020.

In addition to riparian trees and oaks, three populations of Pacific gilia (*Gilia capitata* ssp. *pacifica*- CRPR 1B.2, S2) (Map ID#s 1, 2, and 4) (CNPS 2020), identified and mapped in June of 2020, border or overlap five of the RPs (RP 30, RP 24, RP 22, RP 20, and RP 5; Table 1).

These populations were not detected during early and late botanical surveys performed in 2018, although the window for detection of vegetation, fruits, or flowers should have captured one or more of these features. After communication with the landowner, it was revealed that the road was rocked in the summer of 2019 with gravel extracted from the rock quarry where the biggest population was found, with close to 1000 individuals (Map ID#4, Figure 3). The roadside populations were restricted almost entirely to road edges, outside the driven road tread. More information regarding details of the botanical survey and Pacific Gilia populations can be referenced in the Supplemental Botanical Survey Report of Rolling Meadows Ranch prepared by NRM in August 2020.

Table 1. Vegetation description and associated effects corresponding to RPs. Here, seedlings/saplings are defined as individuals <1.37 m tall and/or <4" dbh and trees are defined as individuals >1.37 m tall and /or >4" dbh.

RP	Current description	Construction Activity	Vegetation description	Effects to native vegetation			
				<i>Gilia capitata</i> ssp. <i>pacifica</i> (CRPR 1B.2, S2)	Seedlings/saplings	Trees, non-riparian or oak	Riparian trees and oaks
RP 2	16' prism existing with 2 turnouts N&S of section	Brush clearing on either side of roadway	Patch of invasive weeds dominated by Himalayan blackberry and scotch broom	None	None	None	None
RP 3	existing landing	Brush clearing on existing turnout	Weed patch dominated by scotch broom, with some native species present including coyote brush and rush	None	None	None	None
RP 4	13' road prism; 50% and 80% slopes	widen by cutting into bank on north side of roadway.	Cutslope dominated by invasive grasses and some native shrubs including coyote brush and toyon.	None	Tan oak-1	None	None
RP 5	existing landing, culvert	Blade and level existing turnout.	Flat dominated by yellow starthistle	Map ID#1, estimated 900 square feet of population impacted	white oak -26 & bay-laurel-6	None	None
RP 6	Steep roadway	Realign road and install turnout. 3 fir trees to be removed.	Forested area with high cover of invasive blackberry	None	white oak- 5 & bay-laurel- 1	Douglas fir-1 ind, ~30 in dbh & 1 ind, ~17 in dbh	None
RP 7	cut slope road causing visibility restrictions + sharp turn	Remove knob located on inside of turn. 1 small oak to be removed. Realign road (to edge of tree line) and install turnout. 4 Fir trees to be removed.	Small area covered in non-native grasses, sword fern, and bracken fern	None	Douglas fir- 9 & white oak -6 & Madrone-1 & bay-laurel-5	Douglas fir- 1 ind. ~20 in dbh, 1 ind. ~8 in dbh // 2-ind, <15 in dbh	None
RP 8	uphill turn causing visibility restrictions.	Widening of roadway on west side of road. 2 trees to be removed.	Forested area dominated by a mix of native and non-native shrubs including native species California blackberry, white-capped raspberry, Sierra gooseberry, & pink honeysuckle, all growing in competition with Himalayan blackberry	None	bay-laurel-1	One douglas fir, approximately 10 in dbh, and a second that is approximately 30 in dbh.	Removal of the 2nd Douglas fir will need to be done carefully as to not impact large white oak (dbh >30) Growing near it

Table 1., cont.

RP	Current description	Construction Activity	Vegetation description	Effects to native vegetation			
				<i>Gilia capitata</i> ssp. <i>pacifica</i> (CRPR 1B.2, S2)	Seedlings/saplings	Trees, non-riparian or oak	Riparian trees and oaks
RP 9	narrow roadway	Install large turnout on west side of roadway. 1 madrone and 2 tree to be removed.	Semi-vegetated dominated by Himalayan blackberry with some western lady fern also present.	None	Douglas fir- 1 & white oak -15 & Madrone-2 & bay-laurel-4	One Madrone, approximately 25 in dbh	None
RP 10	sharp turn, narrow roadway, stream crossing	Widen existing roadway on east & south side of roadway. 3(+1) dead oak trees to be removed.	Initial 50-ft of road is comprised of a non-native, invasive grasses after which point it transitions into a forest with coyoto bush, Sierra gooseberry, and Rose (<i>Rosa</i> sp) while disturbed areas are mostly unvegetated with low cover of rush and hedge nettle	None	None	None	Three 15-20 in dbh white oaks
RP 11 to RP 12	Narrow Roadway	Widen road 2 ft by cutting into existing 2'-5' cutbank on north side of roadway.	Disturbed area is currently dominated by non-native, invasive grasses	None	Madrone-6 & Douglas fir-1	None	None
RP 12	Pinch point. 10' roadway width	Follow NRMs recommendation for culvert replacement and widen road to a minimum of 12' width, or install turnouts on either side of pinch point. (pt 29 in NRM report)	Invasive perennial grassland with low cover of bay-laurel and white oak	None	None	None	Three 4 to 5" bay-laurel (3' from outlet) & 14" white oak both were previously described in NRM road report as point 29.
RP 12 to RP 13	Narrow Roadway	Widen road 2 ft by cutting into existing 1'-7' cutbank on north side of roadway.	Disturbed area is currently dominated by non-native, invasive grasses. Low point on the road and side slope has dominant cover by <i>Cyperis</i> . Coyote brush is also present in low numbers	None	None	None	None
RP 15 to RP 16	Narrow Road	Widen road 2 ft by cutting into existing 2'-6' cutbank on north side of roadway.	Disturbed area is currently dominated by non-native, invasive grasses with the occasional coyote brush that may be effected	None	white oak-6	None	None

Table 1., cont.

RP	Current description	Construction Activity	Vegetation description	Effects to native vegetation			
				<i>Gilia capitata</i> ssp. <i>pacifica</i> (CRPR 1B.2, S2)	Seedlings/saplings	Trees, non-riparian or oak	Riparian trees and oaks
RP 20	existing landing	Blade and level existing turnout.	Native blackberry, rush, and swordfern are present and intermingling with Himalyan blackberry and an assortment of non-native grasses	Map ID#2, estimated 370 square feet of population impacted	Big-leaf maple- 2	None	None
RP 22	existing landing slight slope to SE	Blade and level existing turnout.	Flat is currently dominated by a large patch of California blackberry and white-capped raspberry with other shrubs including rose (<i>Rosa</i> sp.) and Sierra gooseberry	Map ID#2, estimated 1750 square feet of population impacted	Douglas fir- 1 & tan oak-2	None	None
RP 24	existing landing adjacent to 13' road road surface	Blade and level existing turnout.	Most of flat is a weed patch dominated by yellow starthistle and common velvetgrass	Map ID#2, estimated 1430 square feet of population impacted	Big-leaf maple- 5 & Douglas fir- 4 & bay-laurel- 2 & Tan oak-4	None	None
RP 29	15' wide road w/ 20' existing landing around corner w/ 1' inboard ditch	Blade and level out side turn to edge of tree line.	Sparsely vegetated road segment dominated by ferns, rushes, and some evergreen huckleberry.	None	Big-leaf maple-10 & Madrone-2 & Douglas fir-9 & bay-laurel-1 & Tan-oak-1	None	None
RP 30	17' wide road with 1' ditch and turnout	Blade and level existing turnout.	Sparsely vegetated road segment dominated by yellow starthistle and pennyroyal	Map ID#2, estimated 3700 square feet of population impacted. Borders population	None	None	None

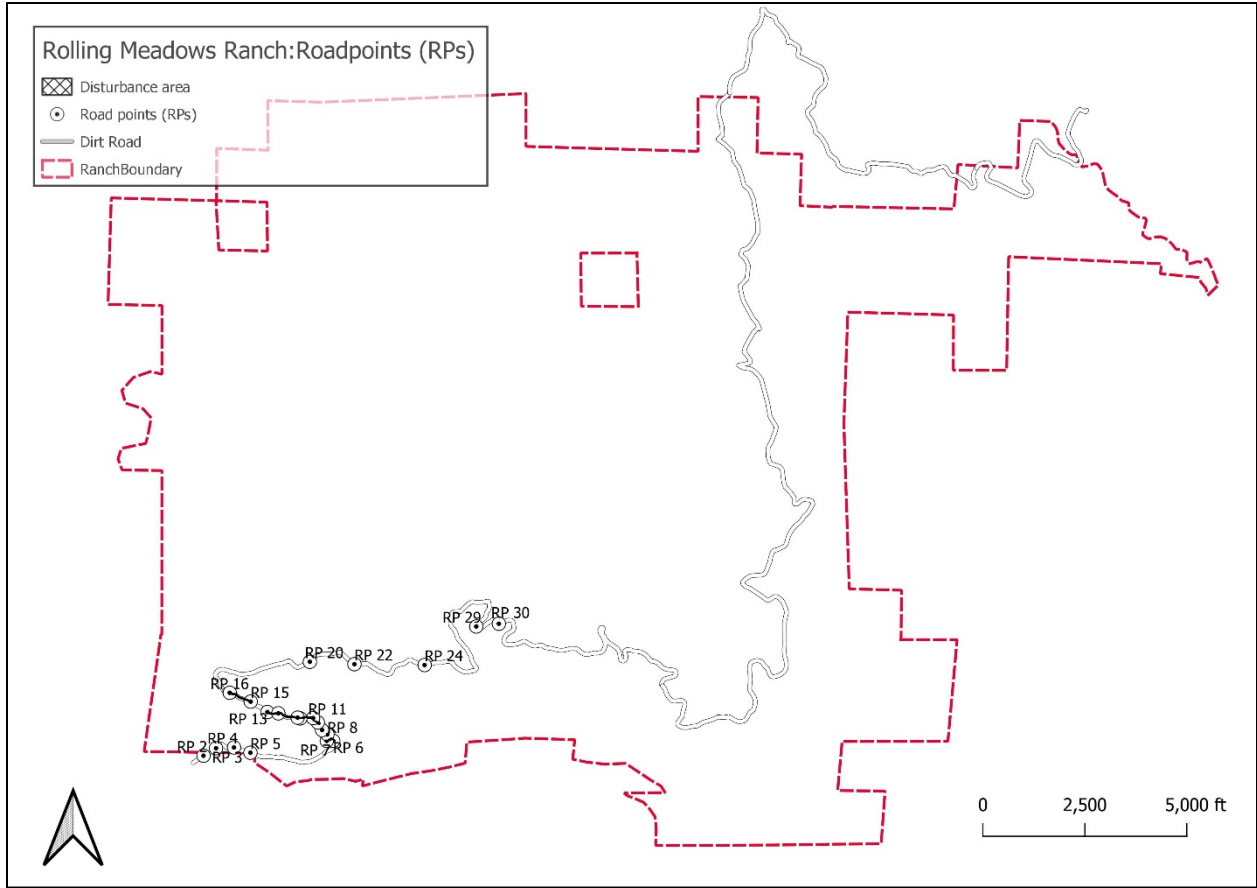


Figure 1. Overview of Rolling Meadows Ranch with locations of RPs surveyed on October 7th, 2020.

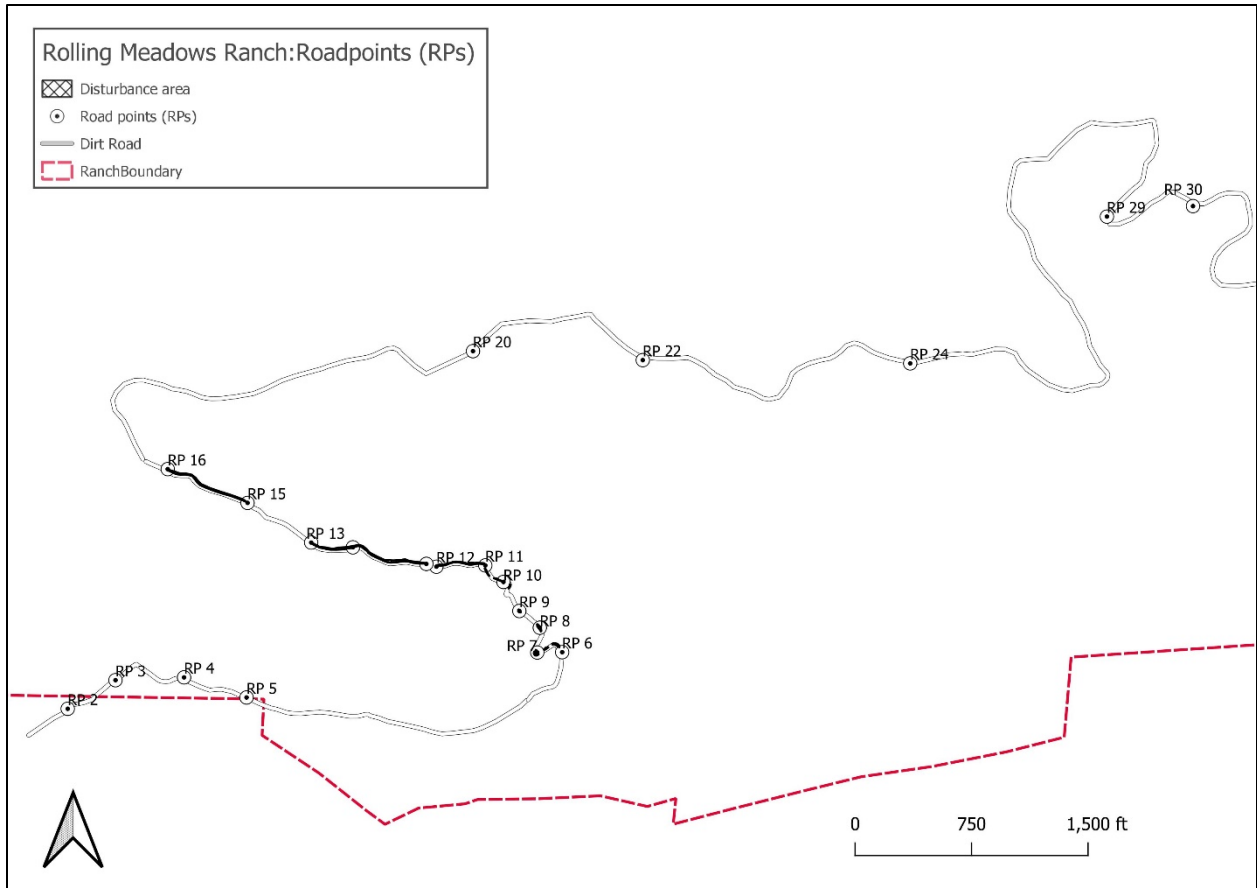


Figure 2. Zoomed in map of RP locations on Rolling Meadows Ranch.

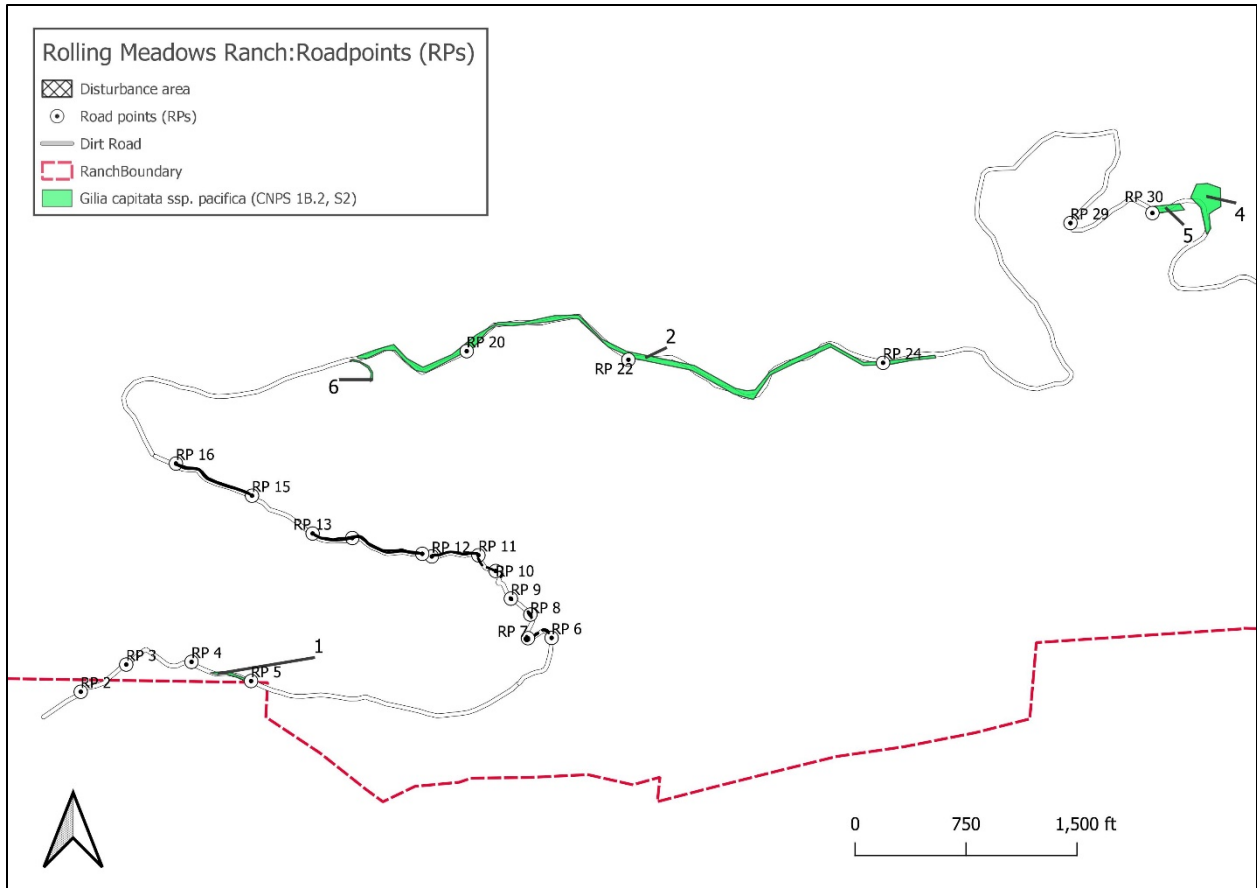


Figure 3. Pacific *Gilia* locations, Rolling Meadows Ranch, identified and mapped June 2020. Note that RP 30, RP 24, RP 22, RP 20, and RP 5 overlap with these populations.

4.0 Potential Impacts and Management Recommendations

4.1 Pacific Gilia

Pacific gilia is a rare, annual plant, frequently found on thin, rocky soils in prairies and along roadsides, away from competition from dense vegetation. It has a limited distribution throughout California and Oregon and is ranked as CRPR 1B.2, S2 (Porter, 2012).

We assessed impacts to Pacific gilia populations by overlaying our mapped polygons with the RPs and estimated total impacts to the population based on the estimated disturbance footprint of the road improvement. Based on this analysis, we determined that approximately 8,150 square feet of Pacific gilia may be disturbed or effected during these treatments (RPs 5, 20, 22, 24, 30; Table 1, Figure 1).

Road grading, rocking, blading, and road widening where these populations occur could wipe them out entirely, causing significant impacts. This is most likely if the disturbance occurs before seed set (August), however, if road improvement activities took place after seed set (in August), as was the case in 2019, this activity could maintain or even further expand the populations, resulting in negligible or no impacts. Furthermore, general best practices, like seeding and laying down straw, could result in too much competition during the spring, and limit the response of these populations to the disturbance.

Therefore, to avoid the potential for significant impacts to these populations, improvements to- and maintenance of-, the road shall occur after August 15th and before October 15th. In areas where Pacific gilia is impacted we will not seed with an erosion control mix and instead plan to lay weed-free straw which will be removed by May of the following year. In addition, these areas will also be assessed by a qualified botanist for a period of five (5) years, following project implementation. These findings will be incorporated into a larger monitoring report of all proposed activities (facilities developments, etc.), which will be submitted to CDFW annually, the details of which have been described in the Supplemental Botanical Survey Report of Rolling Meadows Ranch prepared by NRM in August 2020. Monitoring results will be used in an adaptive management process aimed at maintaining the Pacific gilia population, which may discontinue use of the rock quarry or seeding.

4.2 Trees & Disturbed Areas

The loss of riparian trees and oaks > 4” dbh will be mitigated for by replanting at a 3:1 ratio for all disturbed individuals. Our survey efforts identified four (4) oaks >4” dbh and three (3) bay-laurel ≥4” dbh, which will be impacted by road maintenance and improvement activities. All but Therefore, twelve (12) oaks and nine (9) bay-laurel (or appropriate substitute) will be planted in areas surrounding the disturbance, in appropriate micro habitats, after road improvement and maintenance activities have ceased. The loss of all other trees will be addressed in the Rolling Meadows Ranch: Initial Study, October 2020.

Replanting of individuals will be performed by a qualified botanist or restoration specialist and all disturbed areas will be seeded with native erosion control mix and mulched, using at least 2 to 4 inches of weed-free, clean straw or similar biodegradable mulch. Seeding is to be excluded from areas where Pacific gilia is present, and instead weed-free straw will be placed on bare soil and removed the following spring (see Section 4.1).

These trees and disturbed areas will be monitored for a period of five (5) years by a qualified botanist, following project implementation. Success is defined as 85 percent survival and growth of revegetated areas within a five-year period. If survival does not reach 85 percent, then unsuccessful vegetation will be replanted. These findings will be incorporated in to a larger monitoring report of all proposed activities (facilities development, road maintenance, etc.), which will be submitted to CDFW annually.

5.0 Citations

California Native Plant Society, Rare Plant Program. 2020. Inventory of Rare and Endangered Plants of California (online edition, v8-03 0.39). Website <http://www.rareplants.cnps.org> [accessed 09 October 2020].

J. Mark Porter 2012, *Gilia capitata subsp. pacifica*, in Jepson Flora Project (eds.) *Jepson eFlora*, /eflora/eflora_display.php?tid=50767, accessed on October 13, 2020.

Natural Resources Management. 2020. Botanical Survey Report, Rolling Meadows Ranch: Supplemental to Botanical Survey report prepared by NRM in July 2018.

NorthPoint Consulting Group, Inc. October 2020. Rolling Meadows Ranch, INC. Access Assessment for Compliance with Humboldt County Code Section 3112-12-Fire Safe Regulations, Humboldt County, CA.

Appendix A. Plant list

Species Name	Common Name	Lifeform	Status	Family
<i>Centaurea solstitialis</i>	Yellow starthistle	Annual herb	invasive, non-native	ASTERACEAE
<i>Lonicera hispidula</i>	Pink honeysuckle	Vine, Shrub	native	CAPRIFOLIACEAE
<i>Pteridium aquilinum</i> var. <i>pubescens</i>	Western bracken fern	Fern	native	DENNSTAEDTIACEAE
<i>Polystichum munitum</i>	Western sword fern	Fern	native	DRYOPTERIDACEAE
<i>Arbutus menziesii</i>	Madrono	Tree	native	ERICACEAE
<i>Vaccinium ovatum</i>	Evergreen huckleberry	Shrub	native	ERICACEAE
<i>Cytisus scoparius</i>	Scotch broom	Shrub	invasive, non-native	FABACEAE
<i>Quercus garryana</i>	Oregon oak	Tree	native	FAGACEAE
<i>Ribes roezlii</i>	Sierra gooseberry	Shrub	native	GROSSULARIACEAE
<i>Hypericum perforatum</i>	Klamathweed	Perennial herb	invasive, non-native	HYPERICACEAE
<i>Juncus effusus</i>	Common bog rush	Perennial grasslike herb	native	JUNCACEAE
<i>Juncus patens</i>	Rush	Perennial grasslike herb	native	JUNCACEAE
<i>Mentha pulegium</i>	Pennyroyal	Perennial herb	invasive, non-native	LAMIACEAE
<i>Stachys</i> sp.	Hedge nettle	Perennial herb	native	LAMIACEAE
<i>Umbellularia californica</i>	California bay	Tree	native	LAURACEAE
<i>Pseudotsuga menziesii</i> var. <i>menziesii</i>	Douglas fir	Tree	native	PINACEAE
<i>Agrostis capillaris</i>	Colonial bentgrass	Perennial grass	non-native	POACEAE
<i>Anthoxanthum odoratum</i>	Sweet vernal grass	Annual, Perennial grass	invasive, non-native	POACEAE
<i>Avena barbata</i>	Slim oat	Annual, Perennial grass	invasive, non-native	POACEAE
<i>Briza maxima</i>	Rattlesnake grass	Annual grass	invasive, non-native	POACEAE
<i>Bromus diandrus</i>	Ripgut brome	Annual grass	invasive, non-native	POACEAE
<i>Holcus lanatus</i>	Common velvetgrass	Perennial grass	invasive, non-native	POACEAE
<i>Hordeum marinum</i> ssp. <i>gussoneanum</i>	Barley	Annual grass	non-native	POACEAE
<i>Paspalum dilatatum</i>	Dallis grass	Perennial grass	non-native	POACEAE
<i>Heteromeles arbutifolia</i>	Toyon	Shrub	native	ROSACEAE
<i>Rubus armeniacus</i>	Himalayan blackberry	Shrub	invasive, non-native	ROSACEAE
<i>Rubus leucodermis</i>	White bark raspberry	Shrub	native	ROSACEAE
<i>Rubus ursinus</i>	California blackberry	Vine, Shrub	native	ROSACEAE

Appendix B. Photos



Photo 1. Road Point # 2 (flag # 192 to 193), facing east.



Photo 2. Road Point # 3 (Flag # 195), facing north.



Photo 3. Road point # 4 (Flag # 198 to 199), facing east.



Photo 4. Road point # 5 (Flag # 201 to 202), facing east.



Photo 5. Road point # 6 (Flag # 298 to 299), facing south.



Photo 6. Road point # 7 (flag # 300), facing southeast.



Photo 7. Road point # 7 (flag # 301), facing south.



Photo 8. Road point # 8 (Flag # 302), facing west.



Photo 9. Road point # 9 (Flag # 303), facing southwest.



Photo 10. Road point # 10 (Flag # 204), facing north.



Photo 11. Road point # 10 (Flag #s 204 & 205), facing east.



Photo 12. Road point # 10 (Flag #s 204 & 205), facing south.



Photo 11. Road point #s 11 & 12 (Flag #s 205 to 206), facing west.



Photo 12. Road point # 12 (Flag # 206), facing east.



Photo 13. Road point #12 and #13 (Flag # 207 to 208), facing west.



Photo 14. Road point #15 to 16 (Flag # 211 to 212), facing east.



Photo 15. Road point #20 (Flag# 219), facing southeast.



Photo 16. Road point #22 (Flag # 222), facing southeast.



Photo 17. Road point #24 (Flag # 225), facing east.



Photo 18. Road point #29 (Flag # 323), facing southwest.



Photo 19. Road point #30 (Flag # 233), facing east.

Appendix J

1. Viewshed Ground truth – Maps/Photos, NRM 2020

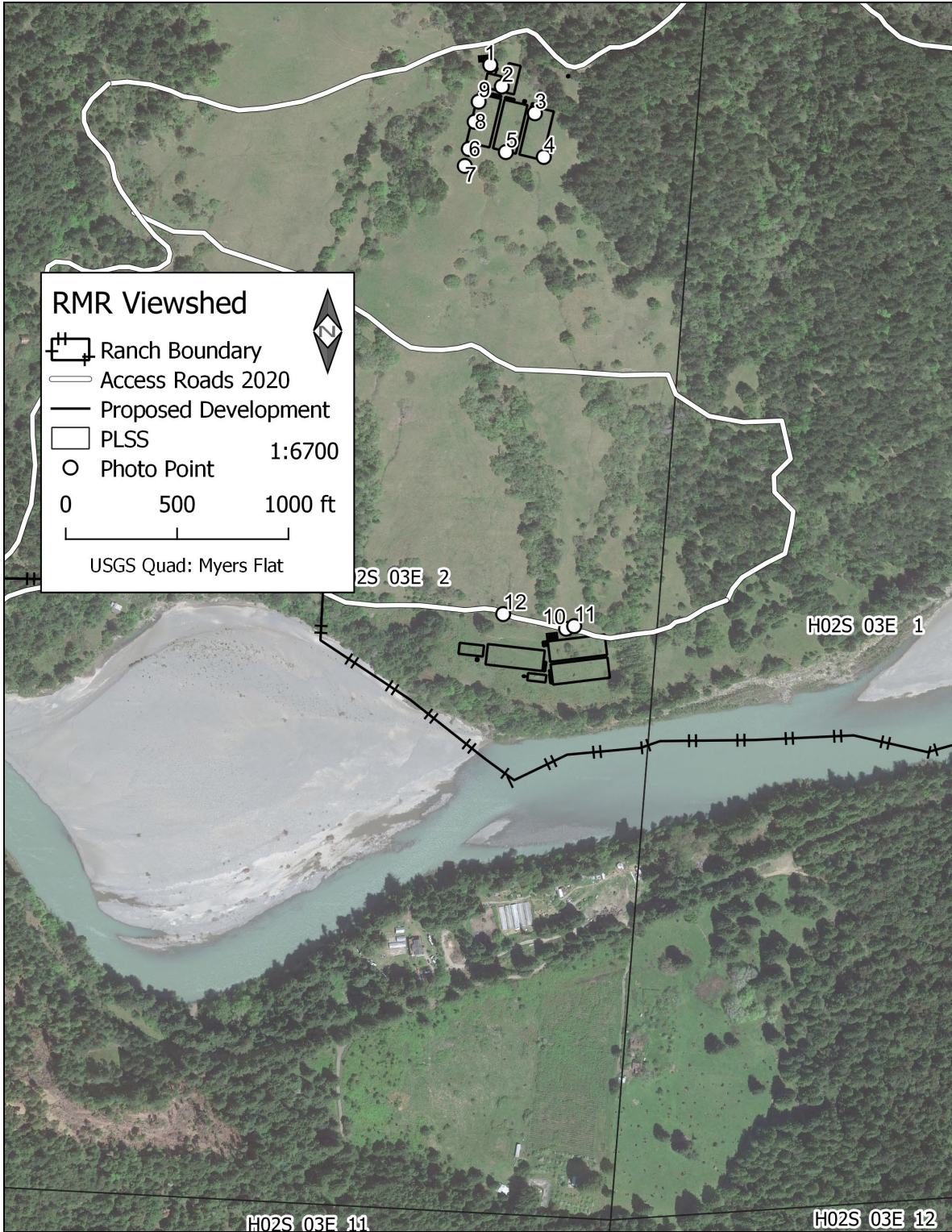


Figure 1. Orthographic map of RMR with photo locations and proposed development.

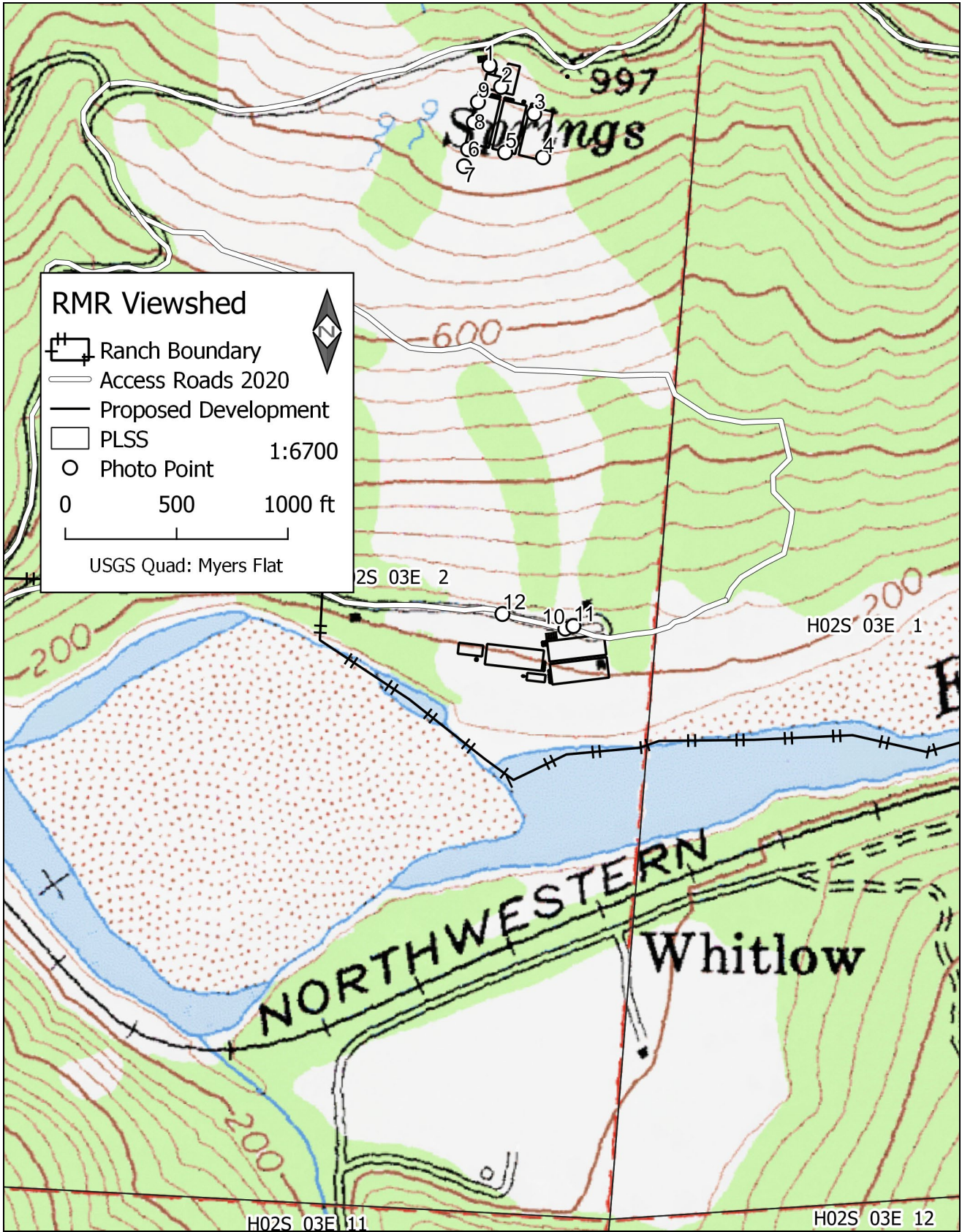


Figure 2. Topographic map of RMR with photo locations and proposed development.



Photo 1



Photo 2



Photo 3



Photo 4



Photo 5



Photo 6



Photo 7



Photo 8



Photo 9



Photo 10



Photo 11



Photo 12

Appendix K

Road Hydrology and Water Quality

1. Stream Crossing Evaluation Summary, Rolling Meadow Ranch, Sept 2020
2. Larabee Creek Bridge –LSAA no. 1600-2020-0285-R1
3. Sierra Pacific Industries, Jets THP, Section 2

Stream Crossing Evaluation Summary

**Rolling Meadows Ranch
Main Stem Eel River
McCann Road, Humboldt Co.**

**Prepared for
Rolling Meadow Ranch LLC**

By Natural Resources Management Corp.

September 1, 2020
(Revised September 30, and Oct 15, 2020)

INTRODUCTION

Natural Resource Management Corp. has completed a summary evaluation of watercourse crossings at the Rolling Meadows Ranch. Starting on August 20th, 2020 several NRM employees inspected and surveyed all watercourse crossings along roads within the Ranch used for access to proposed cultivation sites. This includes 2 entrance points from the end of McCann road, and access from Alderpoint Road (Figures 1-3). Crossings on the Rolling Meadows Ranch roads that do not access proposed cultivation sites were not inspected; crossings on sections of road not owned by Rolling Meadow Ranch (deeded easements) were not inspected as the crossings were evaluated and will be improved per the ongoing Jets timber harvest plan (THP 1-19-00119HUM). Watercourses are defined in this survey as having a distinguishable channel with bed and banks that connects to a higher order watercourse. We included all watercourses that intersected or interact with the access roads including Class III watercourses with fill crossings (no culvert). Swales with large drainage area and erosion gullies with <1.5 acres of drainage area were not considered watercourses. Data was used to determine which watercourse crossings will need to be replaced, the current length of watercourse channel occupied by crossings and the new length of channel occupied by crossing once crossings are brought to standards.

METHODS

Crossing inspections included assessing the culverts conditions by looking for; plugging at the inlet and outlet; determine if culvert was set to channel grade and properly aligned; integrity of the culvert (rusted-out, separating); road to watercourse connectivity; and any other factors could lead to crossing failure, diversion, or sediment delivery. Inspections also included measuring average bankfull channel dimensions above the crossing and culvert diameter.

Crossing surveys included measuring angles and distances of channel profiles from above the crossing to about 30 feet below. And cross-sections along inboard and outboard road edges. At least six photos (2 upstream, 2 downstream, and 1 for each road direction) and a waypoint of each crossing were captured. Survey date were entered into the graphing program PWAroads. PWAroads calculated the length of each watercourse channel occupied by culvert or fill. If the outboard slope of a crossing is greater than 65 percent, then PWAroads was used to determine the new length of occupied channel if the crossing is rebuilt to have slopes no greater than 65 percent. The maximum rebuild slope of 65 percent was chosen as per California's Forest Practices Rules.

Crossing data with the Rational Method was used to predict flow rates at the crossing during a 100-year precipitation event. Crossings were located on a topographic map to determine drainage area. Time of concentration was predicted with the following model; $T_c = 60((11.9 \times L^3)/H)^{0.385}$. The NOAA's Nation Weather Service website was accessed to predict rainfall intensity of a 100-year storm with time of concentration similar to that predicted. A runoff coefficient of 0.3 was used. Flows in cubic feet per second predicted by the Rational Method were used with the Culvert Sizing Nomograph to determine recommended minimum culvert diameters.

Bankfull measurements were used to as a secondary method for determining recommended culvert diameters. The average bankfull cross-sectional areas were determined from field measurements and multiplied by 3, The diameter of a circle with the same area as three time the bankfull area was used as the recommended minimum culvert dimeters.

RESULTS

The Rolling Meadows Ranch roads are legacy roads from decades of ranching and logging operations. The access route is ideally located to minimize the number of crossings and impacts to watercourse while providing concise access across the ranch. Regardless of ownership or land use the access roads are essential into the future for firefighting access. In general, the roads are not insloped or outsloped. Some stretched of road span over 400 feet without any means to divert surface flow. Ditch relief culverts are commonly used, rolling dips are less common but present. Some sections of road is highly connected to watercourses due to lack of diversion facilities. The lower portion of the road system has been rocked with road base. The upper portion of the road system is native surfaced except for a few steep sections with that have been rocked.

Careful inspection resulted in detecting 45 watercourse crossings along 12.9 miles of road (Table 1). Of the 44 crossings, 11 are fill crossings with no culvert, 32 are culvert crossings, and one is a bridge. Of the 32 culverted crossings, 30 are considered under the recommended sized based on both the Rational Method and Bankfull Method and two are considered appropriately sized. The two (#10 & #11) appropriately sized culverted crossings are functioning but fill and hillside have eroded away from the outlets. Seven of the 30 undersized culverts are in good condition and do not show evidence of erosions due to being undersized. The bridge crossing Cameron Creek (crossing #41) is in good condition and functioning. There is a second bridge crossing (Crossing # 45) that crosses Little Larrabee Creek. This bridge is currently being repaired and upgraded to current standards under 1600 agreement 1600-2020-0285-R1 as part of ongoing ranch operations and will not be analyzed any further in this report. Natural Resource Management Corp. recommends installing new appropriately sized culverts for all fill crossings and replacing undersized, failing culvert crossings – 34 of the 44 crossings (Table 1).

Watercourse crossings are considered a disturbance to aquatic habitat since culverts and fill are not native channel materials. The 44 crossings we surveyed are all along existing ranch roads. Currently 1,381 feet of channel are occupied by culverts (996 feet) and road prism fill (385 feet). The proposed project under this CEQA analysis will not be building any new crossings. If crossings are replaced with new culverts some of the crossings will need to occupy slightly more stream channel so that the road prism fill slopes are no greater than 65 percent and new culverts extend far enough for inlets and outlets to be rock armored. If the recommended 34 crossing are replaced the project will impact a total of 369.8 linear feet of channel that is not currently impacted (Table 2). A total of 717.7 square feet of currently unimpacted channel will be impacted by the project (Table 2).

While the rebuilt crossings will occupy more channel reach the project overall should be considered an improvement to channel conditions and water quality. Neglecting to replace these crossings is a far greater threat to aquatic habitat than replacement because the new crossing design will follow best management practices and lower chances of erosion or crossing failure. Also, by installing

new culverts water quality will be greatly improved since approximately 385 feet of channel currently occupied by road prism fill will be replaced with appropriately sized culverts.

Table 1. Crossing number, predicted 100-year floor flows from Rational Method, existing culvert diameters, recommended culvert diameter from Culvert Sizing Nomograph, and NRM's recommended crossing treatment.

Crossing No.	100-yr Flood Flow (cfs)	Existing Culvert Diam. (Inches)	Rec. Diam. Nomograph	Stream Class	NRM Rec. Treatment
1	19.9	12	37	3	Replace 36"
2	13.2	12	31	3	Replace 36"
3	2.4	Fill	16	3	Install 24"
4	54.9	18	57	2	Replace 60"
5	24.9	12	39	2	Replace 42"
6	23.8	Fill	39	3	Install 42"
7	9.7	18	27	3	Maintain
8	14.8	24	33	3	Maintain
9	21.8	12	38	2	Replace 42"
10	3.5	24	18	4	Maintain
11	2.9	18	17	3	Maintain
12	127.0	30	79	2	Replace 72"
13	30.2	30	42	2	Maintain
14	25.7	24	39	2	Maintain
15	13.8	24	32	3	Maintain
16	87.6	30	67	2	Replace 72"
17	73.1	18	64	2	Replace 72"
18	10.8	Fill	29	2	Install 30"
19	26.9	Fill	40	2	Install 42"
20	9.7	12	28	2	Replace 30"
21	21.3	24	38	2	Replace 42"
22	62.0	18	60	2	Replace 60"
23	20.3	18	37	3	Replace 42"
24	14.5	18	33	2	Replace 36"
25	27.3	30	42	2	Maintain
26	16.5	8	35	3	Replace 36"
27	5.4	Fill	22	2	Install 24"
28	28.9	18	42	2	Replace 42"
29	16.2	Fill	35	3	Install 36"
30	22.4	Fill	38	3	Install 36"
31	94.2	24	70	2	Replace 72"
32	3.8	Fill	19	3	Install 24"

33	114.9	30	75	3	Replace 72"
34	27.9	Fill	37	3	Install 42"
35	17.1	24	36	3	Replace 36"
36	2.6	Fill	17	3	Install 24"
37	16.9	18	35	3	Replace 36"
38	61.2	24	59	3	Replace 60"
39	81.8	48	65	3	Maintain
40	4.7	Fill	21	3	Install 24"
41		Bridge		1	Maintain
42	9.1	18	27	2	Replace 30"
43	23.7	18	40	2	Replace 42"
44	38.8	24	48	2	Replace 48"

Table 2. Existing length of channel disturbed by crossing, predicted length of channel disturbed after rebuilt, length of new disturbance (feet), channel width (feet), and square-foot area of new channel disturbance once rebuilt.

Crossing No.	Existing Length (ft)	Rebuild Length (ft)	New Channel Disturbance Length (ft)	Channel Width (ft)	New Channel Disturbance Area (ft ²)
1	21.8	26.8	5	1	5
2	25.5	30.5	5	1.5	7.5
3	26.4	31.4	5	1.66	8.3
4	41.2	58.7	17.5	3.5	61.25
5	22.4	27.4	5	3	15
6	35.2	49.7	14.5	2.5	36.25
9	25.9	35.4	9.5	1.83	17.385
12	30.5	42.6	12.1	3	36.3
16	51	56	5	4	20
17	54	59	5	3.16	15.8
18	39	44	5	1	5
19	50.4	72.9	22.5	2	45
20	42.3	47.3	5	2	10
21	42.3	59.8	17.5	3	52.5
22	31.2	48.5	17.3	3	51.9
23	19.4	30.2	10.8	3.5	37.8
24	27.6	34.6	7	1.5	10.5
26	20.9	25.9	5	0.5	2.5
27	18	23	5	2	10
28	24.4	29.4	5	2	10
29	30.6	35.6	5	1.5	7.5
30	47.5	60.2	12.7	1	12.7
31	24	29	5	4	20
32	23	28	5	1.5	7.5
33	26.1	31.1	5	2.5	12.5
34	33.7	38.7	5	2.5	12.5
35	32.2	37.2	5	2.5	12.5
36	33.4	38.4	5	0.5	2.5

37	34.6	61.3	26.7	0.75	20.025
38	20.9	38.7	17.8	2	35.6
40	47.7	52.7	5	1	5
42	25.9	53.9	28.0	1	28
43	20	58.4	38.4	1	38.4
44	29.4	51.9	22.5	2	45
Sum	1078.4	1448.2	369.8		717.71

Table 3. Description of minimum and maximum potential vegetation disturbance per stream crossing. Where only crossing maintenance is recommended, no vegetation disturbance is anticipated.

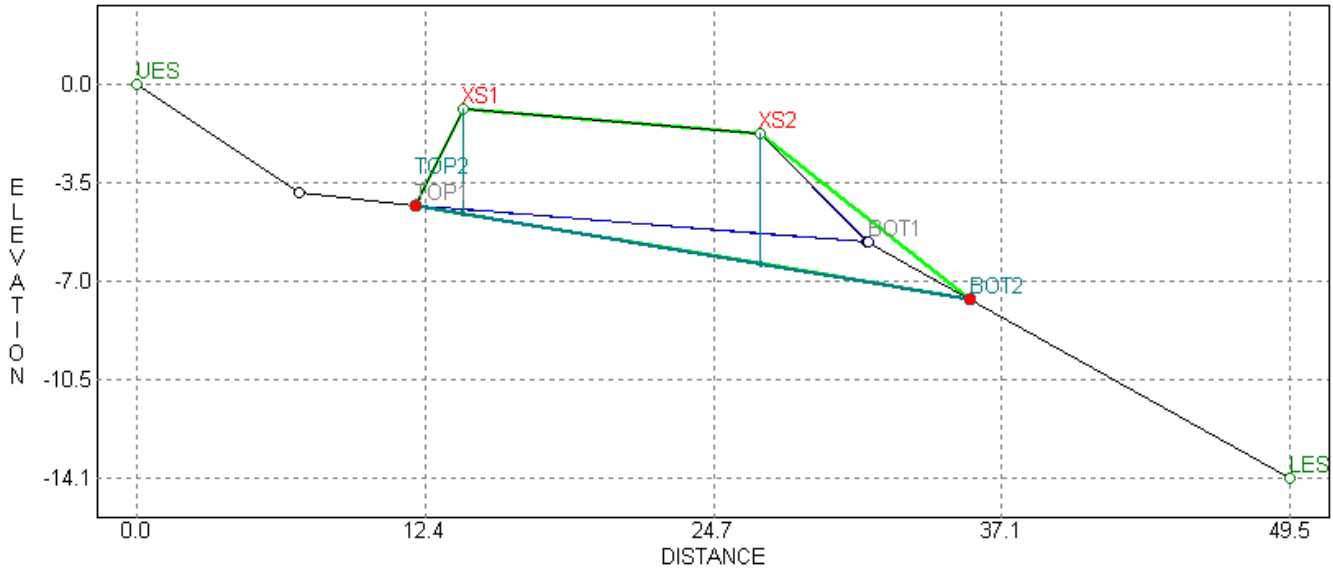
Crossing No.	Minimum Veg. Dist.	Maximum Potential Veg. Dist.
1	Grass, Forbs	
2	Twelve 0" shrubs (Ribes), Poison oak	A 12" Douglas-fir
3	Six 0" Douglas-fir	
4	Six 0" bigleaf maples, four 3" bigleaf maples, a 0" tanoak, three 0" Douglas-firs, a 5" Douglas-fir, a 0" bay-laurel, three 0" shrubs (Ribes)	
5	Forbs	
6	Four 0" tanoaks, four 0" Douglas-fir, a 4" Douglas-fir	
7		
8		
9	A 0" Douglas-fir, a 0" bigleaf maple, a 0" bay-laurel, grass, forbs	
10		
11		
12	Grass, poison oak, canes (raspberry)	
13		
14		
15		
16	Shrub (ceanothus), canes (blackberry), forbs	
17	A 0" Douglas-fir, grass, forbs	
18	Forbs	
19	Grass, forbs	
20	Eleven 0" bigleaf maples, a 0" Douglas-fir, a 0" bay-laurel	
21	A clump of 0" bay-laurels, forbs	
22	A 0" bigleaf maple, forbs, grass	
23	Grass, forbs	
24	A 0" black oak, two 1" bigleaf maples, a 1" bay-laurel	
25		
26	Grass	
27	Grass, forbs, poison oak	

28	Grass, forbs, poison oak	
29	A 1" bay-laurel	<u>Three 4" bay-laurel (3' from outlet), a 14" white oak near inlet</u>
30	A 4" Douglas-fir, grass, forbs	
31	Canes (blackberry)	<u>A 16" red alder, a 12" Douglas-fir, a 12" bigleaf maple</u>
32	Two 0" bay-laurels	
33	Canes (blackberry), grass	
34	Grass	
35	Canes (blackberry), grass	
36	Canes (blackberry), grass	
37	Poison oak, grass, shrub (French broom)	
38	Poison oak, grass, shrub (French broom)	
39		
40		
41		
42	Grass, Forbs, 0" bigleaf Maple	Two 0" bigleaf maples
43	Grass, Forbs, poison oak	
44	Poison oak	<u>A 11" madrone, forbs</u>

Details of Crossing #23 are provided below (Figure 1) as an example of how impacts to currently unimpacted channel were determined. Crossing #23 is currently an 18 inch culvert. The 100 year flood standard calls for a 42 inch culvert. Additionally, the current fill slopes on the crossing are over steepened and the fill slope will need to be extended to be less than a 65% slope. This will require the crossing to be extended down the channel by 10.8 feet. This 10.8 feet of channel will be newly impacted by the replacement of this crossing. The channel is 3.5 feet wide. Therefore, replacing this culvert will impact 37.8 square feet of channel that was not previously impacted by the road fill prism.

STREAM CROSSING PROFILE: 187.RXX - STATION: 0+00

GPS187



EROSION VOLUME = 59 cubic yds.
 Cut Length = 19.4 ft.
 Disturbed Area = 832.0 sq. ft.
 GRADE -6.7%
 Cut Depths: xs1 = 3.6 xs2 = 3.6

EXCAVATE VOLUME = 62 cubic yds.
 Cut Length = 24.0 ft.
 Disturbed Area = 823.0 sq. ft.
 GRADE -14.1%
 Cut Depths: xs1 = 3.7 xs2 = 4.6

Figure 1. Profile diagram of Crossing #23 with current road dimensions and rebuild dimensions. Slope between XS2 and BOT1 is greater than 65%. The green line shows the rebuild slope. See Table 2 for additional channel disturbance length.



Photo1. Looking downstream at crossing outlet from outboard road edge. Rebuilding this crossing will result cause the road prism to extend approximately 10.8 feet downslope. Since the channel is approximately 3.5-feet wide, the new channel disturbance area will be 37.8 square feet.

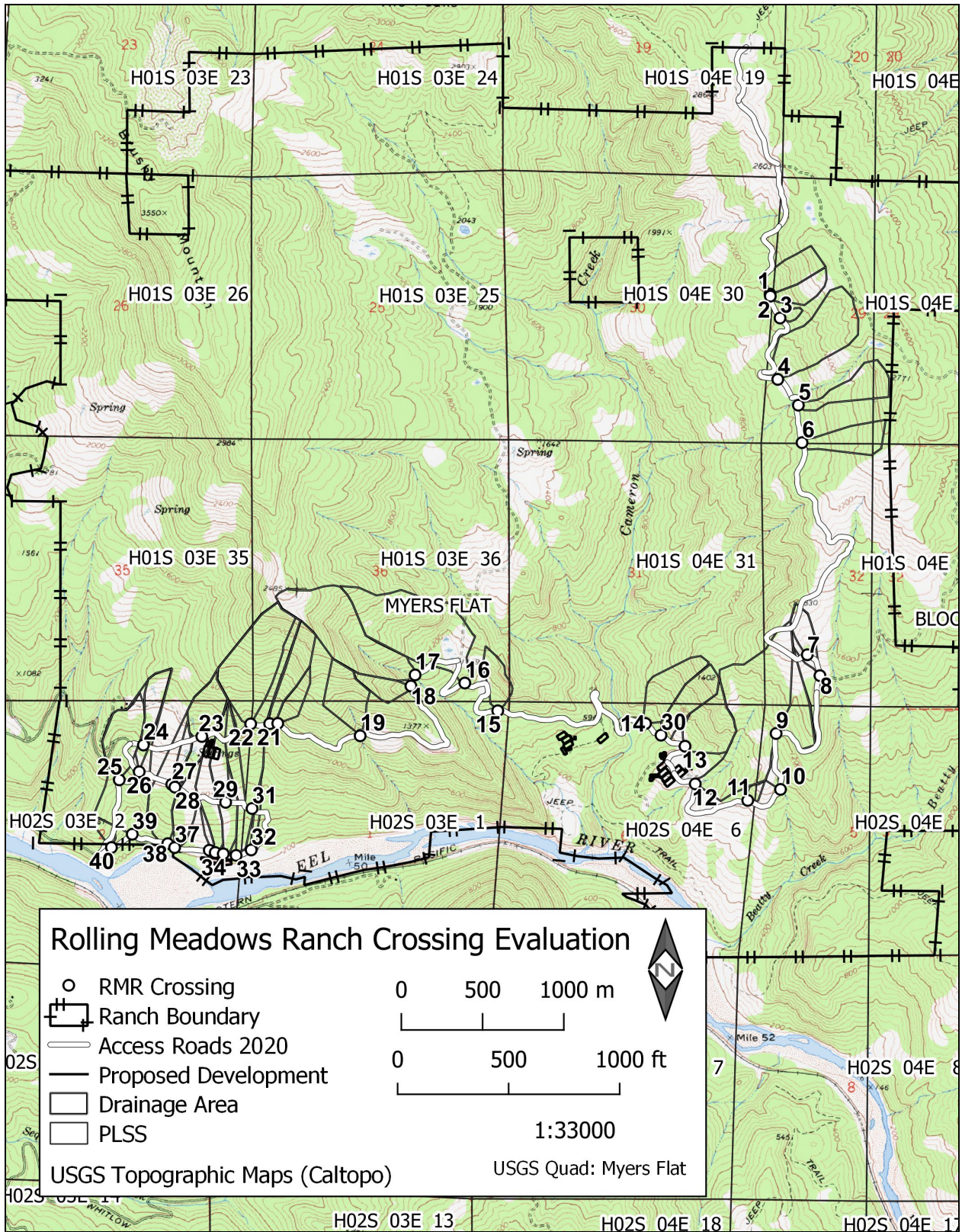


Figure 2. Overview topographic map with all crossing locations.

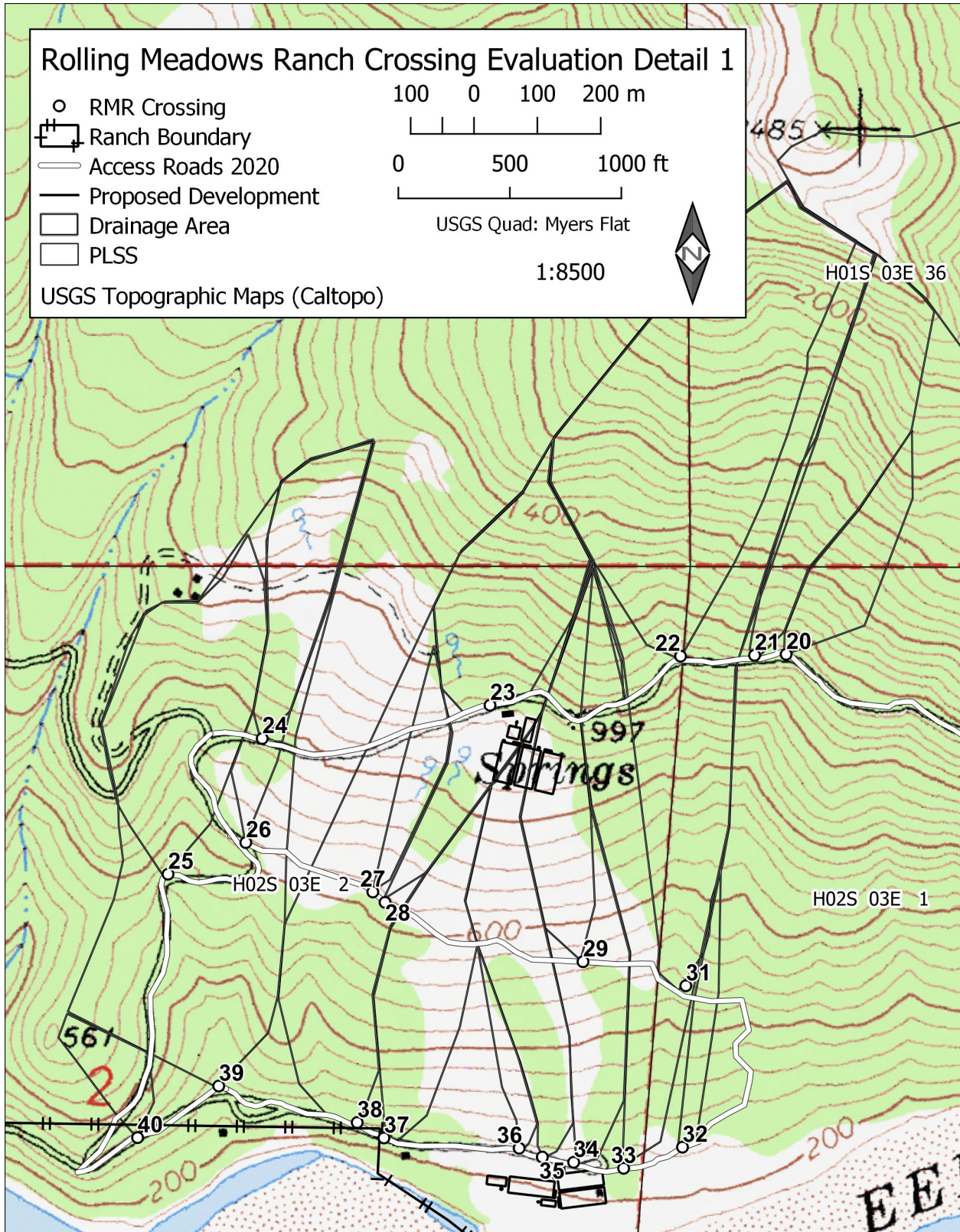


Figure 3. Topographic map with locations and drainage areas of Crossings 20-40.

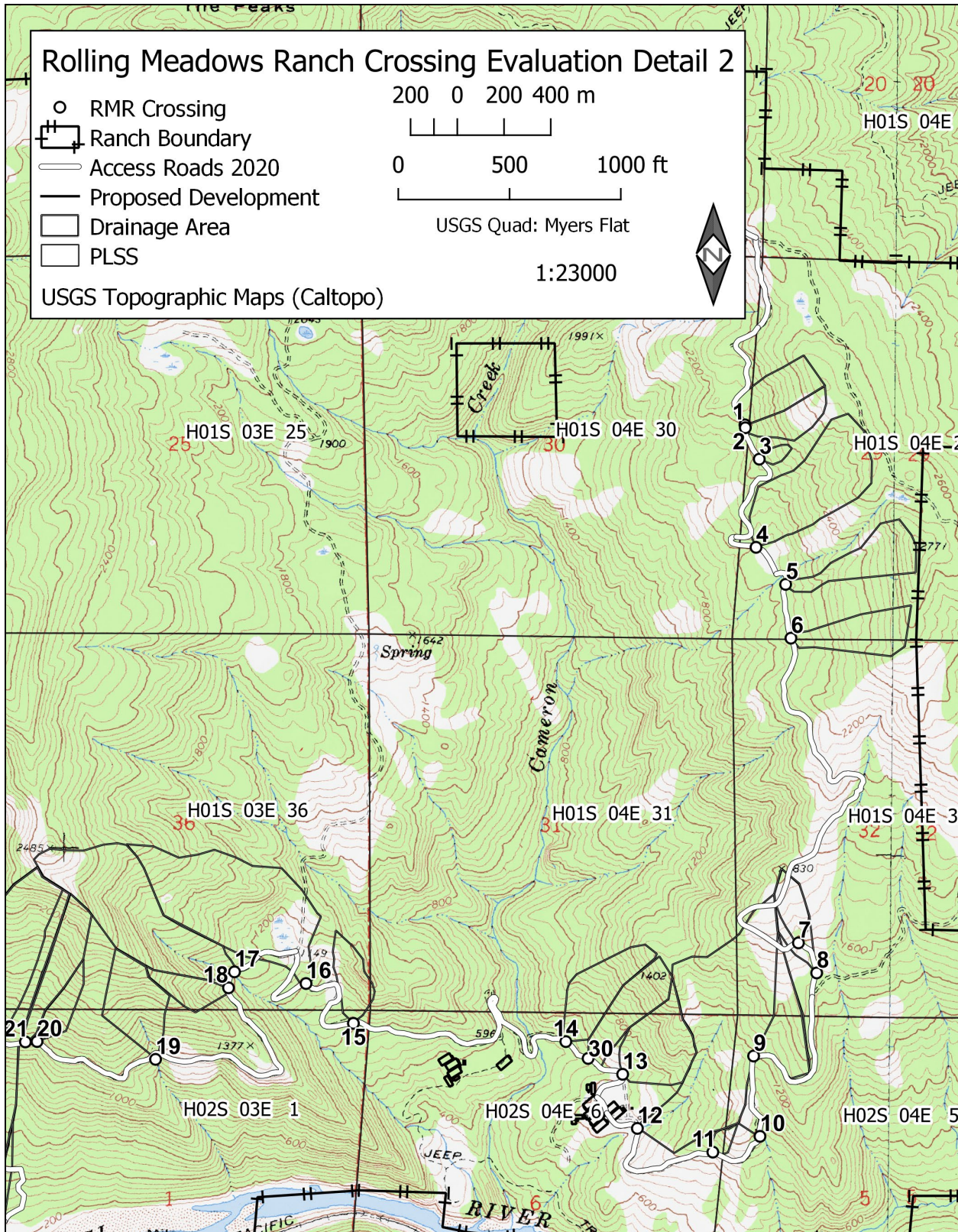


Figure 4. Topographic map with locations and drainage areas of Crossings 1-19.

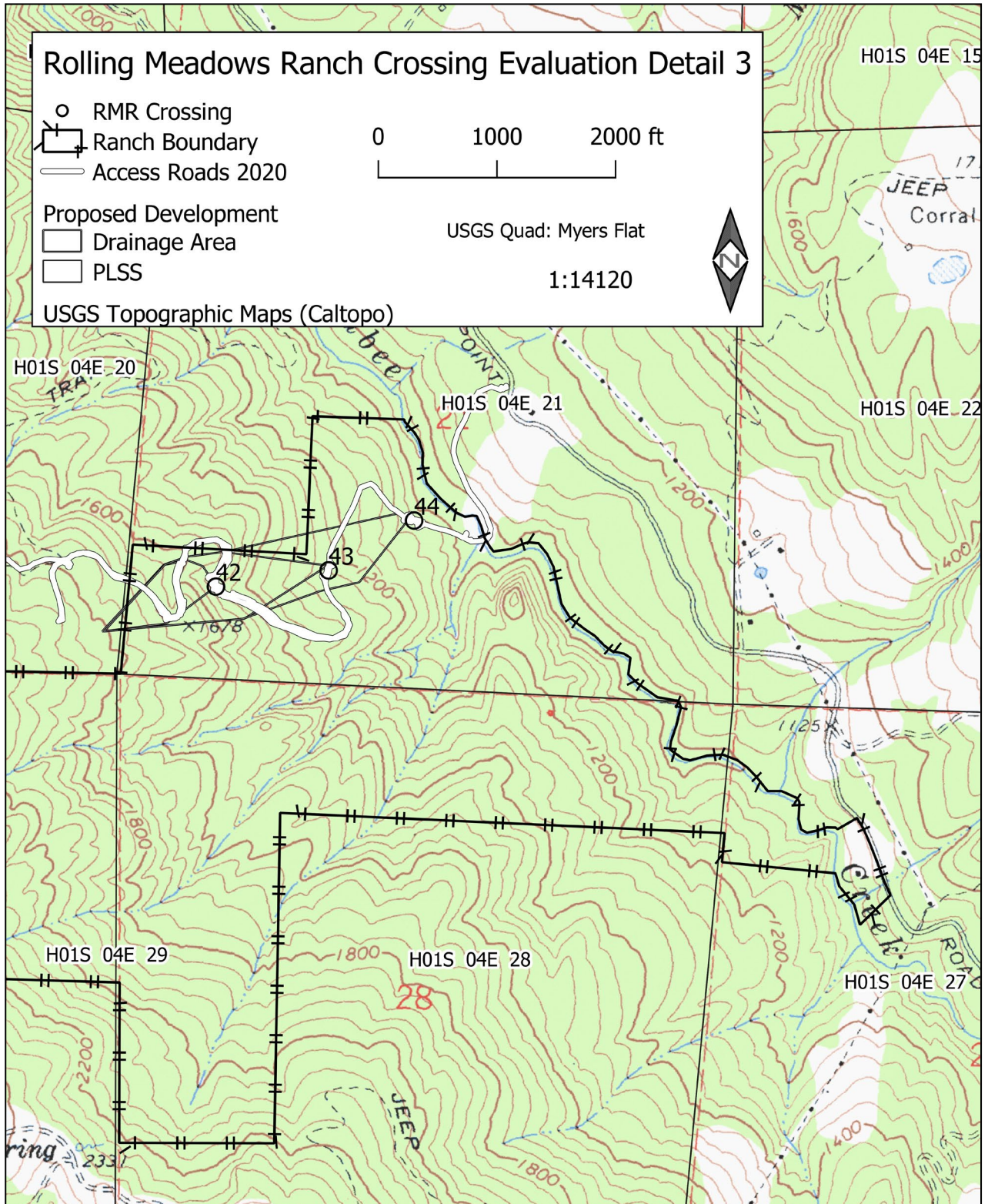


Figure 5. Topographic map with locations and drainage areas of Crossings 42-44 on ranch road section between off ranch easements; see Figure 6 for reference.

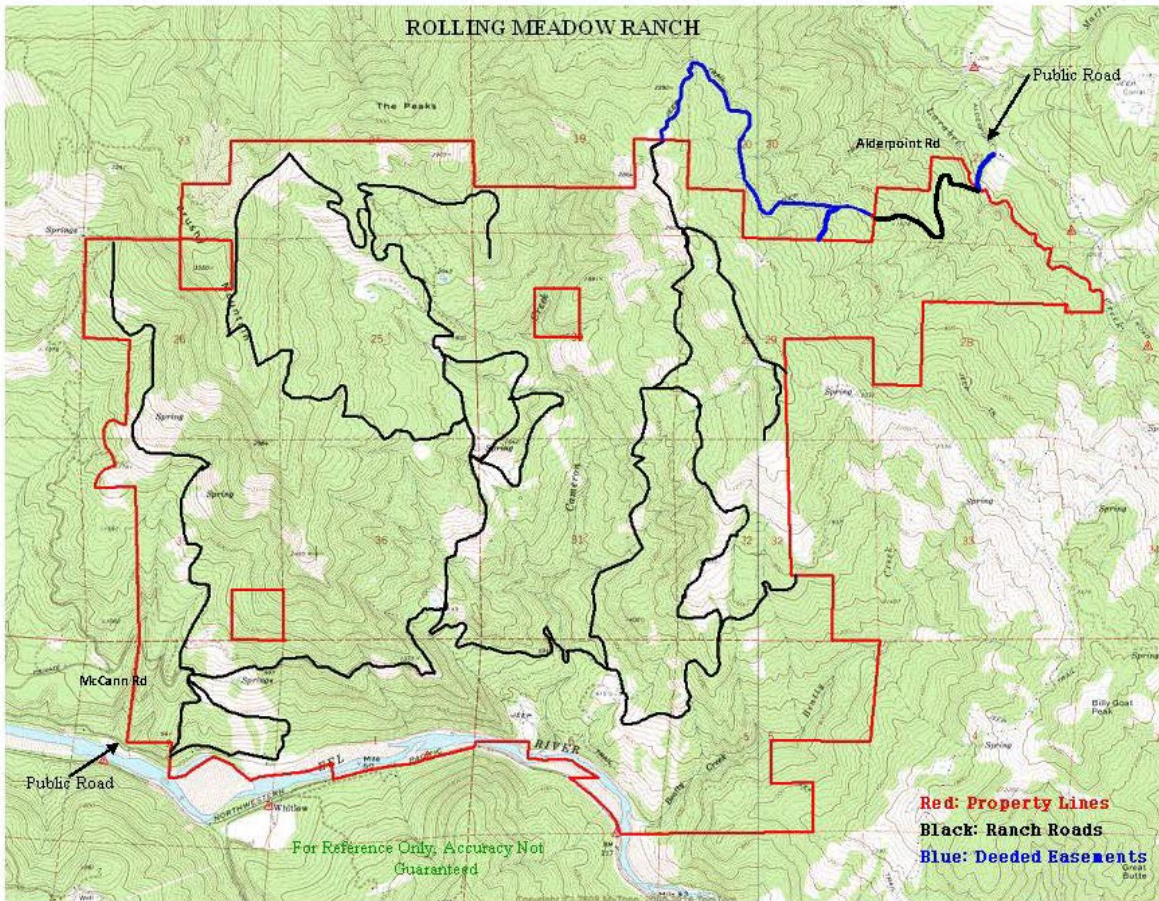


Figure 6. Topographic map of all ranch roads, including dedeed easements



State of California – Natural Resources Agency
DEPARTMENT OF FISH AND WILDLIFE
Northern Region
619 Second Street
Eureka, California 95501
(707) 445-6493
www.wildlife.ca.gov

GAVIN NEWSOM, Governor
CHARLTON H. BONHAM, Director



September 8, 2020

Andy Machata
Rolling Meadows Ranch
P.O. Box 1009
Arcata, CA 95518

Subject: Draft Lake or Streambed Alteration Agreement
Notification No. 1600-2020-0285-R1
Rolling Meadows Ranch Bridge Repair Project

Dear Andy Machata:

The California Department of Fish and Wildlife (Department) has determined that your project requires a Lake or Streambed Alteration Agreement (Agreement) because it could substantially adversely affect an existing fish or wildlife resource. Enclosed is a draft Agreement that includes measures the Department has determined are necessary to protect existing fish and wildlife resources.

Within 30 days of receipt of this draft Agreement, you must notify the Department in writing whether the measures to protect fish and wildlife resources are acceptable (Fish and Game Code section 1603). If you agree with the measures set forth in the draft Agreement, you or your authorized representative **must return the draft Agreement with original signature to the above address.**

If you disagree with any measures in the draft Agreement, please contact the Department staff identified below. In the event that mutual agreement is not reached, you may follow the dispute resolution process described in Fish and Game Code section 1603(a), Part III of the "Notification Instructions and Process." If you fail to respond in writing within 90 days of receiving the draft Agreement, the Department may withdraw the draft Agreement.

Please be advised the Department may not execute the Agreement until it has complied with the California Environmental Quality Act (CEQA) (Public Resources Code section 21000 *et seq.*) as the lead or a responsible agency. Please note that the draft Agreement may be subject to change upon receipt and review of the environmental document for the project.

Conserving California's Wildlife Since 1870

Andy Machata
September 8, 2020
Page 2 of 2

After you receive a final Agreement executed by the Department, you may begin the project the Agreement authorizes provided you have obtained all other necessary local, state, and federal permits or other authorizations.

For more information on the process described above, please refer to Part IV in the "Notification Instructions and Process" included with your notification materials, which is also available at www.wildlife.ca.gov/habcon/1600/notificationpackage.pdf.

If you have any questions regarding this letter, please contact Senior Environmental Scientist Specialist David Manthorne at david.manthorne@wildlife.ca.gov or (707) 441-5900.

Sincerely,

A handwritten signature in blue ink that reads "Scott Bauer". The signature is fluid and cursive, with a long horizontal line extending to the right.

Scott Bauer
Senior Environmental Scientist Supervisor

cc. Travis Schneider
Pacific Affiliates Inc.
tschneider@pacaff.com

CALIFORNIA DEPARTMENT OF FISH AND WILDLIFE
REGION 1 – NORTHERN REGION
619 Second Street
Eureka, CA 95501



STREAMBED ALTERATION AGREEMENT
NOTIFICATION No. 1600-2020-0285-R1
Larabee Creek, Tributary to the Eel River and the Pacific Ocean

Andy Machata
Rolling Meadows Ranch Bridge Repair Project
1 Encroachment

This Streambed Alteration Agreement (Agreement) is entered into between the California Department of Fish and Wildlife (CDFW) and Andy Machata (Permittee).

RECITALS

WHEREAS, pursuant to Fish and Game Code (FGC) section 1602, the Permittee initially notified CDFW on June 18, 2020, that the Permittee intends to complete the project described herein.

WHEREAS, pursuant to FGC section 1603, CDFW has determined that the project could substantially adversely affect existing fish or wildlife resources and has included measures in the Agreement necessary to protect those resources.

WHEREAS, the Permittee has reviewed the Agreement and accepts its terms and conditions, including the measures to protect fish and wildlife resources.

NOW THEREFORE, the Permittee agrees to complete the project in accordance with the Agreement.

PROJECT LOCATION

The project to be completed is located within the Eel River watershed, approximately 6 miles northeast of the community of McCann, County of Humboldt, State of California. The project is located in Section 3, T1S, R4E, Humboldt Base and Meridian; in the Blocksburg U.S. Geological Survey 7.5-minute quadrangle; Assessor's Parcel Numbers 217-031-012 and 217-031-001; latitude 40.3447 N and longitude -123.7109 W at the bridge location.

PROJECT DESCRIPTION

The project is limited to one encroachment. The single encroachment is to replace all components of an existing bridge except the streambank and center abutments within Larabee Creek. Work will include a maximum of two instream crossings with heavy equipment.

Table 1. Project Encroachment with Description

ID	Latitude/Longitude	Description
Bridge Crossing	40.3447, -123.7109	Replace all components of an existing bridge, except the existing abutments at either end of the structure and the single central support piling. Heavy equipment shall cross the live stream channel no more than two times during construction activities.

PROJECT IMPACTS

Existing fish or wildlife resources the project could substantially adversely affect include Steelhead Trout (*O. mykiss*), Pacific Lamprey (*Entosphenus tridentata*), Pacific Giant Salamander (*Dicamptodon tenebrosus*), Foothill Yellow-legged Frog (*Rana boylei*), Western Pond Turtle (*Actinemys marmorata marmorata*) amphibians, reptiles, aquatic invertebrates, mammals, birds, and other aquatic and riparian species.

The adverse effects the project could have on the fish or wildlife resources identified above include:

Impacts to water quality:

temporary increase in fine sediment transport;

Impacts to bed, channel, or bank and direct effects on fish, wildlife, and their habitat:

direct impacts on benthic organisms;

Impacts to natural flow and effects on habitat structure and process:

direct and/or incidental take;

indirect impacts;

MEASURES TO PROTECT FISH AND WILDLIFE RESOURCES

1. Administrative Measures

The Permittee shall meet each administrative requirement described below.

- 1.1 Documentation at Project Site. The Permittee shall make the Agreement, any extensions and amendments to the Agreement, and all related notification materials and California Environmental Quality Act (CEQA) documents, readily available at the project site at all times and shall be presented to CDFW personnel, or personnel from another state, federal, or local agency upon request.
- 1.2 Providing Agreement to Persons at Project Site. The Permittee shall provide copies of the Agreement and any extensions and amendments to the Agreement to all persons who will be working on the project at the project site on behalf of the

Permittee, including but not limited to contractors, subcontractors, inspectors, and monitors.

- 1.3 Adherence to Existing Authorizations. All water diversion facilities that the Permittee owns, operates, or controls shall be operated and maintained in accordance with current law and applicable water rights.
- 1.4 Change of Conditions and Need to Cease Operations. If conditions arise, or change, in such a manner as to be considered deleterious by CDFW to the stream or wildlife, operations shall cease until corrective measures approved by CDFW are taken. This includes new information becoming available that indicates that the bypass flows and diversion rates provided in this agreement are not providing adequate protection to keep aquatic life downstream in good condition or to avoid “take” or “incidental take” of federal or State listed species.
- 1.5 Notification of Conflicting Provisions. The Permittee shall notify CDFW if the Permittee determines or learns that a provision in the Agreement might conflict with a provision imposed on the project by another local, state, or federal agency. In that event, CDFW shall contact the Permittee to resolve any conflict.
- 1.6 Project Site Entry. The Permittee agrees to allow CDFW employees access to any property it owns and/or manages for the purpose of inspecting and/or monitoring the activities covered by this Agreement, provided CDFW: a) provides 24 hours advance notice; and b) allows the Permittee or representatives to participate in the inspection and/or monitoring. This condition does not apply to CDFW enforcement personnel.
- 1.7 CDFW Notification of Work Initiation and Completion. The Permittee shall contact CDFW within the seven-day period preceding the beginning of work permitted by this Agreement. Information to be disclosed shall include Agreement number, and the anticipated start date. Subsequently, the Permittee shall notify CDFW no later than seven (7) days after the project is fully completed.

2. Avoidance and Minimization Measures

To avoid or minimize adverse impacts to fish and wildlife resources identified above, the Permittee shall implement each measure listed below.

- 2.1 Permitted Project Activities. Except where otherwise stipulated in this Agreement, all work shall be in accordance with the Permittee Notification received on June 18, 2020, together with all maps, BMP's, photographs, drawings, and other supporting documents submitted with the Notification.
- 2.2 Incidental Take. This Agreement does not allow for the take, or incidental take of any state or federal listed threatened or endangered listed species.

Project Timing

- 2.3 Work Period. All work, not including diversion of water, shall be confined to the period **July 1 through October 15** of each year. Work within the active channel of a stream shall be restricted to periods of **dry weather**. Precipitation forecasts and potential increases in stream flow shall be considered when planning construction activities. Construction activities shall cease, and all necessary erosion control measures shall be implemented prior to the onset of precipitation.
- 2.4 Work Completion. A notice of completed work, including photographs of each site, shall be submitted to CDFW within seven (7) days of project completion.
- 2.5 Extension of the Work Period. If weather conditions permit, and the Permittee wishes to extend the work period after October 15, a written request shall be made to CDFW at least 5-working days before the proposed work period variance. Written approval (letter or e-mail) for the proposed time extension must be received from CDFW prior to activities continuing past October 15.
- 2.6 Avoidance of Nesting Birds. Vegetation maintenance/removal as necessary within the scope of the project shall be confined to the period commencing August 16 and ending February 28, of any year in which this Agreement is valid, provided the work area is outside of the actively flowing stream. Work may continue during precipitation events provided stream flows have not risen into work areas and sediment delivery will not result.

Vegetation Management

- 2.7 Minimum Vegetation Removal. No native riparian vegetation shall be removed from the bank of the stream, except where authorized by CDFW. Permittee shall limit the disturbance or removal of native vegetation to the minimum necessary to achieve design guidelines and standards for the Authorized Activity. Permittee shall take precautions to avoid damage to vegetation outside the work area.
- 2.8 Vegetation Management. Permittee shall limit vegetation management (e.g., trimming, pruning, or limbing) and removal for the purpose of stream crossing or diversion infrastructure placement/maintenance to the use of hand tools. Vegetation management shall not include treatment with herbicides.

Bridge Repair Work

- 2.9 Heavy Equipment Crossings. Heavy equipment shall only cross the live stream channel a maximum of two times during bridge repair work. Heavy equipment shall cross the shallowest portion of the stream channel (riffle) in the work area. A work crew member shall walk in front of heavy equipment as it crosses the stream to haze fish away from the area.

- 2.10 Stream Protection. No debris, soil, silt, sand, bark, slash, sawdust, rubbish, cement or concrete washings, oil or petroleum products, or other deleterious material from project activities shall be allowed to enter into or be placed where it may be washed by rainfall or runoff into the stream. All project materials and debris shall be removed from the project site and properly disposed of off-site upon project completion.
- 2.11 Equipment Maintenance. Refueling of machinery or heavy equipment, or adding or draining oil, lubricants, coolants, or hydraulic fluids shall not take place within stream bed, channel, and bank. All such fluids and containers shall be disposed of properly off-site. Heavy equipment used or stored within stream bed, channel and bank shall use drip pans or other devices (e.g., absorbent blankets, sheet barriers or other materials) as needed to prevent soil and water contamination.
- 2.12 Hazardous Spills. Any material, which could be hazardous or toxic to aquatic life and enters a stream (i.e. a piece of equipment tipping-over in a stream and dumping oil, fuel or hydraulic fluid), the Permittee shall immediately notify the California Emergency Management Agency State Warning Center at 1-800-852-7550, and immediately initiate clean-up activities. CDFW shall be notified by the Permittee within 24 hours at 707-445-6493 and consulted regarding clean-up procedures.
- 2.13 Runoff from Steep Areas. The Permittee shall make preparations so that runoff from steep, erodible surfaces will be diverted into stable areas with little erosion potential or contained behind erosion control structures. Erosion control structures such as straw bales and/or siltation control fencing shall be placed and maintained until the threat of erosion ceases. Frequent water checks shall be placed on dirt roads, cat tracks, or other work trails to control erosion.
- 2.14 Project Inspection. The Project shall be inspected by Pacific Affiliates Consulting Engineers or a licensed engineer to ensure that the bridge repairs were implemented as designed. A copy of the inspection report, including photographs of each site, shall be submitted to CDFW within 90 days of completion of this project.

Erosion Control and Pollution

- 2.15 Erosion Control. Permittee shall use erosion control measures throughout all work phases where sediment runoff threatens to enter a stream, lake, or other Waters of the State.
- 2.16 Seed and Mulch. Upon completion of construction operations and/or the onset of wet weather, Permittee shall stabilize exposed soil areas within the work area by applying mulch and seed. Permittee shall restore all exposed or disturbed areas and access points within the stream and riparian zone by applying local native and weed free erosion control grass seeds. Locally native wildflower and/or shrub

seeds may also be included in the seed mix. Permittee shall mulch restored areas using at least two to four inches of weed-free clean straw or similar biodegradable mulch over the seeded area. Alternately, Permittee may cover seeding with jute netting, coconut fiber blanket, or similar non-synthetic monofilament netting erosion control blanket.

- 2.17 Erosion and Sediment Barriers. Permittee shall monitor and maintain all erosion and sediment barriers in good operating condition throughout the work period and the following rainy season, defined herein to mean October 15 through July 1. Maintenance includes, but is not limited to, removal of accumulated sediment and/or replacement of damaged sediment fencing, coir logs, coir rolls, and/or straw bale dikes. If the sediment barrier fails to retain sediment, Permittee shall employ corrective measures, and notify the department immediately.
- 2.18 Prohibition on Use of Monofilament Netting. To minimize the risk of ensnaring and strangling wildlife, Permittee shall not use any erosion control materials that contain synthetic (e.g., plastic or nylon) monofilament netting, including photo- or biodegradable plastic netting. Geotextiles, fiber rolls, and other erosion control measures shall be made of loose-weave mesh, such as jute, hemp, coconut (coir) fiber, or other products without welded weaves.
- 2.19 Site Maintenance. Permittee shall be responsible for site maintenance including, but not limited to, re-establishing erosion control to minimize surface erosion and ensuring drainage structures and altered streambeds and banks remain sufficiently armored and/or stable.
- 2.20 Cover Spoil Piles. Permittee shall have readily available erosion control materials such as wattles, natural fiber mats, or plastic sheeting, to cover and contain exposed spoil piles and exposed areas in order to prevent sediment from moving into a stream or lake. Permittee shall apply and secure these materials prior to rain events to prevent loose soils from entering a stream, lake, or other Waters of the State.
- 2.21 No Dumping. Permittee shall not deposit, permit to pass into, or place where it can pass into a stream, lake, or other Waters of the State any material deleterious to fish and wildlife, or abandon, dispose of, or throw away within 150 feet of a stream, lake, or other Waters of the State any cans, bottles, garbage, motor vehicle or parts thereof, rubbish, litter, refuse, waste, debris, or the viscera or carcass of any dead mammal, or the carcass of any dead bird.

3. Reporting Measures

- 3.1 Work Completion. A notice of completed work (condition 2.4), with supplemental photos, shall be submitted to CDFW **within seven (7) days** of project completion.

- 3.2 Project Inspection. The Permittee shall submit the **Project Inspection Report** (condition 2.14) to CDFW, LSA Program at 619 Second Street, Eureka, CA 95501

CONTACT INFORMATION

Written communication that the Permittee or CDFW submits to the other shall be delivered to the address below unless the Permittee or CDFW specifies otherwise.

To Permittee:

Andy Machata
Rolling Meadows Ranch
P.O. Box 1009
Arcata, California 95518
(321) 431-7825
Dino2678@mac.com

To CDFW:

Department of Fish and Wildlife
Northern Region
619 Second Street
Eureka, California 95501
Attn: Lake and Streambed Alteration Program
Notification #1600-2020-0285-R1

LIABILITY

The Permittee shall be solely liable for any violation of the Agreement, whether committed by the Permittee or any person acting on behalf of the Permittee, including its officers, employees, representatives, agents or contractors and subcontractors, to complete the project or any activity related to it that the Agreement authorizes.

This Agreement does not constitute CDFW's endorsement of, or require the Permittee to proceed with the project. The decision to proceed with the project is the Permittee's alone.

SUSPENSION AND REVOCATION

CDFW may suspend or revoke in its entirety this Agreement if it determines that the Permittee or any person acting on behalf of the Permittee, including its officers, employees, representatives, agents, or contractors and subcontractors, is not in compliance with the Agreement.

Before CDFW suspends or revokes the Agreement, it shall provide the Permittee written notice by certified or registered mail that it intends to suspend or revoke. The notice shall state the reason(s) for the proposed suspension or revocation, provide the Permittee an opportunity to correct any deficiency before CDFW suspends or revokes the Agreement, and include instructions to the Permittee, if necessary, including but not limited to a directive to immediately cease the specific activity or activities that caused CDFW to issue the notice.

ENFORCEMENT

Nothing in the Agreement precludes CDFW from pursuing an enforcement action against the Permittee instead of, or in addition to, suspending or revoking the Agreement.

Nothing in the Agreement limits or otherwise affects CDFW's enforcement authority or that of its enforcement personnel.

OTHER LEGAL OBLIGATIONS

This Agreement does not relieve the Permittee or any person acting on behalf of the Permittee, including its officers, employees, representatives, agents, or contractors and subcontractors, from obtaining any other permits or authorizations that might be required under other federal, state, or local laws or regulations before beginning the project or an activity related to it.

This Agreement does not relieve the Permittee or any person acting on behalf of the Permittee, including its officers, employees, representatives, agents, or contractors and subcontractors, from complying with other applicable statutes in the FGC including, but not limited to, FGC sections 2050 *et seq.* (threatened and endangered species), 3503 (bird nests and eggs), 3503.5 (birds of prey), 5650 (water pollution), 5652 (refuse disposal into water), 5901 (fish passage), 5937 (sufficient water for fish), and 5948 (obstruction of stream).

Nothing in the Agreement authorizes the Permittee or any person acting on behalf of the Permittee, including its officers, employees, representatives, agents, or contractors and subcontractors, to trespass.

AMENDMENT

CDFW may amend the Agreement at any time during its term if CDFW determines the amendment is necessary to protect an existing fish or wildlife resource.

The Permittee may amend the Agreement at any time during its term, provided the amendment is mutually agreed to in writing by CDFW and the Permittee. To request an amendment, the Permittee shall submit to CDFW a completed CDFW "Request to

Amend Lake or Streambed Alteration” form and include with the completed form payment of the corresponding amendment fee identified in CDFW’s current fee schedule (see Cal. Code Regs., tit. 14, § 699.5).

TRANSFER AND ASSIGNMENT

This Agreement may not be transferred or assigned to another entity, and any purported transfer or assignment of the Agreement to another entity shall not be valid or effective, unless the transfer or assignment is requested by the Permittee in writing, as specified below, and thereafter CDFW approves the transfer or assignment in writing.

The transfer or assignment of the Agreement to another entity shall constitute a minor amendment, and therefore to request a transfer or assignment, the Permittee shall submit to CDFW a completed CDFW “Request to Amend Lake or Streambed Alteration” form and include with the completed form payment of the minor amendment fee identified in CDFW’s current fee schedule (see Cal. Code Regs., tit. 14, § 699.5).

EXTENSIONS

In accordance with FGC section 1605(b), the Permittee may request one extension of the Agreement, provided the request is made prior to the expiration of the Agreement’s term. To request an extension, the Permittee shall submit to CDFW a completed CDFW “Request to Extend Lake or Streambed Alteration” form and include with the completed form payment of the extension fee identified in CDFW’s current fee schedule (see Cal. Code Regs., tit. 14, § 699.5). CDFW shall process the extension request in accordance with FGC 1605(b) through (e).

If the Permittee fails to submit a request to extend the Agreement prior to its expiration, the Permittee must submit a new notification and notification fee before beginning or continuing the project the Agreement covers (FGC section 1605(f)).

EFFECTIVE DATE

The Agreement becomes effective on the date of CDFW’s signature, which shall be: 1) after the Permittee signature; 2) after CDFW complies with all applicable requirements under the California Environmental Quality Act (CEQA); and 3) after payment of the applicable FGC section 711.4 filing fee listed at http://www.wildlife.ca.gov/habcon/ceqa/ceqa_changes.html.

TERM

This Agreement shall **expire five years** from date of execution, unless it is terminated or extended before then. All provisions in the Agreement shall remain in force throughout its term. The Permittee shall remain responsible for implementing any

provisions specified herein to protect fish and wildlife resources after the Agreement expires or is terminated, as FGC section 1605(a)(2) requires.

AUTHORITY

If the person signing the Agreement (signatory) is doing so as a representative of the Permittee, the signatory hereby acknowledges that he or she is doing so on the Permittee's behalf and represents and warrants that he or she has the authority to legally bind the Permittee to the provisions herein.

AUTHORIZATION

This Agreement authorizes only the project described herein. If the Permittee begins or completes a project different from the project the Agreement authorizes, the Permittee may be subject to civil or criminal prosecution for failing to notify CDFW in accordance with FGC section 1602.

CONCURRENCE

The undersigned accepts and agrees to comply with all provisions contained herein.

FOR Andy Machata

Andy Machata

Date

FOR DEPARTMENT OF FISH AND WILDLIFE

Scott Bauer
Senior Environmental Scientist Supervisor

Date

SECTION II – PLAN OF TIMBER OPERATIONS

ITEM #14	SILVICULTURE
<ul style="list-style-type: none"> - Check the Silvicultural methods or treatments allowed by the Forest Practice Rules to be applied under this THP. - If more than one method or treatment will be used identify the boundaries on a map per 14 CCR § 1034(x)(2) - List the approximate acreage for each method identified. 	

a.	Evenaged	ACRES	
<input checked="" type="checkbox"/>	Clearcutting	137	<p align="center">EVENAGED REGENERATION METHODS (14 CCR § 913.1 [933.1, 953.1]) (All Districts)</p> <p align="center">NOTE: variation by District in (a)(4)(A) and (d)(3) Shelterwood Removal Step</p>
<input type="checkbox"/>	Seed Tree Seed Step		
<input type="checkbox"/>	Seed Tree Removal Step		
<input type="checkbox"/>	Shelterwood Preparatory Step		
<input type="checkbox"/>	Shelterwood Seed Step		
<input type="checkbox"/>	Shelterwood Removal Step		
	Un-evenaged		
<input checked="" type="checkbox"/>	Selection	42	
<input type="checkbox"/>	Group Selection		
<input type="checkbox"/>	Transition		<p align="center">INTERMEDIATE TREATMENTS (14 CCR § 913.3 [933.3, 953.3])</p>
	Intermediate Treatments		
<input type="checkbox"/>	Commercial Thinning		
<input type="checkbox"/>	Sanitation Salvage		<p align="center">ALTERNATIVE PRESCRIPTIONS (ALL DISTRICTS) (14 CCR § 913.6 [933.6, 953.6])</p>
	Alternative		
<input type="checkbox"/>	Alternative Prescription		<p align="center">SPECIAL PRESCRIPTIONS (14 CCR § 913.4 [933.4, 953.4])</p> <p>RPF is required to include specific information when Restoration or Oak woodland management is selected. The FPR element forms are provided at the end. Indicate the specific acreage for each type of restoration or oak area on these forms.</p>
	Special Prescriptions		
<input type="checkbox"/>	Special Treatment Area Prescription		
<input checked="" type="checkbox"/>	Rehabilitation of Understocked Area Prescription	5	
<input type="checkbox"/>	Fuel Break / Defensible Space		
<input type="checkbox"/>	Variable Retention		
<input type="checkbox"/>	Restoration – Aspen, Meadow, & Wet Area		
<input type="checkbox"/>	Ca. Black and Oregon White Oak Woodland Management		<p align="center">NON REGENERATION HARVESTING</p>
	Non-regeneration		
<input type="checkbox"/>	Conversion		
<input checked="" type="checkbox"/>	Road Right-of-way	1	
<input checked="" type="checkbox"/>	No Harvest (Deferred for NSO)	29	

TOTAL ACREAGE:	214	If acreage is different than acreage listed in the legal description provide explanation:

This THP conforms with Sierra Pacific Industries Option (a) demonstration of Maximum Sustained Production of High Quality Timber Products, as amended to THP 1-01-139HUM. Additional parcels have been added to the confidential APN list that is referenced by the approved Option (a), SPI has agreed to continue under the original harvest levels even though the total acres have increased by 8%. SPI's Option (a) has undergone review by CalFire for its first decade accomplishments. This review has shown that SPI is in compliance with the plan and that SPI has harvested 86% of the allowable harvest levels in that first decade.

If Selection, Group Selection, Commercial Thinning, Sanitation Salvage or Alternative methods are selected the post-harvest stocking levels must be stated. If Site class varies then state the post-harvest stocking standard to be meet by each applicable Site Class.



NOTE: Location of boundaries of timber-site classes needed for the determination of stocking standards to be applied, down to 20-acres minimum or as specified in district rules shall be mapped per 14 CCR § 1034(x)(12)

b. POST-HARVEST STOCKING TO BE MET AT THE COMPLETION OF OPERATIONS

Silvicultural Prescription	Site Class (I, II, III, IV, V)	Post-harvest stocking standard
Selection	III	Minimum of 75sqft of basal area per acre

c. EVENAGED REGENERATION SIZE

Yes No Will evenaged regeneration step Units be larger than those specified in the rules?
 20 acres TRACTOR
 30 acres AERIAL or CABLE

If YES is the RPF proposing:
 An increase to evenaged TRACTOR Units to 30 acres because Erosion Hazards Rating is Low and the slopes are less than 30%
 An increase to any evenaged harvest unit up to 40 acres

If YES provide substantial evidence that the THP contains measures to accomplish any one of the subsections per 14 CCR § 913.1 [933.1, 953.1](a)(2)(A) – (E) in SECTION III

Operational Instruction to the LTO, needed to meet subsections (A) – (E) above shall be included in SECTION II

NOTE: Oversized Units should be designated on the THP map(s) by size.

See THP Section III, Plan Addendum to Item 14 for evidence of compliance with 14CCR 913.1(a)(2)(A-E).

d. TIMBER MARKING

In the table below indicate the area requiring tree marking, the method of marking, who completed the marking and if it was an entire or sample area mark.

Marking completed in (specify Location(s))	Trees Marked (Harvest / Retained)	Completed By (RPF / Designee)	Area Marked (Entire / Sample area)	RPF Explanation if needed (Optional)
Selection (WLPZ)	Harvest	Both	Entire	

Yes No Is the RPF requesting a waiver of required marking?
If YES, provide directions explaining how the LTO will determine what trees shall be harvested or retained:
If more than one silvicultural method or group selection is used, provide instructions to the LTO identifying how boundaries of the different methods or groups have been identified:

e. FOREST PRODUCTS TO BE HARVESTED:

<input checked="" type="checkbox"/>	Saw Logs	<input checked="" type="checkbox"/>	Poles	<input checked="" type="checkbox"/>	Clean Chips
<input type="checkbox"/>	Peeler Logs	<input checked="" type="checkbox"/>	Split Wood Products	<input checked="" type="checkbox"/>	Firewood
<input checked="" type="checkbox"/>	Fuel Wood	<input checked="" type="checkbox"/>	Fuel chips	<input type="checkbox"/>	Other
<input checked="" type="checkbox"/>	Burl Wood				

f. GROUP B SPECIES MANAGEMENT

1. Yes No Are group B species proposed for management?

2. <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Are group B or non-indigenous A species to be used to meet stocking standards?
3. <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Will group B species need to be reduced to maintain relative site occupancy of group A species?

If any answer is YES, list the species, describe treatment, and provide LTO felling and slash treatment guidance. See table below

TABLE FOR LTO TREATMENT GROUP B SPECIES MANAGEMENT			
Species	Treatment Method	Felling Instruction	Slash Treatment Instructions
See below	See below	None	None
Currently, there are moderate to high levels of hardwoods, predominately tanoak and madrone, within some of the timber stands proposed for harvest. For a description of current stand conditions, see the Vegetation and Stand Descriptions in the introduction to THP Section III. Merchantable hardwoods may be harvested at the discretion of the plan submitter except for those hardwoods specifically marked for retention. If merchantability standards and market conditions make it impractical to harvest hardwoods, then other treatments may be implemented (See Below).			

1. <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	<p>Are follow-up treatments expected to maintain relative site occupancy of group A species?</p> <p><input type="checkbox"/> Manual Treatments - Describe:</p> <p><input type="checkbox"/> Herbicide Treatments - Describe:</p> <p><input checked="" type="checkbox"/> Both</p> <p>If necessary to comply with the intent of 14 CCR 912.7 (d) where timber operations have occurred, a sufficient number of hardwood trees shall be treated using an appropriate vegetative management prescription. The plan submitter will determine the necessity and application of vegetative management prescriptions after reviewing the post-harvest stand conditions.</p>
	If YES who will be responsible? The plan submitter
2. <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	<p>Will a Licensed Pest Control Advisor be involved in the process?</p> <p>If YES explain when an advisor will be needed:</p> <p>If an herbicide treatment will be used, then it will be necessary to involve a pest control advisor. For a discussion on when a licensed Pest Control Advisor will be involved see the CEQA Analysis of the Potential Use of Herbicides Associated with This Plan in THP Section IV.</p>

g. LTO FELLING INSTRUCTIONS PLAN AREA	
	To the fullest extent possible and with due consideration given topography, lean of trees, local obstructions, and safety factors, trees to be harvested shall be felled to lead in a direction away from watercourses, no harvest areas, designated leave trees, snag(s) (i.e. dead standing tree), property lines, and trees required to be maintained for stocking requirements to be met immediately upon completion of operations.

h. REGENERATION	
<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	<p>Will artificial regeneration be required to meet stocking standards?</p> <p>Describe: Clearcut and rehabilitation areas shall be planted with group A seedlings from appropriate seed zones and elevations. Stocking standards of 14CCR 912.7(b) may be achieved either by natural regeneration, planted trees, or both.</p>

i. SITE PREPARATION	
Definition of site preparation per 14 CCR § 895.1: Site preparation means "any activity" involving mechanical disturbance of soils or burning of vegetation which is performed during or after completion of timber harvesting and is associated with preparation of any portion of a logging area for artificial or natural regeneration.	
1. <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	<p>Will site preparation be used within the logging area?</p> <p>If YES, provide site preparation plan per 14 CCR § 915.4 [935.4, 955.4]</p>
2. <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<p>Will site preparation be required to meet stocking?</p> <p>Site preparation will not be required to meet stocking requirements, however it may be used to facilitate more efficient regeneration efforts, reduce fire hazard, and meet the plan submitter's intensive forest management objectives to ensure maximum site productivity.</p>

	<ul style="list-style-type: none"> General method(s) of site preparation: <u>Mechanical site preparation and/or broadcast, spot, or pile burning may be utilized. Mechanical site preparation in the form of piling may occur on slopes less than 50% and on slopes from 50 to 65% where the equipment travel is limited to existing and pre-flagged skid trails. Equipment shall not be operated for site preparation where it is otherwise restricted in the THP for harvesting (ELZ, EEZ, WLPZ, etc). Burning may be used in all clearcut or rehabilitation areas.</u>
	<ul style="list-style-type: none"> Type of equipment to be used for mechanical site preparation and/or firebreak construction: <u>Equipment to be used for mechanical site preparation and firebreak construction may include ground-based equipment such as a dozer, excavator, loader, skidder, or back hoe.</u>
	<ul style="list-style-type: none"> Methods to protect desirable residual trees per 14 CCR § 917.7 [937.7, 957.7]: <u>There will be no residual trees required for retention for the purpose of meeting stocking standards 14 CCR 917.7 within the areas where site preparation may occur.</u>
3. <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<ul style="list-style-type: none"> Are there any exceptions or alternatives proposed to the standard rules? If YES, provide an explanation and justification for the proposed exceptions:
	<ul style="list-style-type: none"> Provide a map identifying the boundaries of site preparation areas, if different from the logging area boundaries, and distinguish areas by type of site preparation activity. <u>The clearcut and rehabilitation boundaries are shown on the Silviculture Map at the end of THP Section II.</u>
	<ul style="list-style-type: none"> Prior to conducting site preparation activities provide the name of the person responsible for site preparation: <u>The LTO (to be identified) shall be responsible for the conduct of all mechanical site preparation activities and firebreak construction. The plan submitter (Sierra Pacific Industries) shall be responsible for all burning activities and hand firebreak construction.</u>
	- Name:
	- Address:
	- Phone #:
	<ul style="list-style-type: none"> Estimated timing of site preparation activities: <u>All burns are conducted pursuant to permits issued by CalFire. Burning is limited to winter, spring, and fall when fuel moisture conditions, relative humidity, fuel loading, and atmospheric conditions such as wind are conducive to controlled burning. No ignition shall occur within any WLPZ, or within any ELZ or EEZ designated for watercourse or lake protection. Heavy equipment shall not be used for site preparation under saturated soil conditions that may produce significant sediment discharge.</u> <u>See THP Section IV, Chemical Contamination for information regarding the speculative but likely use of herbicides.</u>

j. REGENERATION PLAN (rehabilitation of understocked areas or variable retention)	
<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	<p>Is a regeneration plan needed per 14 CCR § 913.4 [933.4, 953.4](b) or (d)? If YES, please provide a detailed description for Review Team to evaluate how the proposed management prescription will aid in restoring and enhancing the productivity of commercial timberland.</p> <p>The regeneration plan shall include but not be limited to:</p> <ul style="list-style-type: none"> <u>Rehabilitation of understocked areas:</u> site preparation, method of regeneration and other information needed to evaluate the proposal by the Review team: <u>Variable Retention:</u> Trees and elements retained, objectives intended to achieved by retention, distribution and quantity of retained tress, intended time period of retention, and potential future conditions or events the RPF believes would allow harvest of retained trees.

Regeneration plan: The rehabilitation area is primarily Site III dominated by tanoak and madrone with scattered Douglas-fir and other hardwoods. Proposed site preparation methods for the rehabilitation area are mechanical and/or broadcast burning.

Rehabilitation areas shall be planted with Douglas-fir. Stocking standards of 14CCR 912.7(b) may be achieved either by natural regeneration, planted trees, or both. Planted seedling stock shall be Group A species (Douglas-fir) from appropriate seed zones and elevations. The area shall be considered acceptably stocked if it meets the standards of 14 CCR 912.7 [932.7, 952.7] or contains at least 10 planted countable trees for each tree harvested within five years of completion of timber operations.

ITEM # 15 PESTS / FOREST DISEASES

Timber operations shall be conducted so as to minimize the build-up of destructive insect populations or the spread of forest Diseases. 14 CCR 917.9 [937.9, 957.9](a) – (c) (All Districts)

a. <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	<p>Is this THP within an area that the Board of Forestry and Fire Protection has declared a Zone of:</p> <p>1. <input checked="" type="checkbox"/> Infestation</p> <p>2. <input type="checkbox"/> Infection</p> <p>pursuant to PRC §§ 4712 - 4718?</p> <p>If YES, identify feasible measures being taken to mitigate adverse infestation or infection impacts from the timber operation. 917.9 (937.9, 957.9)(a)</p> <p style="text-align: center;">Reference Board of Forestry Technical Rule Addendum Number 3 for RPF considerations.</p>
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Measures to mitigate adverse infestations or infections: This THP is located within Humboldt County, CA, which was declared a Zone of Infestation for Sudden Oak Death disease (SOD) by the Board of Forestry. Plants, plant parts, unprocessed wood and wood products, and other products of SOD hosts, created as a result of timber harvest, cannot be moved within or outside of regulated counties infested with SOD without a CalFire-approved harvest document containing specific information that meets CDFA regulations. Surveys have not been conducted for SOD within the plan area so it is not known if there are infections, however the following restrictions are included to prevent spread of the disease regardless of whether or not there are known infections within the project area. The following language complies with the current CDFA regulations.

- a) California counties that have had positive detections for SOD include Alameda, Contra Costa, Humboldt, Lake, Marin, Mendocino, Monterey, Napa, San Francisco, San Mateo, Santa Clara, Santa Cruz, Solano, Sonoma, and Trinity plus Curry County in southern Oregon.
- b) List of all known SOD host species that are regulated in whole or in part:

<p><u>Acer macrophyllum, Bigleaf maple</u></p> <p><u>Acer pseudoplatanus, Planetree maple</u></p> <p><u>Adiantum aleuticum, Western maidenhair fern</u></p> <p><u>Adiantum jordanii, California maidenhair fern</u></p> <p><u>Aesculus californica, California buckeye</u></p> <p><u>Aesculus hippocastanum, Horse chestnut</u></p> <p><u>Arbutus menziesii, Madrone</u></p> <p><u>Arctostaphylos manzanita, Manzanita</u></p> <p><u>Calluna vulgaris, Scotch heather</u></p> <p><u>Camellia spp., Camellia - all species, hybrids and cultivars</u></p> <p><u>Castanea sativa, Sweet chestnut</u></p> <p><u>Cinnamomum camphora, Camphor tree – Sept 2011 (1)</u></p> <p><u>Fagus sylvatica, European beech</u></p> <p><u>Franqula californica (Rhamnus californica), California coffeeberry</u></p> <p><u>Franqula purshiana (Rhamnus purshiana), Cascara</u></p> <p><u>Fraxinus excelsior, European ash</u></p> <p><u>Griselinia littoralis, Griselinia</u></p> <p><u>Hamamelis virginiana, Witch hazel</u></p> <p><u>Heteromeles arbutifolia, Toyon</u></p> <p><u>Kalmia spp., Mountain laurel - all species, hybrids and cultivars</u></p> <p><u>Lithocarpus densiflorus, Tanoak</u></p> <p><u>Lonicera hispidula, California honeysuckle</u></p> <p><u>Laurus nobilis, Bay laurel</u></p>	<p><u>Maianthemum racemosum, (Smilacina racemosa), False Solomon’s seal</u></p> <p><u>Parrotia persica, Persian ironwood</u></p> <p><u>Photinia fraseri, Red tip photinia</u></p> <p><u>Pieris spp., Andromeda, Pieris - all species, hybrids and cultivars</u></p> <p><u>Pseudotsuga menziesii var. menziesii, Douglas fir</u></p> <p><u>Quercus agrifolia, Coast live oak</u></p> <p><u>Quercus cerris, European turkey oak</u></p> <p><u>Quercus chrysolepis, Canyon live oak</u></p> <p><u>Quercus falcate, Southern red oak</u></p> <p><u>Quercus ilex, Holm oak</u></p> <p><u>Quercus kelloggii, California black oak</u></p> <p><u>Quercus parvula var. shrevei, Shreve’s oak</u></p> <p><u>Rhododendron spp., Rhododendron (including azalea) – all species, hybrids and cultivars</u></p> <p><u>Rosa gymnocarpa, Wood rose</u></p> <p><u>Salix caprea, Goat willow</u></p> <p><u>Sequoia sempervirens, Coast redwood</u></p> <p><u>Syringa vulgaris, Lilac</u></p> <p><u>Taxus baccata, European yew</u></p> <p><u>Trientalis latifolia, Western starflower</u></p> <p><u>Umbellularia californica, California bay laurel, pepperwood, Oregon myrtle</u></p> <p><u>Vaccinium ovatum, Evergreen huckleberry</u></p>
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Magnolia doltsopa = Michelia doltsopa, Michelia

Viburnum spp., Viburnum – all species, hybrids and cultivars

- c) Host material that may be removed from the THP area include tanoak and madrone in the form of saw and chip logs, firewood, and chips.
- d) Host material shall not be moved outside of the regulated area unless appropriate State and Federal permits are obtained. A copy of the permit shall be amended into the plan prior to movement of any host materials authorized under the permit. (Note: A THP may not be substituted for compliance agreements or permits when material is to be moved outside of the regulated area.)
- e) This THP shall serve as a compliance agreement for movement of host material within the regulated area. The following conditions shall apply to movement of host material within the regulated area.
 - 1) No conifer host materials shall be shipped. Regulated parts of conifers include needles, twigs, and branches less than 1" in diameter, while bark, logs, and sawdust are not regulated.
 - 2) The destinations of the host material include: DG Power, Samoa; Resale Lumber Products, Eureka; Humboldt Redwood Company, Scotia; and Green Diamond Resource Company, Samoa. Additional destinations within the regulated area may be specified at a later date via a minor amendment.
 - 3) All host material less than 4" in diameter, including chips, shall be moved in a closed container.
 - 4) Movement of host material greater than 4" in diameter does not require a closed container.
 - 5) The LTO shall inspect log trucks and equipment before leaving the harvest area and remove any host plant debris (branches, limbs, leaves, etc.) The LTO shall instruct all operators of pick-up trucks, crummies, and service vehicles to inspect for and remove any host material debris from their vehicles prior to leaving the site.
- f) If after one year the SOD mitigations have changed, then the THP shall be amended to include the most current information and mitigations.
- g) The RPF responsible for providing advice to the LTO shall inform the LTO regarding the current SOD hosts and what comprises the regulated area, prior to the start-up of initial operations and throughout the active periods of the life of the THP.

b. Yes No

Are there any other significant insect or forest disease problems within the THP area if outside a declared zone?

- 1. Insect(s)
- 2. Disease(s)
- 3. Pest problems
- 4. Other (provide description of the forest problem)

If YES, describe proposed measures to improve the health, vigor, and productivity of the stand(s).

Proposed measures:

ITEM #16 HARVESTING PRACTICES					
YARDING SYSTEM AND EQUIPMENT TO BE USED					
	GROUND BASED (Tractor, skidder, Forwarder)*		CABLE**		OTHER (Special)
<input checked="" type="checkbox"/>	Tractor, including end/long lining	<input checked="" type="checkbox"/>	Cable, ground lead	<input type="checkbox"/>	Helicopter
<input checked="" type="checkbox"/>	Rubber tire skidder, forwarder	<input checked="" type="checkbox"/>	Cable, High lead	<input type="checkbox"/>	Animal
<input checked="" type="checkbox"/>	Feller buncher	<input checked="" type="checkbox"/>	Cable, skyline	<input type="checkbox"/>	Other (describe below)
<input checked="" type="checkbox"/>	Shovel yarding				

*All Tractor operations restrictions apply to ground based equipment Reference 14 CCR 914.2 [934.2, 954.2] (All Districts)
 **All areas designated for ground based yarding may be cable yarded at the discretion of the plan submitter.

ITEM #17		EROSION HAZARD RATING (EHR)			
		Per 14 CCR 914.6 [934.6, 954.6](c) Waterbreaks Road and/or Trail Gradients Waterbreak Spacing by trail/road gradient			
		10 or less	11-25	26-50	>50
<input checked="" type="checkbox"/>	LOW	300	200	150	100
<input checked="" type="checkbox"/>	MODERATE	200	150	100	75
<input type="checkbox"/>	HIGH	150	100	75	50
<input type="checkbox"/>	EXTREME	100	75	50	50
NOTE:					
<ul style="list-style-type: none"> • If more than one rating is checked, areas must be identified on a THP map down to 20 acres in size. • COASTAL DISTRICT with a High or extreme EHR(s) must be mapped to 10 acres. • If ratings checked do not match the EHR Worksheet clarify the discrepancy: 					
EHR rating discrepancy:					

ITEM #18	SOIL STABILIZATION / EROSION CONTROL
<p>Per 14 CCR 923.5, 943.5, 963.5 – Erosion Control for Logging Roads and Landings [All Districts] – All logging road and landing surfaces shall be adequately drained, through the use of logging road and landing surface shaping in combination with the installation of drainage structures or facilities and shall be hydrologically disconnected from watercourses and lakes to the extent feasible.</p> <p>Per 14 CCR 914, 934, 954 – Harvesting practice and erosion control [All Districts] – Timber operations shall be conducted to: Meet the goal... to prevent degradation of the quality and beneficial uses of water and maintain site productivity by minimizing soil loss</p> <p>Guidance on methods for hydrologic disconnection may be found in “Board of Forestry Technical Rule Addendum Number 5: Guidance on Hydrologic Disconnection, Road Drainage, Minimization of Diversion Potential, and High Risk Crossings” (1st Edition, revised 10/27/14)</p> <p>14 CCR 923.5, 943.5, 963.5(b), (c), (d), (e), (f), (g), (h), (j), (k), (p) contain standard Forest Practice Operational rules pertaining to the timing and specifics for the installation of erosion control structures for Roads and Landings.</p> <p>14 CCR 914.6, 934.6, 954.6(a) (1-2), (b), (c), (d), (e), (f), (g), additional Coast areas (h), (i) contain standard Forest Practice Operational rules pertaining to the timing and specifics for the installation of erosion control structures for harvesting practices, tractor and cable operations.</p> <p style="text-align: center;">THE LTO SHALL BE FAMILIAR WITH THESE STANDARD OPERATIONAL REQUIREMENTS, PRIOR TO OPERATIONS.</p>	

a. <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<p>Are there any exceptions proposed to the above listed standard operational requirements? If YES, please provide the specific operational instruction to the LTO.</p>
	<p>Methods of stabilization to be used: (check all that apply) <u>Soil stabilization treatment measures may include, but need not be limited to, removal, armoring with rip-rap, replanting, mulching, seeding, installing commercial erosion control devices to manufacturer’s specifications, or chemical soil stabilizers.</u></p> <p><input checked="" type="checkbox"/> STRAW Mulch Depth (inches): <u> N/A </u> Percent coverage: <u> 90% </u> <u>Where straw mulch is used, the minimum straw coverage shall be 90 percent, and any treated area that has been reused or has less than 90% surface cover shall be treated again by the end of timber operations.</u></p> <p><input checked="" type="checkbox"/> SLASH Mulch</p> <p><input checked="" type="checkbox"/> Scattered Depth (inches): <u> N/A </u> Percent coverage: <u> 90% </u></p> <p><input checked="" type="checkbox"/> Packed Depth (inches): <u> N/A </u> Percent coverage <u> 75% </u></p>

<input checked="" type="checkbox"/>	Grass Seeding LTO Instructions: <u>If grass seeding is used, then the type of seed shall be limited to native or regionally appropriate varieties, sterile varieties, or short-lived non-native annuals.</u>
<input checked="" type="checkbox"/>	Rock Armoring Size: <u>Sufficient size to resist movement</u> Installation instructions:
<input checked="" type="checkbox"/>	Replanting LTO instructions if needed
<input checked="" type="checkbox"/>	Installation of commercial erosion devices Describe commercial devise and provide instructions to the LTO: <u>Straw Waddles, rock gabions, or other suitable commercial devices may be utilized.</u>
<input checked="" type="checkbox"/>	Other Describe method and provide LTO instructions: <u>Chemical stabilizers such as lignin based or calcium chloride based materials, may be utilized on road surfaces for dust abatement or to prevent surface erosion.</u>

Per 14 CCR 914.9[934.9, 954.9] the RPF may develop on a site-specific basis alternative practices that will achieve environmental protection at least equal to the standards set forth in 914.1-914.8 [934.1-934.8, 954.1-954.8]	
b. <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Are there any alternative practices to the standard harvesting or erosion control rules proposed? If YES, the information as required per 914.9 [934.9, 954.9] shall be provided in SECTION III. Provide instructions to the LTO in SECTION II.

All WATERSHEDS				
Logging roads / Landings	N/A	Description of Treatments	Protection Measures	Timing
c. 923.5[943.5, 963.5](i): treatments to prevent significant discharge where features cannot be hydrologically disconnected.	N/A			
d. 923.5[943.5, 963.5](l) & (m): treatments for sidecast or fill; cuts and fills associated w/ approaches to watercourse crossings; bare areas w/in WLPZ.		<u>Sites to be stabilized include, but are not limited to:</u> 1) <u>Sidecast or fill material exceeding 20 feet in slope distance from the outside edge of a logging road or a landing that has access to any watercourse or lake.</u> 2) <u>Cut and fills associated with approaches to logging road watercourse crossings of Class I or II waters or Class III waters where an ELZ, EEZ, or a WLPZ is required.</u> 3) <u>Bare areas exceeding 100 continuous square feet within a WLPZ.</u>	<u>Soil stabilization measures may include but are not limited to, removal, armoring with rip-rap, replanting, mulching, seedling, installing commercial erosion control devices to manufacturer's specifications, or chemical stabilizers.</u>	<u>For areas disturbed from May 1 to October 15, treatment shall be in place upon completion of operations for the year of use or prior to the extended wet weather period, whichever comes first; treatment shall also be completed prior to the start of any rain that causes overland flow across or along the disturbed surface that could result in a significant sediment discharge. For areas disturbed from October 15 to May 1,</u>

e. 923.5[943.5,963.5](n): When the natural ability of ground cover in WLPZ is inadequate to filter sediment.	N/A			treatment shall be completed prior to any day for which a chance of rain of 30 percent or greater is forecast by the National Weather Service or within 10 days, whichever is earlier.
f. 923.5[943.5,963.5](o): Exceptions to soil stabilization treatment timing.	N/A			
Watercourse crossings on logging roads				
g. 923.9[943.9,963.9] (t)(1)-(3): Bare soil on fills, sidecast, timing of treatment.		<u>Sites to be stabilized include, but are not limited to:</u> 1) Sidecast or fill material exceeding 20 feet in slope distance from the outside edge of the road surface at the logging road watercourse crossing.	<u>Soil stabilization measures may include but are not limited to, removal, armoring with rip-rap, replanting, mulching, seedling, installing commercial erosion control devices to manufacturer's specifications, or chemical stabilizers.</u>	<u>Soil stabilization treatments shall be in place upon completion of operations for the year of use prior to the extended wet weather period, whichever comes first. An exception is that bare areas created during the extended wet weather period shall be treated prior to the start of rain that generates overland flow, or within 10 days of the creation of the bare area(s), whichever is sooner, or as agreed to by the director.</u>

Forest Practice Rules (FPR) require Specific Erosion Control / Soil Stabilization measures to be addressed within the proposed THP addressing WLPZ & Protected ELZ & EEZs within a Non ASP and exempt ASP watersheds. Please address the following table and the specific rule. If not applicable, so state.

<u>Non ASP & Exempt ASP watersheds</u> WLPZ & Protected ELZ & EEZ	N/A	Description of Treatments	Protection Measures	Timing
h. 916.7[936.7,956.7] Stabilization measures for WLPZ of CI & C II.	N/A			

Forest Practice Rules (FPR) require Specific Erosion Control / Soil Stabilization measures to be addressed within the proposed THP addressing WLPZ & Protected ELZ & EEZ, Roads and Landings and Watercourse Crossings, within an ASP Watershed or Immediately upstream of an ASP Watershed. Please address the following table and the specific rule. If not applicable, so state.

<u>ASP WATERSHEDS</u> Logging roads / Landings	N/A	Description of Treatments	Protection Measures	Timing
i. 916.9[936.9,956.9](n)(1)-(7): WLPZ, & protected ELZ & EEZs.		1) Areas exceeding 100 contiguous square feet where timber operations have exposed bare soil. 2) Approaches to tractor road watercourse crossings between the drainage facilities closest to the crossing.	<u>Soil stabilization measures may include but are not limited to, removal, armoring with rip-rap, replanting, mulching, seedling, installing commercial erosion control devices to</u>	<u>For areas disturbed from May 1 to October 15, treatment shall be in place upon completion of operations for the year of use or prior to the extended wet weather period, whichever comes first; treatment shall also be completed prior to the start of any rain that causes overland flow across or</u>

		<p>3) <u>Disturbed logging road and landing cut banks and fills.</u></p> <p>4) <u>Any other area of disturbed soil that threatens to discharge sediment into waters in amounts that would result in a significant sediment discharge.</u></p>	<p>manufacturer's specifications, or chemical stabilizers.</p>	<p>along the disturbed surface that could result in a significant sediment discharge. For areas disturbed from October 15 to May 1, treatment shall be completed prior to any day for which a chance of rain of 30 percent or greater is forecast by the National Weather Service or within 10 days, whichever is earlier.</p>
<p>j. 923.5[943.5,963.5](q)(3): as it pertains to roads, landings, etc.</p>		<p>1) <u>Areas exceeding 100 contiguous square feet where timber operations have exposed bare soil.</u></p> <p>2) <u>Disturbed logging road and landing cut banks and fills.</u></p> <p>3) <u>Any other area of disturbed soil that threatens to cause significant sediment discharge.</u></p>	<p>Soil stabilization measures may include but are not limited to, removal, armoring with rip-rap, replanting, mulching, seedling, installing commercial erosion control devices to manufacturer's specifications, or chemical stabilizers.</p>	<p>For areas disturbed from May 1 to October 15, treatment shall be in place upon completion of operations for the year of use or prior to the extended wet weather period, whichever comes first; treatment shall also be completed prior to the start of any rain that causes overland flow across or along the disturbed surface that could result in a significant sediment discharge. For areas disturbed from October 15 to May 1, treatment shall be completed prior to any day for which a chance of rain of 30 percent or greater is forecast by the National Weather Service or within 10 days, whichever is earlier.</p>
<p>k. 923.9[943.9,963.9](t)(4): as it pertains to watercourse crossings.</p>		<p>1) <u>Areas exceeding 100 contiguous square feet where timber operations have exposed bare soil.</u></p> <p>2) <u>Disturbed logging road and landing cut banks and fills.</u></p> <p>3) <u>Any other area of disturbed soil that threatens to cause significant sediment discharge.</u></p>	<p>Soil stabilization measures may include but are not limited to, removal, armoring with rip-rap, replanting, mulching, seedling, installing commercial erosion control devices to manufacturer's specifications, or chemical stabilizers.</p>	<p>For areas disturbed from May 1 to October 15, treatment shall be in place upon completion of operations for the year of use or prior to the extended wet weather period, whichever comes first; treatment shall also be completed prior to the start of any rain that causes overland flow across or along the disturbed surface that could result in a significant sediment discharge. For areas disturbed from October 15 to May 1, treatment shall be completed prior to any day for which a chance of rain of 30 percent or greater is forecast by the National Weather Service or within 10 days, whichever is earlier.</p>

Waterbreaks

- 1) 14CCR 916.9 (m): All tractor roads shall have drainage and/or drainage collection and storage facilities installed as soon as practical following yarding and prior to either (1) the start of any rain which causes overland flow across or along the disturbed surface within a WLPZ or within any ELZ or EEZ designated for watercourse or lake protection, or (2) any day with a National Weather Service forecast of a chance of rain of 30 percent or more, a flash flood warning, or a flash flood watch.

- 2) Waterbreaks shall be constructed concurrently with the construction of firebreaks and immediately upon conclusion of use of tractor roads, roads, layouts, and landings which do not have permanent and adequate drainage facilities, or drainage structures.
- 3) Distances between waterbreaks shall not exceed the following standards:

14 CCR § 914.6(c) MAXIMUM DISTANCE BETWEEN WATERBREAKS (in feet)				
Erosion Hazard Rating (for surface Erosion) (See THP Section II, Item 17)	Road or Trail Gradient (%)			
	10%, or less	11 - 25%	26 - 50%	Over 50%
Extreme	100'	75'	50'	50'
High	150'	100'	75'	50'
Moderate	200'	150'	100'	75'
Low	300'	200'	150'	100'

Tractor Road Watercourse Crossings

- 1) Tractor road watercourse crossing facilities shall be removed and stabilized before the beginning of the winter period to the standards outlined in THP Section II, Item 25 – Watercourse Crossing Removal.

ITEM #19 – 21		GROUND BASED EQUIPMENT	
		Per 14 CCR 895.1 a layout is a prepared bed in which a tree is felled, generally constructed by a tractor or other ground based equipment.	
a. <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No		Are tractor or skidder constructed layouts to be constructed? If YES, specify the location (consider mapping) and the extent of use. NOTE: winter operations and soil stabilization measures apply to tractor or skidder constructed layouts.	
		Per 14 CCR 914.3 [943.3, 954.3](e) Tractors shall not be used in areas designated for cable yarding except: <ul style="list-style-type: none"> • To pull trees away from streams • To yard logs in areas where deflection is low • Where swing yarding is advantageous • To construct firebreaks and/or layouts • To provide tail-holds Such exception(s) shall be explained and justified in the THP, and require Director's approved	
b. <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No		Will ground based equipment be used within area(s) designated for cable yarding: (CHECK all that apply)	
	<input type="checkbox"/>	Pulling trees away from watercourses	
	<input type="checkbox"/>	Yarding logs from areas with low deflection	
	<input type="checkbox"/>	Swing yarding	
	<input type="checkbox"/>	Construct fire breaks	
	<input type="checkbox"/>	Construct layouts	
	<input type="checkbox"/>	Providing tail-holds	
	<input type="checkbox"/>	Other Describe:	
		If YES, specify the location (consider mapping) and provide LTO instructions	
c. <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No		Are any exceptions proposed for ground based operations within cable areas outside of the exceptions listed above? If YES, provide the required explanation and justification in SECTION III of the THP and provide operations instructions for the LTO in SECTION II below.	

Per 14 CCR § 914.9 [934.9, 954.9](a) Alternatives to Standard Rules:

- (a) Alternative practices may be developed by the RPF on a site-specific basis provided the following conditions are complied with and the alternative practices will achieve environmental protection at least equal to that which would result from using measures stated in 14 CCR §§ 914.1-914.8 ,934.1-934.8, 954.1-954.8.
- (1) Environmental impacts with potential for significant adverse effects on the beneficial uses of water, on the residual timber, and on the soil productivity are identified and measures proposed to mitigate such impacts are included in an approved THP. The THP shall also contain a clear statement as to why alternative harvesting and erosion control measures are needed.
 - (2) The alternative practice(s) must be explained in sufficient detail and standards provided in the THP so that they can be adequately evaluated and enforced by the Director and implemented by the licensed timber operator.
 - (3) On a THP in which alternatives covering harvesting and erosion control measures have been incorporated, the timber operator shall agree to the alternative specifications by signing and filing with the Director a copy of the plan, the amended plan or a facsimile thereof, prior to beginning or continuing operations on the portion of the plan to which the alternatives apply.
- (b) The Director shall not accept for inclusion in a THP alternative harvesting and erosion control measures proposed under this section which do not meet the standard of subsection (a) of this section. In the event that there is more than one written negative position showing that the alternative practice(s) does (do) not meet the standard of subsection (a) received from among the agencies listed in 14 CCR 1037.3 and the Department which participated in the review of the plan including on-the-ground inspection, the Director shall reject the proposed alternative.
- (c) Alternative practices stated in an approved THP shall have the same force and authority as those practices required by the standard rule.

d. <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Is the RPF proposing any Alternative Practices to the standard rule on a site-specific basis? If "YES" provide clear instruction to the LTO in Section II advising LTO how the Alternative is to be implemented to maintain equal protection of the standard rule. In Section III explain how the alternative practice proposed achieves environmental protection at least equal to that what which would result from using measures stated in 14 CCR §§ 914.1-914.8 ,934.1-934.8, 954.1-954.8.
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LTO Instructions:

14 CCR 914.2 [934.2, 954.2](a-k) Identifies the Forest Practice Rule requirements for the use of ground based equipment within the harvesting area.

- (b) Tractor, or other heavy equipment equipped with a blade, SHALL NOT operate on skid roads or slopes that are so steep as to require the blade to be used for braking.
- (c) Tractor roads SHALL be limited in number and width to the minimum necessary for removal of logs.
 - When less damage to the resources specified in 14 CCR 914[934, 945] will result, existing tractor roads shall be used instead of constructing new tractor roads.
 - [NORTHERN only] RPF may propose exceptions for silvicultural reasons when explained and justified within the plan.
- (e) Slash and debris from timber operations SHALL not be bunched adjacent to residual trees required for silvicultural or wildlife purposes, or placed in a location where they could discharge into a Class I or II watercourse, or Lake.
- (g) where tractor roads are constructed only those roads shall be used for the skidding of logs to landings
- (h) Desirable residual trees and seedlings will not be damaged or destroyed by tractor operations.
- (i) where water breaks cannot effectively disperse surface runoff, other erosion controls shall be installed as needed.
- Slope restriction are identified in subsection (d), (f) [Coastal, Northern], (j) [Southern]

The LTO shall be aware of these rule requirements prior to operations

e. <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Will new tractor roads be constructed?
f. <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Will tractor road use be limited to existing tractor roads?

ASP NOTE: per 14 CCR 916.9 (k)(1) – Year-around tractor road limitations, Tractor roads shall not be used when operations may result in significant sediment discharge and (m) Tractor Road Drainage Facility Installation - All tractor roads shall have drainage and/or drainage collection and storage facilities installed as soon as practical following yarding and prior to either (1) the start of any rain which causes overland flow across or along the disturbed surface within a WLPZ or within any ELZ or EEZ designated for watercourse or lake protection, or (2) any day with a National Weather Service forecast of a chance of rain of 30 percent or more, a flash flood warning, or a flash flood watch.

Will ground based equipment be used on:

g. <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Unstable areas? (only allowed if unavoidable)
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	If YES, the RPF SHALL develop specific measures to minimize the effect of operations on slope stability. Provide the required justification and explanation in SECTION III and operational instructions to the LTO in SECTION II.
h. <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Slopes steeper than 65% if YES, provide site specific instructions to the LTO in SECTION II and provide the required explanation and justification in SECTION III.
i. <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Slopes steeper than 50% where the erosion hazard rating (EHR) is HIGH or EXTREME. if YES, provide site specific instructions to the LTO in SECTION II and provide the required explanation and justification in SECTION III.
j. <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Slopes between 50% and 65% with a MODERATE EHR at: (percentage based on average slope on sample areas of 20 acres) <input type="checkbox"/> Existing tractor roads that do not require reconstruction. <input type="checkbox"/> [NORTHERN and SOUTHERN only] New tractor roads that have been flagged by an RPF or supervised designee prior to use. <input type="checkbox"/> [COASTAL only] New tractor roads at a location that has been shown on the THP map, flagged by an RPF or supervised designee prior to the pre-harvest inspection, or prior to the start of timber operations if a PHI was not required. if YES, provide site specific instructions to the LTO in SECTION II.
k. <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Slopes over 50% which lead without flattening to sufficiently dissipate water flow and trap sediment before it reaches a watercourse or lake? if YES, provide site specific instructions to the LTO in SECTION II and provide the required explanation and justification in SECTION III.
NOTE: - Per 14 CCR 1034(x)(15) all exceptions must be located on a map. - If any question above is answered YES then tractor road locations must be flagged on the ground prior to the PHI or the start of timber operations if a PHI is not required.	

ITEM # 23 – WINTER OPERATIONS

Per 14 CCR 895.1:

- “Winter period” means the period between November 15 and April 1, Except under special County Rules per 14 CCR: 925.1 (Santa Clara), 926.18 (Santa Cruz), 927.1 (Marin), and 965.5 (Monterey)
- “Extended wet weather period” means the period from October 15 to May 1.
- Tractor roads (except as otherwise provided in the rules):
 - All waterbreaks shall be installed no later than the beginning of the winter period of the current year of timber operations.
 - Installation of drainage facilities and structures is required from October 15 to November 15 and April 1 to May 1 on all constructed skid trails and tractor roads prior to sunset if the National Weather Service forecast is a “chance” (30% or more) of rain within the next 24 hours per 14 CCR 914.6[934.6, 954.6](a).
- Logging roads and landings used for timber operations shall have adequate drainage:
 - Upon completion of use for the year or by October 15, whichever is earlier.
 - An exception is that drainage facilities and drainage structures do not need to be constructed on logging roads and landings in use during the extended wet weather period provided that all such drainage facilities and drainage structures are installed prior to the start of rain that generates overland flow. 923.5[943.5, 963.5](j).
- When the term “WPOP” (Winter Period Operating Plan) is used below, all the requirements per 14 CCR 914.7[934.7, 954.7] (b) must be addressed.

ITEM #23 WINTER OPERATIONS	
If timber operations are proposed within the winter period the RPF may propose to operate under a:	
<ul style="list-style-type: none"> • Winter Period Operating Plan (WPOP) per 14 CCR 914.7, 934.7, 954.7(b) • In-lieu winter operating plan per 14 CCR 914.7 [934.7, 954.7](c) 	
a. <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Will timber operations occur during the winter period?
WINTER PERIOD OPERATING PLAN (WPOP)	
A Winter Period Operating Plan (WPOP) is required when winter operations will occur under the following conditions:	
<ul style="list-style-type: none"> • Site preparation • Road and landing construction • Temporary logging road watercourse crossings will not be removed • At tractor watercourse crossings • Temporary logging roads or landings • Roads to be abandoned or deactivated • Operations are proposed in an ASP watershed or immediately upstream 	
b. <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Will mechanical site preparation be conducted during the winter period? If YES, then a WPOP is required per 14 CCR 914.7 [934.7, 954.7](b)

c. <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Will roads be constructed during the winter period? If YES, a WPOP is required per 14 CCR 914.7 [934.7, 954.7] addressing logging road and landing construction and reconstruction per 14 CCR 923.4 [943.4, 963.4](l). Provide operational instructions to the LTO in SECTION II
d. <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Will landings be constructed during the winter period? If YES, a WPOP is required per 14 CCR 914.7 [934.7, 954.7] addressing logging road and landing construction and reconstruction per 14 CCR 923.4 [943.4, 963.4](l). Provide operational instructions to the LTO in SECTION II
e. <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Will temporary logging road watercourse crossings be left in place during the winter period? If YES, a WPOP is required per 14 CCR 923.9 [943.9, 963.9](r). Provide specific measures to be taken during operations by the LTO in SECTION II
f. <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Will tractor watercourse crossings be used during the winter period? If YES, a WPOP is required per 14 CCR 914.8 [934.8, 954.8](d). Provide operational instructions and stabilization measures in SECTION II. If an exception is proposed provide an explanation and justification in SECTION III.
g. <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Will temporary logging roads be used during the winter period? If YES, a WPOP is required per 14 CCR 923.6 [943.6, 963.6](f) and 923.8 [943.8, 963.8](d). Provide specific measures to be taken during operations for the LTO in SECTION II.
h. <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Will temporary landings be used during the winter period? If YES, a WPOP is required per 14 CCR 923.6 [943.6, 963.6](f) and 923.8 [943.8, 963.8](d). Provide specific measures to be taken during operations for the LTO in SECTION II.
i. <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Will logging roads to be abandoned or deactivated, be open (not blocked) during the winter period? If YES, a WPOP is required per 14 CCR 923.6 [943.6, 963.6](f) and 923.8 [943.8, 963.8](d). Provide specific measures to be taken during operations for the LTO in SECTION II.
ASP WATERSHEDS OR IMMEDIATELY UPSTREAM	
	Extended Wet Weather Period:
j. <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Are timber operations proposed during the extended wet weather period – October to May 1? If YES, then a WPOP is required per 14 CCR 916.9 [936.9, 963.9](l) and (l)(1)
k. <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Will <u>logging roads construction or reconstruction</u> occur within the extended wet weather period? If YES, provide specific measures to be taken during operations per 14 CCR 923.6 [943.6, 963.6] (h)(6) and 923.4 [943.4, 963.4](s)(2) In SECTION II
l. <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Will <u>logging road use</u> occur within the extended wet weather period? If YES, provide specific measures to be taken during operations per 14 CCR 923.6 [943.6, 963.6] (h)(6) and 923.4 [943.4, 963.4](s)(2) In SECTION II
m. <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Will <u>landing construction or reconstruction</u> occur within the extended wet weather period? If YES, provide specific measures to be taken during operations per 14 CCR 923.6 [943.6, 963.6] (h)(6) and 923.4 [943.4, 963.4](s)(2) In SECTION II
n. <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Will <u>landing use</u> occur within the extended wet weather period? If YES, provide specific measures to be taken during operations per 14 CCR 923.6 [943.6, 963.6] (h)(6) and 923.4 [943.4, 963.4](s)(2) In SECTION II
o. <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Will any watercourse crossing drainage structures be <u>CONSTRUCTED</u> during the extended wet weather period? If YES, provide specific measures to be taken during operations per 14 CCR 923.9 [943.9, 963.9](s) In SECTION II
p. <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Will any watercourse crossing drainage structures be <u>RECONSTRUCTED</u> during the extended wet weather period? If YES, provide specific measures to be taken during operations per 14 CCR 923.9 [943.9, 963.9](s) In SECTION II
q. <input checked="" type="checkbox"/>	If any of the questions above are answered YES then WPOP is required: RPF chooses to prepare a WPOP per 14 CCR 914.7 [934.7, 954.7](b)(1-12)

ITEM FF

WINTER PERIOD OPERATING PLAN (WPOP)

Per 14 CCR 914.7 [934.7, 954.7](b) the WPOP shall include the specific measures to be taken during the winter period to avoid or substantially lessen erosion, soil movement into watercourses and soil compaction from timber operations. The winter period operating plan shall address the following subjects:

1) Erosion Hazard Rating	<u>Low and Moderate</u>
2) Mechanical Site preparation methods:	<u>Mechanical site preparation may be conducted during the winter period when soils are not saturated (see 4c "Ground based yarding" below)..</u>
3) Yarding system: (Constructed skid trails and tractor road watercourse crossings)	<u>Ground based and cable is optional.</u>
4) Operating Period:	<p>a) <u>Timber falling may be conducted during the winter period. The felling of trees that have a chance of accidentally entering a Class II watercourse shall be deferred until such time as when equipment is available on-site to remove such trees from the watercourse.</u></p> <p>b) <u>Cable harvesting: No limitations specific to winter operations except road and landing use.</u></p> <p>c) <u>Ground based yarding: May occur during the winter period, however ground based yarding shall not be conducted on saturated soil conditions that may produce a significant sediment discharge. Saturated soil conditions (14 CCR 895.1) means: that soil and/or surface material pore spaces are filled with water to such an extent that runoff is likely to occur. Indicators of saturated soil conditions may include, but are not limited to: (1) areas of ponded water, (2) pumping of fines from the soil or road surfacing material during timber operations, (3) loss of bearing strength resulting in the deflection of soil or road surfaces under a load, such as the creation of wheel ruts, (4) spinning or churning of wheels or tracks that produces a wet slurry, or (5) inadequate traction without blading wet soil or surfacing materials. Soils or road and landing surfaces that are hard frozen are excluded from this definition.</u></p>
5) Erosion Control facilities timing:	<u>All tractor roads shall have drainage and/or drainage collection and storage facilities installed as soon as practical following yarding and prior to either (1) the start of any rain which causes overland flow across or along the disturbed surface within a WLPZ or within any ELZ or EEZ designated for watercourse or lake protection, or (2) any day with a National Weather Service forecast of a chance of rain of 30 percent or more, a flash flood warning, or a flash flood watch.</u>
6) Consideration of form of precipitation: (rain or snow)	<u>Rain, fog, and light snow are forms of precipitation in this area.</u>
7) Ground conditions: (soil moisture conditions, frozen)	<u>Ground conditions - Ground based yarding shall cease when soils are saturated as defined in Item 4(c), Operating Period, above.</u>
8) Silvicultural system ground cover:	<u>Silvicultural system is: clearcut, rehabilitation, and selection (WLPZ). It is anticipated that ground cover in areas operated during the winter period will exceed normal conditions due to slash and brush accumulations. Bare soil may be exposed on tractor roads, however the timing of erosion control facilities above will account for erosion control. The soil stabilization for exposed areas within the WLPZ, as stated in THP Section II, Item 18 shall apply.</u>
9) Operations within the WLPZ:	<u>Operations within the WLPZ of the THP during the winter period will be limited to: Felling of timber and cable yarding.</u>
10) Equipment limitations:	<u>Equipment use limitations - See THP Section II, Item 23, 4(b - c), 7, and 9 above.</u>
11) Known Unstable Areas:	<u>Known unstable areas are within equipment exclusion zones.</u>
12) Logging roads and landings:	<p><u>Logging roads and landings:</u></p> <p>a) <u>Construction or reconstruction of logging roads, tractor roads, or landings (road construction and reconstruction defined in 14 CCR895.1): May occur during the winter period, but shall not be conducted on saturated soil conditions that may produce a significant sediment discharge.</u></p> <p>b) <u>Logging roads and landings used for log hauling or other heavy equipment uses during the winter period shall occur on a stable operating surface and, where necessary, be surfaced with rock to a depth and</u></p>

quantity sufficient to maintain such a surface. Use is prohibited on roads that are not hydrologically disconnected and exhibit saturated soil conditions. Grading to obtain a drier running surface more than one time before re-incorporation of any resulting berms back into the road surface is prohibited

IN-LIEU WINTER PERIOD OPERATION PLAN	
r. <input type="checkbox"/>	RPF chooses the in-lieu winter operating plan option as allowed per 14 CCR 914.7 [934.7, 954.7](c)(1-3)
<u>Not Applicable</u>	Specify the procedures listed in subsections (1) and (2), and list the site specific measures for operations in the WLPZ and unstable areas as required by subsection (3).
s. <input type="checkbox"/> Yes <input type="checkbox"/> No	Will the in-lieu winter operating plan include operations within WLPZ(s) or unstable area(s) during the winter period? If YES, provide site specific measures per 14 CCR 914 [934, 954] to protect the beneficial uses of water in SECTION II as instructions to the LTO.
<u>Not Applicable</u>	
Hauling and heavy equipment use roads and landings	
t. <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Will <u>ROADS</u> be used for log hauling and heavy equipment use during the winter period where there will not be a stable operating surface or surfaced with rock to a depth and quantity sufficient to maintain a stable operating surface? If YES, the required explanation and justification should be provided in SECTION III per 14 CCR 923.6 [943.6, 963.6](g) and 914.7[934.7,954.7].
u. <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Will <u>LANDINGS</u> be used for log hauling and heavy equipment use during the winter period where there will not be a stable operating surface or surfaced with rock to a depth and quantity sufficient to maintain a stable operating surface? If YES, the required explanation and justification should be provided in SECTION III per 14 CCR 923.6 [943.6, 963.6](g) and 914.7[934.7,954.7].
Hauling and heavy equipment use on hydrologically disconnected or saturated soils.	
v. <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Will <u>ROADS</u> be used for log hauling and heavy equipment use during the winter period on roads that are NOT hydrologically disconnected and exhibit saturated soil conditions? If YES, provide a required explanation and justification in SECTION III. per 14 CCR 923.6 [943.6, 963.6](g) and 914.7[934.7,954.7].
w. <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Will <u>LANDINGS</u> be used for log hauling and heavy equipment use during the winter period on roads that are NOT hydrologically disconnected and exhibit saturated soil conditions? If YES, provide a required explanation and justification in SECTION III. per 14 CCR 923.6 [943.6, 963.6](g) and 914.7[934.7,954.7].
Watercourse crossing removal	
x. <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Will any logging road watercourse crossing proposed for removal and/or stabilization be left in place during the winter period? If YES, provide operational instructions to the LTO addressing the specifics of the applicable CDFW 1600 agreement, Lake and Streambed alteration agreement or otherwise specify in the plan. Per 14 CCR 923.9[943.9, 963.9](p)(4) In SECTION II

Extended Wet Weather Period: October 15 to May 1 shall be considered the Extended Wet Weather Period. Outside of the Winter Period and within the Extended Wet Weather Period all operations may occur, however the following limitations shall apply:

- 1) Log hauling or other heavy equipment uses shall be limited to logging roads and landings that exhibit a stable operating surface, and shall not occur when such use may result in a significant sediment discharge to a watercourse or lake. Routine use of logging roads and landings shall not occur when equipment cannot operate under its own power.
- 2) Logging road, landing, or tractor road construction and reconstruction shall not occur when saturated soil conditions that may result in significant sediment discharge to a watercourse or lake. Watercourse crossing construction or reconstruction shall be conducted outside of the Extended Wet Weather Period other than the late season operating period between October 15 and November 15 where soils are sufficiently dry to provide for a stable operating surface. During the late season construction/reconstruction at any crossing shall be completed in one day to the extent practicable, and sufficient erosion control materials shall be available on site to facilitate application on the same day of construction/reconstruction at the crossing.
- 3) Where logging road or landing construction or reconstruction takes place during the extended wet weather period, drainage facilities and drainage structures shall be installed concurrent with construction or reconstruction operations.

Year-round Wet Weather Limitations:

	<ul style="list-style-type: none"> - Existing logging road crossing(s) - Logging road watercourse crossing(s) to be constructed that are approved as part of a Fish and Game Code process (F&GC 1600 et seq.) - Logging road watercourse crossings of class III watercourses that are dry at the time of use. <p style="text-align: center;">If YES, address per 14 CCR 923 [943, 963](c)</p>
i. <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<p>Will any reconstructed road be located across 100 feet or more lineal distance on?</p> <ul style="list-style-type: none"> <input type="checkbox"/> slopes over 65% <input type="checkbox"/> Slopes over 50% which are within 100 feet of the boundary of a WLPZ that drains toward the zoned watercourse or lake. <p style="text-align: center;">If YES, address per 14 CCR 923.2 [943.2, 963.2](a)(7) and 923.4 [943.4, 963.4](n)</p>
m. <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<p>Is there any exception to flagging or otherwise identifying the location of any road(s) to be reconstructed?</p> <p style="text-align: center;">If YES, address per 14 CCR 923.3 [943.3, 963.3](c)</p>
LANDING CONSTRUCTION	
n. <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	<p>Will any Landing(s) be CONSTRUCTED?</p>
o. <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<p>Will any landing(s) be constructed within?</p> <ul style="list-style-type: none"> <input type="checkbox"/> 150 feet of a Class I Watercourse and Lake Transition Line (WLTL) <input type="checkbox"/> 100 feet of a class II WLTL on slopes greater than 30% <input type="checkbox"/> Class I Watercourse or Lake <input type="checkbox"/> Class II Watercourse or Lake <input type="checkbox"/> Class III Watercourse or Lake <input type="checkbox"/> Class IV Watercourse or Lake <input type="checkbox"/> A Watercourse and Lake Protection Zone (WLPZ) <input type="checkbox"/> Other (Examples; marshes, wet meadows, wet areas) <p>If "OTHER" is selected describe the type of feature referenced below.</p> <p>NOTE: Exceptions are permitted per 14 CCR 923.1 [943.1, 963.1](b)(1) – (3) at:</p> <ul style="list-style-type: none"> - Existing crossing(s) - Logging road watercourse crossing(s) to be constructed that are approved as part of a Fish and Game Code process (F&GC 1600 et seq.) - Logging road watercourse crossings of class III watercourses that are dry at the time of use. <p style="text-align: center;">If YES, address per 14 CCR 923 [943, 963](c)</p>
p. <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<p>Will any landing(s) exceed one half acre in size?</p> <p>NOTE: per 14 CCR 1034(x)(5)(D) if any landing exceeds ¼ acre in size or requires substantial excavation, the location shall be mapped.</p> <p style="text-align: center;">If YES, address per 14 CCR 923 [943, 963](c) and 923.2 [943.2, 963.2](e)(2)</p>
q. <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<p>Will any Landing(s) be located on?</p> <ul style="list-style-type: none"> <input type="checkbox"/> Unstable areas <input type="checkbox"/> Connected headwall swales (14 CCR 895.1 "Connected Headwall Swale") <input type="checkbox"/> Both <p style="text-align: center;">If YES, address pursuant to 14 CCR 923.1 [943.1, 963.1](d)</p>
r. <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<p>Will any landing construction be located across 100 feet or more lineal distance on?</p> <ul style="list-style-type: none"> <input type="checkbox"/> Slopes over 65% <input type="checkbox"/> Slopes over 50% which are within 100 feet of the boundary of a WLPZ that drains toward the zoned watercourse or lake. <p style="text-align: center;">If YES, address per 14 CCR 923.2 [943.2, 963.2](a)(7) and 923.4 [943.4, 963.4](n)</p>

<p>s. <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No</p>	<p>Will any Landing(s) be deactivated? Will any Landing(s) be abandoned? If YES, describe specific measures to prevent significant sediment discharge. per 14 CCR 923.8 [943.8, 963.8] et seq. and 923.9 [943.9, 963.9](e) and (p)</p>
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LANDING RECONSTRUCTION

<p>t. <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No</p>	<p>Will any Landing(s) be RECONSTRUCTED?</p>
<p>u. <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No</p>	<p>Will any logging roads be reconstructed within? <input type="checkbox"/> Class I Watercourse or Lake <input type="checkbox"/> Class II Watercourse or Lake <input type="checkbox"/> Class III Watercourse or Lake <input type="checkbox"/> Class IV Watercourse or Lake <input type="checkbox"/> A Watercourse and Lake Protection Zone (WLPZ) <input type="checkbox"/> Other (Examples; marshes, wet meadows, wet areas) If "OTHER" is selected describe the type of feature referenced below.</p> <p>NOTE: Exceptions are permitted per 14 CCR 923.1 [943.1, 963.1](b)(1) – (3) at: - Existing logging roads crossing(s) - Logging road watercourse crossing(s) to be constructed that are approved as part of a Fish and Game Code process (F&GC 1600 et seq.) - Logging road watercourse crossings of class III watercourses that are dry at the time of use. If YES, address per 14 CCR 923 [943, 963](c)</p>
<p>u.1. <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No</p>	<p>Will any landing reconstruction be located across 100 feet or more lineal distance on? <input type="checkbox"/> Slopes over 65% <input type="checkbox"/> Slopes over 50% which are within 100 feet of the boundary of a WLPZ that drains toward the zoned watercourse or lake. If YES, address per 14 CCR 923.2 [943.2, 963.2](a)(7) and 923.4 [943.4, 963.4](n)</p>

SIGNIFICANT EROSION SITE(S)

<p>w. <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No</p>	<p>Are there any significant erosion sites? <input type="checkbox"/> Existing <input type="checkbox"/> Potential <input checked="" type="checkbox"/> Both Associated within the logging area at? <input checked="" type="checkbox"/> Logging road(s) <input type="checkbox"/> Landing(s) <input checked="" type="checkbox"/> Watercourse crossing(s) in the logging area? Per 14 CCR 923.1 [943.1, 963.1](e)(1) – (5). Also see 923.9 [943.9, 963.9](a)</p> <p>If YES, for each significant existing or potential erosion site, provide the following:</p> <ul style="list-style-type: none"> ➤ Describe current condition of the site. ➤ Identify which sites can be feasibly treated, and which sites cannot. ➤ Specify mitigations for those sites that can be feasibly treated. ➤ Indicate logical order of treatment for those which have feasible treatments <p>NOTE: Consider providing a MAP POINT TABLE which identifies the erosion site by mapped referenced identifier consistent with mapped locations.</p> <p><u>See Table of Road and Skid Trail crossing locations at the end of Section II.</u></p>
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ITEM #25

NOTE: If any item listed above is checked "YES" Provide:

- **Operations Instructions to the LTO**, in accordance with the respective rule requirement(s) in **SECTION II** of the THP.
- Any required **explanation and justification** should be included in **SECTION III**

Operation instructions to the LTO:

Road and Landing Construction/Reconstruction: the plan specifies approximately 2,500 feet of logging road construction. The specified road construction utilizes existing skid road prisms when possible. No road reconstruction or abandonment is proposed.

- 1) New logging roads shall be no wider than a single lane compatible with the largest type of equipment specified for use on the road, with adequate turnouts provided as required for safety. The maximum width of the new logging roads shall be 16 feet to accommodate cable yarding equipment, with the exception of those areas that need to be wider than 16 feet to allow for turnouts and curve widening.
- 2) These roads shall be outsloped where feasible and drained with water breaks or rolling dips in conformance with other applicable Forest Practice Rules.
- 3) New road segments shall be hydrologically disconnected from watercourses and lakes to the extent feasible.
- 4) Logging roads and landing shall not be constructed with overhanging banks.
- 5) Any tree over 12 inches DBH with more than 25% of the root surface exposed by logging road or landing construction shall be felled concurrently with the timber operations.
- 6) On slopes greater than 40%, the organic layer of the soil shall be removed prior to fill placement.
- 7) Slash and other debris from road construction shall not be buried in logging road or landing fills, nor shall it be bunched against residual trees that are required for silvicultural or wildlife purposes, nor shall it be placed in locations where it could be discharged into a class I or II watercourse or lake.
- 8) Where constructed fills exceed three feet in depth, fill slopes shall be inclined no greater than 65%.
- 9) Logging road or landing construction or reconstruction shall not occur under saturated soil conditions that may produce significant sediment discharge.
- 10) No road construction is proposed on slopes greater than 50%.

14CCR 923.9(k): Watercourse crossings and associated fills and approaches shall be constructed and maintained to prevent diversion of stream overflow down the road and minimize fill erosion should the drainage structure become obstructed. This shall be achieved through the construction of critical dips. Critical dips shall direct crossing overflow back to the natural stream channel in the shortest distance feasible and compatible with road design.

Rocked Fords

- 1) Approaches shall be rocked to the hydrologic divide or disconnect, and hydrologically disconnected to the maximum extent feasible to prevent sediment from entering the ford site, and shall be maintained as necessary during use.
- 2) Fords shall be designed to ensure the fording surface is dry during vehicle use.
- 3) Base rock shall be sized to accommodate the 100 year-flow. A thin layer of sacrificial small-diameter rock may be placed on top of the rock fill to provide a running surface that can accommodate truck traffic.
- 4) Only clean, durable rock shall be used in rocked fords.
- 5) The outside fill face of rocked fords shall be a dished-out rock apron fill face that forms a spillway. The spillway shall extend from the rock ford outfall break-in-slope down to a location where it shall be keyed-in to the slope and remain stable.
- 6) Rock-fill Ford Crossing: A rock-fill ford shall be a watercourse crossing where base rock that is free of fines is placed as fill in the channel to establish a usable road grade through the crossing to accommodate traffic. The crossing shall be designed so that streamflow will typically pass through the rock fill during periods of low flow, but will pass over the rock fill during periods of high flow.
- 7) Rock-armored Ford Crossing: A rock-armored ford shall be a watercourse crossing where fill, composed of native earth material, is placed in the channel to establish a usable road grade through the crossing to accommodate traffic. The outfall of the crossing and road surface are protected against scour by a revetment composed of rock. The crossing shall be designed so streamflow will typically pass over, rather than through, the crossing fill.
- 8) Vented Ford Crossing: A vented ford shall be a watercourse crossing structure designed to allow low water flow in the stream channel to pass through a culvert below a roadway composed of base rock. The crossing shall be designed so that during periods of high water or flooding, streamflow passes over the roadway.

Temporary Roads – shall be blocked or otherwise closed to standard production four-wheel drive highway vehicles prior to the winter period

Temporary Crossings

- Use minimum amount of fill necessary to facilitate hauling or skidding.
- Crossing shall be installed to handle any surface flow by utilization of a flow through fill (clean rock or logs) with fabric or a temporary pipe that is of sufficient size to handle flow during operations.
- A Spittler crossing may be used at any of the designated temporary crossing locations.
- See Crossing Removal below.

Spittler Crossings

Installation

- Crossing and approaches shall be constructed as close to perpendicular to the watercourse as is feasible.
- Crossing shall be installed to handle any surface flow by utilization of a flow through fill (clean rock or logs) with fabric or a temporary pipe that is of sufficient size to handle flow during operations.
- Logs shall be bundled into groups using choker cables and then lowered into the channel.
- Log “fill” shall be built up to within about 18 inches of the temporary crossing grade, the remaining large spaces can be filled with smaller logs, limbs, and green slash.
- A minimum 6-inch layer of green slash, straw, or a layer of filter fabric shall be placed on top of the logs.
- Soil may be used to cap the crossing and provide an adequate running surface.

Removal

- The soil cap and slash, straw, or fabric shall be removed from the crossing and placed in a stable location.
- The bundled logs and culvert (if used) shall be removed from the crossing.
- Also see Crossing Removal below and the soil stabilization requirements in THP Section II, Item 18.

Watercourse Crossing Removal -When watercourse crossings and associated fills are removed the following standards shall apply:

- 1) Fills shall be excavated to form a channel that is as close as feasible to the natural watercourse grade and orientation, and that is wider than the natural channel as observed upstream and downstream of the crossing to be removed.
- 2) The excavated material and any resulting cut bank shall be no greater than 65 percent (1.5:1, horizontal to vertical) from the outside edge of the constructed channel to prevent slumping, to minimize soil erosion and sediment transport, and to prevent significant sediment discharge. Exposed soil located between the watercourse crossing and the nearest adjacent drainage facility or hydrologic divide, whichever is closer, including cut banks and excavated material, shall be stabilized by seeding mulching, rock armoring, replanting, or other suitable treatment to prevent soil erosion and significant sediment discharge.
- 3) All watercourse crossings proposed for removal shall be removed upon completion of use, prior to the winter period, or as specified in the applicable CDFW 1600 agreement, whichever is earlier.

Roads within and Appurtenant to the Plan Area

- 1) Trees may be cut within the logging area as defined under 14 CCR 895.1 within 100' as measured on the surface of the ground from the edge of the traveled surface of appurtenant roads owned or controlled by the timberland owner. Trees that may be felled shall be limited to snags within the logging area required by the Director to be felled, trees that are a safety hazard to vehicular traffic, trees that obstruct line of sight to vehicles traveling on the road, and trees that require removal for road maintenance and improvements.
- 2) Removal of trees for road maintenance and improvement may occur on all appurtenant and THP roads. For road maintenance and improvement, equipment operations shall be limited to the confines of the road.
- 3) Road side seeps shall be treated to maintain a stable operating surface. This may be achieved by utilizing surface rock, installing a burrito style sub-drain (4" plus rock wrapped in road fabric), temporary pipe (minimum 3"), a temporary flow through fill utilizing logs, or any combination thereof. A burrito style sub-drain is the preferred option on seasonal roads.

ASP WATERSHEDS

a. Yes No

Will hauling on roads and landings be limited to those which are Hydrologically disconnected from watercourses to the extent feasible, and exhibit a stable operating surface?

If NO, address the exception pursuant to 923.6 [943.6,963.6] (h)(3).

ADDRESS THE FOLLOWING AS IT APPLIES TO ASP WATERSHEDS OR IMMEDIATELY UPSTREAM AND CONTIGUOUS TO, ANY WATERSHED WITH LISTED ANADROMOUS SALMONIDS	
<ul style="list-style-type: none"> When logging road(s) or landing(s) construction or reconstruction is proposed identify: <ol style="list-style-type: none"> How the proposed operations will fit into the systematic layout pattern. Per 14 CCR 923.1 [943.1. 963.1](g) <u>The proposed road construction fits into the systematic layout pattern by providing access to the harvest units from existing roads, while minimizing the amount of new construction to the extent practicable. The proposed road construction is necessary to facilitate favorable skidding/yarding conditions for ground based or cable equipment operations. Favorable skidding/yarding conditions will reduce the amount of ground disturbance resulting from skid trail construction and lack of lift. The proposed road will utilize existing watercourse crossings that will result in the repair of a Significant Erosion Sites, which will have a benefit to the watershed in terms of sediment reduction at watercourse crossings.</u> What, if any, offsetting mitigation measures (including but not limited to, abandonment of logging road(s) and landing(s) are needed to minimize potential adverse impacts to watersheds from the road system. Per 14 CCR 923.1 [943.1. 963.1](g) <u>No other potential adverse impacts as a result of the proposed road construction are known to exist, as it relates to the watershed. Since there are no known potential adverse impacts as a result of proposed road construction, there are no offsetting mitigation measures necessary.</u> 	
<ul style="list-style-type: none"> Provide specific provisions for the protection of salmonid habitat for all logging road(s) construction: <ol style="list-style-type: none"> On slopes, greater than 50% with access to a watercourse or lake. Per 14 CCR 923.4 [943.4, 963.4](s)(1) <u>No road construction is proposed on slopes greater than 50%.</u> 	
<ul style="list-style-type: none"> Provide specific erosion control measures for all permanent and seasonal roads: <ol style="list-style-type: none"> With a grade of 15% or greater which extends 500 feet or more. Per 14 CCR 923.5 [943.5, 963.5](q)(2) <u>There are no known or proposed roads with in the plan area with a grade of 15% or greater which extends 500 feet or more. Therefore the mitigation measures outlined in 923.5(d) shall be utilized for erosion control on seasonal roads.</u> 	

ITEM #26– WATERCOURSE LAKE PROTECTION ZONE (WLPZ) PROTECTION MEASURES

ITEM #26	WATERCOURSES		
<p>Per 14 CCR 916, 936, 956 – Intent of Watercourse and lake Protection [ALL DISTRICTS] – The purpose of this article is to ensure that timber operations do not potentially cause significant adverse site-specific and cumulative impacts to the beneficial uses of water, native aquatic and riparian-associated species, and the beneficial functions of riparian zones; or result in an unauthorized take of listed aquatic species; or threaten to cause violation of any applicable legal requirements. This article also provides protection measures for application in watersheds with listed anadromous salmonids and watersheds listed as water quality limited under Section 303(d) of the Federal Clean Water Act.</p> <p>It is the intent of the Board to restore, enhance, and maintain the productivity of timberlands while providing appropriate levels of consideration for the quality and beneficial uses of water relative to that productivity.... Further, it is the intent of the Board that the evaluations that are made, and the measures that are taken or prescribed, be documented in a manner that clearly and accurately represents those existing conditions and those measures.</p>			
<p>a. <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No</p>	<p>Are there any watercourses or lakes classified as a CLASS I through CLASS IV within or adjacent to the plan area? <i>(Check all that apply)</i></p>		
	<u>Within plan area</u>	<u>Adjacent to plan area</u>	
	<input checked="" type="checkbox"/> Class I:	<input checked="" type="checkbox"/>	<input type="checkbox"/>
	<input checked="" type="checkbox"/> Class II:	<input checked="" type="checkbox"/>	<input type="checkbox"/>
	<input checked="" type="checkbox"/> Class III:	<input checked="" type="checkbox"/>	<input type="checkbox"/>
	<input type="checkbox"/> Class IV:	<input type="checkbox"/>	<input type="checkbox"/>
	<input type="checkbox"/> Lakes:	<input type="checkbox"/>	<input type="checkbox"/>
	<input checked="" type="checkbox"/> Other (Springs, Seeps)	<input checked="" type="checkbox"/>	<input type="checkbox"/>

<p>If YES, to above question list:</p> <ul style="list-style-type: none"> • Class of the water feature • Associated WLPZ or ELZ and width • Protection measures; determined from 14 CCR 916.5[936.5, 956.5], Table I. and/or 14 CCR 916.9[936.9, 956.9] et seq. • Specify if Class III or IV watercourses will have a WLPZ or ELZ 	
<p>b. <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No</p>	<p>Will Class III or IV watercourses be protected with a WLPZ or ELZ? If YES, describe below</p>

LTO instructions:

14CCR 916 (b) (1) & (2): Protection of the quality and beneficial uses of water during the planning, review, and conduct of timber operations shall comply with all applicable legal requirements including those set forth in any applicable water quality control plan adopted or approved by the State Water Resources Control Board. At a minimum, the LTO shall not do either of the following during timber operations:

- 1) Place, discharge, or dispose of or deposit in such a manner as to permit to pass into the waters of the state, any substances or materials, including, but not limited to, soil, silt, bark, slash, sawdust, or petroleum, in quantities deleterious to fish, wildlife, beneficial functions of riparian zones, or the quality and beneficial uses of water;
- 2) Remove water, trees or large woody debris from a watercourse or lake, the adjacent riparian area, or the adjacent flood plain in quantities deleterious to fish, wildlife, beneficial functions of riparian zones, or the quality and beneficial uses of water.

14CCR 916.9 (d): This THP fully describes the type and location of measures needed to fully offset sediment loading, thermal loading and potential significant adverse watershed effects from the proposed operations. These measures are numerous and described in various locations within Section II of the THP. Examples of such measures include, very limited harvesting in WLPZ, soil stabilization measures in Section II, Item 18, repairing active erosion sites, limited harvesting on unstable areas, etc. The LTO will be responsible for implementing each of these measures. The timber harvest units have been configured in such a manner that impacts to sediment loading and thermal loading are avoided to the fullest extent feasible. The strategy of avoidance of potential risks to water resources will result in operations that are not likely to result in adverse impacts to water quality, including sediment loading or thermal loading.

14CCR 916.9 (u): Salvage logging shall not occur within a WLPZ.

Watercourse description and protection measures to be applied: (14 CCR 916.5)

Class I Watercourses with Confined Channels

- A) The WLPZ shall be flagged and harvest trees shall be marked prior to the PHI.
- B) When there is a reasonable expectation that slash, debris, soil, or other material resulting from timber operations, falling, or associated activities, will be deposited in Class I waters below the watercourse transition line, those harvest activities shall be deferred until equipment is available for its removal.
- C) Accidental depositions of soil or other debris below the watercourse transition line shall be removed immediately after the deposition.
- D) Equipment operations within the WLPZ shall be limited to existing roads and designated skid trails.
- E) Trees cut within the WLPZ shall be felled away from the watercourse.
- F) At least 75% surface cover and undisturbed area shall be retained within the WLPZ.
- G) Core Zone
 - 1) Shall be a minimum of 30 feet in width measured from the watercourse transition line.
 - 2) Trees to be harvested shall be limited to the minimum amount necessary to allow for full suspension cable yarding; road use and maintenance; and watercourse crossing installation and removal.
- H) Inner Zone
 - 1) Shall be a minimum of 70 feet in width measured from the outer edge of the Core Zone.
 - 2) A minimum of 80% overstory canopy cover shall be retained. The post harvest canopy may be comprised of both conifers

and hardwood species and shall have at least 25% overstory conifer canopy.

- 3) Retain the 13 largest conifer trees (live or dead) on each acre of the area that encompasses the core and Inner Zones. Likely candidates for future LWD recruitment shall be given priority (e. g., trees that lean towards the channel, have an unimpeded fall path towards the watercourse, are in an advance state of decay, are located on unstable areas or down slope of such unstable areas, or have undermined roots).
 - 4) Trees to be harvested shall be limited to the minimum amount necessary to allow for full suspension cable yarding; road use and maintenance; and watercourse crossing installation and removal.
- I) Outer Zone
- 1) Shall be a minimum of 50 feet measured from the landward edge of the Inner Zone.
 - 2) A minimum of 50% overstory canopy shall be retained. The post harvest canopy may be composed of both conifers and hardwood species and shall have at least 25% overstory conifer canopy.
 - 3) Priority shall be given to retain wind firm trees.
- J) Equipment operations within the Class I WLPZ will be limited to existing and proposed roads. If unforeseen circumstances require equipment use within the WLPZ, then those operations shall be limited to the Inner Zone and Outer Zone. The following Preferred Management Practices shall be implemented to the extent feasible.
- 1) Pre-flagging or marking of any skid trails before the pre-harvest inspection.
 - 2) Heavy equipment should be limited to slopes less than 35% with low or moderate EHR.
 - 3) Use feller bunchers or hydraulic heel boom loaders which do not drag/skid logs through the zone.
 - 4) Minimize turning of heavy equipment which would result in increased depth of ground surface depressions.
 - 5) Use mechanized harvesting equipment which delimb harvested trees on pathway over which heavy equipment would travel.
- K) The Class I WLPZ has been evaluated for the need for a Special Operating Zone and it has been determined that it is not necessary. Clearcutting will occur adjacent to the Class I WLPZ where slopes are greater than 50%, however the aspect trends to the east and west in areas adjacent to the Class I WLPZ, which will allow the topography to shade the watercourse from low angle solar radiation.

Class II Watercourses

- 1) The WLPZ shall be flagged and harvest trees shall be marked prior to the PHI.
- 2) When there is a reasonable expectation that slash, debris, soil, or other material resulting from timber operations, falling, or associated activities, will be deposited in Class II waters below the watercourse transition line, those harvest activities shall be deferred until equipment is available for its removal.
- 3) Accidental depositions of soil or other debris below the watercourse transition line shall be removed immediately after the deposition.
- 4) Equipment operations within the WLPZ shall be limited to existing roads and designated skid trail crossings.
- 5) Trees cut within the WLPZ shall be felled away from the watercourse.
- 6) At least 75% surface cover and undisturbed area shall be retained within the WLPZ.
- 7) Class II Large (II-L) WLPZ, the following protection measures apply (See THP Section III, Plan Addendum to Item 26 for documentation explaining determination of Class II-L WLPZs):
 - a) The width of the Core Zone shall be 30 feet measured from the watercourse transition line. There shall be no timber operations within the core zone except for actions necessary for the construction, reconstruction, removal, or abandonment of approved watercourse crossings.
 - b) The width of the Inner Zone shall be 70 feet and shall be measured from the landward edge of the Core Zone. Within the Inner Zone the post-harvest stand shall have a minimum of 80% overstory canopy cover that may be comprised of both conifers and hardwood species and shall have at least 25% overstory conifer canopy.
 - c) Retain the 13 largest conifer trees (live or dead) on each acre of the area that encompasses the Core and Inner Zones. Priority shall be given to trees that are the most conducive to recruitment to provide for the beneficial functions of riparian zones (e.g. trees that lean towards the channel, have an unimpeded fall path toward the watercourse, are in an advance state of decay, are located on unstable areas or down slope of such an unstable area, or have undermined roots).
- 8) Class II Standard (II-S) WLPZ, the following protection measures apply:
 - a) The width of the Core Zone shall be 15 feet measured from the watercourse transition line. There shall be no timber operations within the core zone except for actions necessary for the construction, reconstruction, removal, or abandonment of approved watercourse crossings.
 - b) The width of the Inner Zone shall be based on slope class and shall be measured from the landward edge of the Core Zone. The following Inner Zone widths shall apply:
 - (i) <30% slope – 35 ft width
 - (ii) 30-50% slope – 60 ft width

(iii) >50% slope – 85 ft width

- c) Within the Inner Zone at least 50% of the total canopy covering the ground shall be left in a well-distributed, multi-storied stand configuration composed of a diversity of species similar to that found before the start of operations. The residual overstory canopy shall be composed of at least 25% of the existing overstory conifers.
- d) Within 50 feet of the watercourse at least two living conifers per acre at least 16 inches DBH and 50 feet tall shall be retained.

Class III Watercourses

The protections measures for Class III waters shall prevent the degradation of downstream beneficial use of water and shall be determined on a site-specific basis. The following protection measures apply:

- 1) Establish a 30 foot wide ELZ on both sides of the watercourse for slopes less than 30% and an additional 20 foot ELZ where sideslopes are greater than 30%. The ELZ shall be measured from the watercourse transition line. Within the ELZ the following shall apply:
 - a. No new construction of tractor roads permitted.
 - b. No ground based equipment on slopes greater than 50%.
 - c. Ground –based operations are limited to existing stable tractor roads that show no visible evidence of sediment deposition being transported into the adjacent watercourse or to the use of feller-bunchers or shovel yarding.
 - d. Retain all pre-existing large wood on the ground that is stabilizing sediment and is necessary to prevent potential discharge into the watercourse.
 - e. Retain all pre-existing down wood and debris in the channel zone.
 - f. Retain hardwoods, where feasible.
 - g. Retain all snags (except as required for safety).
 - h. Retain all countable trees needed to achieve resource conservation standards in 14 CCR § 912.7.
 - i. Retain all trees that show visible indicators of providing bank or bed stability, excluding sprouting conifers that do not have boles overlapping the channel zone. Visible indicators of stability include roots that permeate the bank or provide channel grade control.
 - j. Exceptions pursuant to 14 CCR § 916.9 [936.9, 956.9], subsections (e)(1)(A)-(F) are permitted in any ELZ and channel zone.
- 2) Soil deposited during timber operations in a Class III watercourse other than at a temporary crossing shall be removed, and debris deposited during timber operations shall be removed or stabilized before the conclusion of timber operations or before October 15. Slash deposited will be stabilized in place if it does not have the potential of plugging a drainage structure, causing a diversion, or reaching a Class I or II watercourse. Temporary crossings shall be removed before the winter period, or as approved by the Director.

c. <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Is there any tractor road watercourse crossings that require mapping per 14 CCR 1034(x)(7) <u>Watercourse crossings are shown on the Road/Skid Work Map and the Appurtenant Road Map at the end of THP Section II.</u>
<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Will TRACTOR road watercourse crossings involve the use of a culvert? If YES, per 14 CCR 914.8[934.8, 954.8](e) state the minimum diameter and length for each culvert. <u>Crossings shall be installed to handle any surface flow by utilization of a flow through fill (clean rock or logs) or a temporary pipe that is of sufficient size (min. 3" x 15') to handle flow during operations.</u>
d. <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Is there a Master Agreement for Timber Operations (MATO) for Streambed Alteration Agreement (SAA) approved by the Department of Fish and Wildlife for any portion of this plan? MATO or SSA Number: _____ If YES, provide a list of the crossings, water drafting sites, or other water features to be used during operations and provide the conditions to be utilized and or consider from the MATO or SAA as operational instruction to the LTO in SECTION II.
e. <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Is this THP Review Process to be used to meet Department of Fish and Wildlife CEQA review requirements?

If YES, attach the required 1611 Addendum at the end of SECTION II and include any supporting information and analysis in SECTION III.

List instructions to the LTO in SECTION II for installation, protection measures, and mitigation measures, per THP from instructions or CDF Mass Mailing (07/02/1999) "Fish and Game Code 1611 Agreements and THP Documentation."

LTO INSTRUCTIONS:

Fish and Game Code 1611. (a) An entity that submits a timber harvesting plan in accordance with Section 4581 of the Public Resources Code or directly to the department is deemed to have given the notification required by Section 1602, as long as the following information is included in the plan:

- 1) The volume, type, and equipment to be used in removing or displacing any one or combination of soil, sand, gravel, or boulders.

Minimal amounts of soil, sand, gravel, or boulders shall be displaced during installation or removal of watercourse crossings. The equipment to be used includes an excavator, backhoe, and/or dozer. Additional information is provided below in Table 26d.

- 2) The volume of water, intended use, and equipment to be used in any water diversion or impoundment, if applicable.

Streams flowing at the time of installation or removal of the crossing shall be temporarily diverted during drainage structure placement or removal. Water drafting will occur at three locations for use as dust abatement on roads. Additional information is provided below in Table 26d.

- 3) The equipment to be used in road or bridge construction.

The equipment to be used in road construction includes an excavator, backhoe, and/or dozer. No bridge construction is proposed.

- 4) The type and density of vegetation to be affected and an estimate of the area involved.

Minimal amounts of vegetation such as grass, forbs, brush, hardwood, and conifer species will be affected in the immediate vicinity of the installation. Additional information is provided below in Table 26d.

- 5) A diagram or sketch of the location of the operation that clearly indicates the stream or other water and access from a named public road. Locked gates shall be indicated and the compass direction shall be shown.

The watercourse crossings are shown in the table below and on the maps at the end of Section II. Water drafting locations are also shown on the maps at the end of Section II.

- 6) A description of the period of time in which operations will be carried out.

Installation of watercourse crossings will occur between April 1st and November 15th of any year of operations. Water drafting may occur all year.

Table 26d

Site	Present Condition	Proposed Work	Proposed Culvert Diameter (in)	Disturbance Area (sq. ft.)	Est. Fill Volume Removed (cu. yards)	Est. Fill Volume Added (cu. yards)	Fill Materials Added	Disturbed Vegetation
A1	Fill xing	Remove xing	None	300	10	0	NA	Minor amounts of brush, ferns, small trees
B1	Failed Humboldt xing	Remove xing	None	300	20	0	NA	Minor amounts of brush, ferns, small trees
B2	Fill xing	Rocked ford	None	200	35	15	Rock/Native Material	Minor amounts of brush, ferns, small trees
B3	Fill xing	Remove xing	None	250	30	0	NA	Minor amounts of brush, ferns, small trees
B4	New xing	Rocked ford	None	600	30	20	Rock/Native Material	Minor amounts of brush, ferns, small trees
C1	Fill xing	Remove xing	None	200	20	0	NA	Minor amounts of brush, ferns, small trees
C2	Skid xing	Temp xing	None	300	30	20	Rock/Native Material	Minor amounts of brush, ferns, small trees
D1	Fill xing	Remove xing	None	500	30	0	NA	Minor amounts of brush, ferns, small trees
D2	Fill xing	Temp xing	None	400	20	10	Rock/ Native Material	Minor amounts of brush, ferns, small trees
F1	Fill xing	Remove xing	None	300	30	0	NA	Minor amounts of brush, ferns, small trees
H1	Failed xing	Remove xing	None	400	40	0	NA	Minor amounts of brush, ferns, small trees
RC1	Rocked ford	Maintenance	NA	200	0	10	Clean Rock	Minor amounts of brush, ferns, small trees
RC2	Rocked ford	Maintenance	NA	200	0	10	Clean Rock	Minor amounts of brush, ferns, small trees
RC3	Rocked ford	Maintenance	NA	300	0	10	Clean Rock	Minor amounts of brush, ferns, small trees
TC1	Ford	Temp xing	A sufficient number of 36" half round culverts to span wetted channel width	2400	30	40	Local gravel from adjacent gravel bar	Minor amounts of brush, ferns, small trees
WD1 & WD2	Class 2 Watercourse	Draft Water	NA	NA	NA	NA	NA	Minor amounts of grass, forbs and brush.
WD3	Class 1 Watercourse	Draft Water	NA	NA	NA	NA	NA	Minor amounts of grass, forbs and brush.

PART OF PLAN

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NOV 23 2019

COAST AREA OFFICE
RESOURCE MANAGEMENT

Revised 12/20/19 Section II

f. <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Are any exceptions provided under F & G code 1600 et seq., and made an enforceable part of plan? If YES, per 14 CCR 923 [943,963](d) identify the exceptions and provide the enforceable standards as instructions to the LTO in SECTION II.
g. <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Will new drainage structures and facilities on watercourses that support fish or listed aquatic species be constructed? If YES, per 14 CCR 914.8[934.8, 954.8](c) and 923.9 [943.9, 963.9](c). Structures and facilities shall be fully described and allow unrestricted passage of all life stages of fish or listed aquatic species, and natural movement of bedload. Provide operational instructions to the LTO in SECTION II.
TC1 is a temporary crossing at Larabee Creek, which is a Class I watercourse that supports fish. The temporary half round culverts shall be installed in a manner that does not constrict the streamflow that could be detrimental to aquatic life. Temporary culverts shall be installed at grade and shall not modify stream flow to limit upstream or downstream passage of fish or other aquatic animals. See the Work Order for Road/Skid Repair at the end of THP Section II for further description and operational instructions.	

Per 14 CCR 923.9(e) – The location of all NEW permanent constructed and reconstructed, and temporary logging road watercourse crossings, including those crossings to be abandoned or deactivated, SHALL be shown on a map. If the structure is a culvert intended for permanent use, the minimum diameter of the culvert and the method(s) used to determine the culvert diameter SHALL be specified in the plan	
h. <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Are there any NEW PERMANENT constructed logging road watercourse crossings requiring mapping?
<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Are there any NEW RECONSTRUCTED logging road watercourse crossings requiring mapping?
<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Are there any watercourse crossings to be ABANDONED or DEACTIVATED?
If YES, to the above questions these crossing shall be shown on a map in section II	
Per 14 CCR 923.9(e) If any watercourse crossing has a culvert intended for permanent use, the minimum diameter of the culvert and the method(s) used to determine culvert diameter shall be stated in the plan.	
Per 14 CCR 923.9(f) permanent watercourse crossings that are constructed or reconstructed SHALL accommodate the estimated 100-year flood flow, including debris and sediment loads.	
Method for sizing crossing: <u>No permanent culvert watercourse crossings are proposed. New crossing construction or reconstruction will be limited to rocked ford crossing, which are designed to accommodate the 100-year flood flow across the rock armored road surface and spillway.</u>	
i. <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Is there any exception to flagging or otherwise identifying the location of any constructed or reconstructed road watercourse crossing prior to the pre-harvest inspection? If YES, per 14 CCR 923.9[943.9, 963.9](j) provide the explanation and justification in SECTION III.
j. <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Will other methods for diversion of overflow at culver crossings be utilized (<u>other than critical dips</u>) in the construction or reconstruction of logging road watercourse crossings which culverts? If YES, per 14 CCR 923.9[943.9, 963.9](j) provide instructions to the LTO in SECTION II identifying the methods to be used for the diversion of overflow at watercourse crossings.
Per 14 CCR 923.9[943.9, 963.9](k) watercourse crossings and associated fills and approaches SHALL be constructed and maintained to prevent diversion of stream overflow down the road, and to minimize fill erosion should the drainage structure become obstructed.	
k. <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Are there any existing watercourse crossings that are located on logging roads within the logging area?
<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Are there any watercourse crossing proposed for construction located on logging roads within the logging area?
If YES, per 14 CCR 923.9[943.9, 963.9](k) identify the crossing and provide the methods to mitigate or address the diversion of stream overflow at the crossing.	
<u>Potential for diversion of stream flow is mitigated by the utilization of rocked ford crossings.</u>	

l. <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	<p>Will rock be used to stabilize crossing outlets?</p> <p>If YES, per 14 CCR 923.9[943.9, 963.9](k) Rock used to stabilize outlets of crossings shall be adequately sized to resist mobilization of soil and significant sediment discharge. The range of rock size shall be described within the plan as instruction to the LTO in SECTION II indicate the range of the rock dimensions to be used.</p> <p><u>Rock used to stabilize crossing outlets will be larger than the maximum rock size transported by the stream associated with the crossing. Typically this material includes rip rap that is a minimum of 12 inches in diameter.</u></p>
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m. <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<p>Watercourse crossing proposed to be reconstructed or removed, are there any significant volumes of sediment accumulated upstream of the watercourse crossing?</p> <p>If, YES per 14 CCR 923.9[943.9, 963.9](n) provide instructions to the LTO, in SECTION II, describing how the material will be stabilized, removed (the extent feasible), and in conformance with CDFW agreements, where applicable.</p>
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n. <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<p>Do logging road watercourse crossing drainage structures and other erosion control features have I high historical fail rate within the project area?</p>
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<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<p>Do/will existing watercourse crossings utilizing a culvert have large amounts of fill material covering the culvert making up the crossing?</p> <p>If, YES per 14 CCR 923.9[943.9,963.9](o) drainage structures and erosion control features shall be oversized, designed for low maintenance, reinforced, or removed before the completion of timber operations or as specified in the approved plan.</p> <p>Provide instruction to the LTO in SECTION II identifying these crossings, providing instruction of how these crossings will be treated.</p>
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Guidance on reducing the potential for failure at high risk watercourse crossings may be found in "Board of Forestry Technical Rule Addendum Number 5: Guidance on Hydrologic Disconnection, Road Drainage, Minimization of Diversion Potential, and High Risk crossings" (1st Edition, revised 10/27/14)

o. <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	<p>Will any logging road watercourse crossing be removed?</p> <p>If YES, provide instructions to the LTO, in SECTION II, describing the removal plan pursuant to the standards per 14 CCR 923.9[943.9, 963.9](p)(1)-(4)</p> <p><u>See Watercourse Crossing Removal in THP Section II, Item 25.</u></p>
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FOR PLANS LOCATED WITHIN AN ASP WATERSHED

p. <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	<p>Will timber operations occur within a class I WLPZ?</p>
<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<p>Will timber operations occur within a WLPZ adjacent to a restorable Class I watercourse?</p>
	<p>If YES, Address per 14 CCR 916.9[936.9, 956.9](f)(2)(A)-(E).</p>

Per 14 CCR 916.9[936.9, 956.9](e)(1)(A)-(E) there shall be NO timber operations within a channel zone with the exception of those conditions listed within 916.9[936.9, 956.9](e)(1)(A)-(E)

q. <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	<p>Will there be any timber operations within the channel zone of any watercourse?</p>
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	If YES, Indicted the location and type of timber operations to be conducted and provide instructions to the LTO in SECTION II.
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14CCR 916.9 (e): Channel Zone

- 1) There shall be no timber operations within the channel zone with the following exceptions:
- a) Actions necessary for the construction, reconstruction, removal, or abandonment of approved watercourse crossings.
 - b) Actions to allow for full suspension cable yarding when necessary to transport logs through the channel zone.
 - c) Class III watercourses consistent with 14 CCR 916.9 subsection (h)(7): Retain all trees in the Class III ELZ and channel zone which show visible indicators of providing bank or bed stability, excluding sprouting conifers that do not have boles overlapping the channel zone. Visible indicators of stability include roots that permeate the bank or provide channel grade control. Merchantable trees within the channel zone of Class III watercourses may be harvested with the following exceptions:
 - Within over-steepened headwall swales.
 - When located at the watercourse slope transition point and an obvious increase in downcutting of the watercourse channel is occurring below this point.
 - On unstable areas where the tree is stable and contributing to the stability of the channel.
 - Where soil has accumulated and is perched upslope of the channel tree.
 - When a tree is in the channel (or close proximity) and not just an individual root. In other words, give a weighted average to the tree's value in the channel based on proximity.
- 2) In all instances where trees are proposed to be felled within the channel zone, a base mark shall be placed below the cut line of the harvest trees within the zone. Such marking shall be completed by the RPF that prepared the plan, or a supervised designee, prior to the preharvest inspection.

Per 14 CCR 923.1[943.1, 963.1](h) NO logging road(s) or landing(s) shall be planned for construction or reconstruction in the CMZ or Core Zone of a Class I watercourse or within 150 feet of a watercourse transition line. with the exception of those conditions listed within 916.9[936.9, 956.9](e)(1)(A)-(E) and 916.9[936.9, 956.9](v)

<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Will there be any logging road(s) or landing(s) constructed in the CMZ or Core Zone of a Class I?
	If Yes, indicate the location and provide instructions to the LTO in SECTION II.

Per 14 CCR 923.9[943.9, 963.9](d) Watersheds with listed anadromous salmonids. A description of all existing permanent Class I watercourse crossings shall be provided, where fish are always or seasonally present or fish passage is restorable.

r. <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Are there existing permanent Class I crossings where fish are always present?
<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Are there existing permanent Class I crossings where fish are seasonally present?
<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Are there existing permanent Class I crossings where fish passage is restorable?

If YES, provide a description of the existing permanent Class I watercourse crossings. Indicate in the description where the current crossing conditions may be adversely affecting fish passage and identify the proposed measures, if feasible, to address the conditions.

s. <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Will water drafting occur in association with the timber operations?
	If YES, timber operations shall comply with Fish and Game Code Section 1600, et seq.

t. <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Is there a Fish and Game Code Section 1600 Mater Agreement for Timber Operations which addresses water drafting? If YES, provide the operational restrictions from the Master Agreement in SECTION II as instructions to the LTO.
	If NO, describe the water drafting site conditions and proposed water drafting activity in the plan. Per 14 CCR 923.7[943.7, 963.7](l)(2)(A)-(F) (See Below)

Per 14 CCR 923.7[943.7, 963.7](l)(2)(A)-(F) the description of water drafting site conditions and proposed water drafting activity shall include:

General description of proposed site:

Water drafting may take place from in-stream or off-channel pools, ponds, and/or lakes. Gravity-fed holding tanks may be utilized at the locations where stream flows are insufficient to permit drafting. Three water-drafting locations are proposed for the THP. These drafting sites are located along existing permanent and seasonal roads.

Watercourse Classification:

Two drafting sites are located in Class II ponds, and the third is located in a Class I watercourse.

Drafting parameters including:

Month(s) of use - Water will be drafted during timber operations, which is likely to occur in the summer months from May through October.

Estimated volume needed per day - It is estimated that 10,000 gallons will be needed each day that timber operations occur.

Estimated maximum instantaneous drafting rate and filling time - The maximum water drafting rate is 350 gallons per minute (gpm) with a fill time of 10 minutes.

Other water drafting activities in same watershed - One other project (THP 1-18-094HUM) may be conducting water drafting activities in the same watershed.

Drainage area (acres) above point of diversion - WD1 (Class II pond) has a drainage area of 65 acres, WD2 (Class II pond) has a drainage area of 114 acres, and WD3 (Class I watercourse) has a drainage area of 25, 600 acres.

Estimated:

Unimpeded stream flow - WD1 and WD2 (Class II ponds) if there is any outflow during drafting operations, then at least 50% of that flow shall remain unimpeded during drafting operations. If there is no outflow during drafting operations, then pool reduction shall not exceed 50%.

WD3 (Larabee Creek Class I watercourse) shall have minimum bypass flow greater than 2.0 cfs and shall maintain an unimpeded streamflow of at least 90% during drafting operations. Pool volume reduction shall not exceed 10%.

Pumping rate - The average pumping rate will be 200 gpm.

Drafting duration - The average drafting duration will range from 15-20 minutes depending on the size of the water truck.

A discussion of the effects on aquatic habitat downstream from the drafting site(s) of single pumping operations, or multiple operations at the same location, and at other locations in the same watershed:

Effects on downstream aquatic habitat: Where outflow from the ponds exist, sufficient outflow will be maintained at each drafting site to insure that no significant adverse effects occurs to downstream aquatic habitat. At least 90% bypass flow will be maintained at the Larabee Creek site to insure that no significant adverse effect occurs to downstream aquatic habitat. There is one other known project (THP 1-18-094HUM) that could result in multiple pumping operations at WD1 or WD2, however the same LTO will likely be used for both projects, thereby limiting the use at any of the sites to a single pumping operation. Regardless of the circumstances, the LTO will be instructed that no more than one pumping operation shall occur at a drafting location at any given time.

Alternatives and measures to prevent adverse effects: Minimum bypass flows as well as maximum flow and pool reductions are specified to maintain a sufficiently wet channel and prevent a significant adverse effect.

Measurement of source stream flow: At WD1 there will be no outflow from the pond during drafting operations. At WD2 a 3 ft long by 1 ft wide by 1 ft deep water monitoring channel shall be established at the spillway. The maximum depth of the outflow within the monitoring channel shall not be reduced below 50 percent during drafting operations. At WD3, stream flow shall be measured prior to the initiation of water drafting. Stream flow will be calculated using the following formula: width (ft) x depth (ft) x velocity (ft/sec) = flow (cfs)

Average width and depth shall be measured for a 20-foot segment of the stream upslope of the drafting site. A buoyant object shall be timed as it floats the length of the 20-foot segment. The velocity in ft/sec will be calculated by dividing the 20 feet by the number of seconds. Alternately, at drafting locations with a culvert, the flow may be measured at the outlet of the culvert by measuring how many seconds it takes to fill a 5-gallon bucket and converting to gpm or cfs. The RPF of record shall evaluate the water drafting sites at least once every two weeks to determine if flows have dropped sufficiently to warrant a measurement. In addition, the LTO shall notify the RPF if there is a visible change in the amount of stream flow at any water drafting location.

All water drafting for timber operations are subject to each requirement below unless the Department of Fish and Wildlife modifies the requirement in the Lake or Streambed Alteration agreement that authorized the drafting operation, or unless otherwise specified below:

- (A) All intakes shall be screened to prevent impingement of juvenile fish against the screen. The following requirements apply to screens and water drafting on Class I waters:
1. Openings in perforated plate or woven wire mesh screens shall not exceed 3/32 inches (2.38 millimeters). Slot openings in wedge wire screens shall not exceed 1/16 inches (1.75 millimeters).
 2. The screen surface shall have at least 2.5 square feet of openings submerged in water.
 3. The drafting operator shall regularly inspect, clean, and maintain screens to ensure proper operation whenever water is drafted.

4. The approach velocity (water moving through the screen) shall not exceed 0.33 feet/second.
5. The diversion rate shall not exceed 350 gallons per minute.
 - (B) Approaches and associated drainage features to drafting locations within a WLPZ or channel zone shall be surfaced with rock or other suitable material to minimize generation of sediment.
 - (C) Barriers to sediment transport, such as straw waddles, logs, straw bales or sediment fences, shall be installed outside the normal high water mark to prevent sediment delivery to the watercourse and limit truck encroachment.
 - (D) Water drafting trucks parked on streambeds and floodplains shall use drip pans or other devices such as absorbent blankets, sheet barriers or other materials as needed to prevent soil and water contamination from motor oil or hydraulic fluid leaks.
 - (E) Bypass flows for Class I watercourses shall be provided in volume sufficient to avoid dewatering the watercourse and maintain aquatic life downstream, and shall conform to the following standard:
 1. Bypass flows in the source stream during drafting shall be at least 2 cubic feet per second.
 2. Diversion rate shall not exceed 10 percent of the surface flow.
 3. Pool volume reduction shall not exceed 10 percent.
 - (F) The drafting operator shall keep a log that records for each time water is drafted, the date, total pumping time, pump rate, starting time, ending time, and volume diverted. Logs shall be filed with the Department of Forestry and Fire Protection at the end of seasonal operations and maintained with the plan record. This requirement may be modified in the approved plan that covers the water drafting, but only with concurrence from the Department of Fish and Wildlife.
 - (G) Before commencing any water drafting operation, the RPF and the drafting operator shall conduct a pre-operations field review to discuss the water drafting measures in the plan and/or Lake or Streambed Alteration Agreement.
- (B) Screens shall be installed on intakes wherever water is drafted. Intakes shall be at least 6 inches above the bottom of the channel and away from submerged vegetation, where practicable. Where not practicable, intakes shall maximize these clearances. Screens and intakes shall be inspected weekly, kept in good repair, and kept clean and free of accumulated algae, leaves, or other debris or obstructions.
 1. Class II pond drafting intakes shall be screened and openings in the screen shall not exceed 1/8 inch diameter (horizontal for slotted or square openings) or 3/32 inch for round openings.

ITEM #27	WLPZ IN-LIEU OR ALTERNATIVES
<p>Per 14 CCR 916.1[936.1, 956.1] (In-Lieu Practices) – In rule sections where provision is made for site specific practices to be proposed by the RPF, approved by the Director and included in the THP in lieu of a standard rule, the RPF shall:</p> <ul style="list-style-type: none"> • Reference the standard rule • Explain and describe each proposed practice • Explain how it differs from the standard practice, • Explain and justify how the protection provided by the proposed practice is at least equal to the protection provided by the standard rule. • Identify the specific location where it shall be applied. 14 CCR 1034(x)(15) and (16) <p>Per 14 CCR 916.6[936.6, 956.6] (Alternatives) – Alternative prescription for the protection of watercourses and lakes may be developed by the RPF or proposed by the Director on a site specific basis provided the following conditions are complied with and the alternative prescription will achieve compliance with the standards set forth in 14 CCR 916.3[936.3, 956.3] and 916.4[936.4, 956.4](b)</p> <p>The alternative prescription shall include in the THP information per 14 CCR 916.6[936.6, 956.6]a)(1)-(3)</p>	
<p>a. <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No</p>	<p>Are there any site-specific practices proposed in-lieu of, or as an alternative, to the prohibition of the construction or use of tractor roads listed below?</p> <p>Per 14 CCR 916.3[936.3, 956.3](c) Timber operators shall not construct or use tractor roads in a Class I, II, III, IV watercourses, wet meadows and other wet areas unless explained and justified in the plan by the RPF. Except at:</p> <ul style="list-style-type: none"> • Prepared tractor crossing described in 14 CCR 914.8[934.8, 954.8](b) • Class III watercourse crossings dry at the time of use • At new and existing tractor road crossings approved as part of a Fish and Game Code Process (F&GC 1600 et seq.) <p>If YES, provide operational information to the LTO under each item selected YES, in SECTION II. Provide the explanation and justification in SECTION III, (see table below)</p>

b. <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<p>Are there any site-specific practices proposed in-lieu of, or as an alternative, to the retention of non-commercial vegetation bordering and covering meadows and wet areas? 14 CCR 916.3[936.3, 956.3](d)</p> <p>If YES, provide operational information to the LTO under each item selected YES, in SECTION II. Proved the explanation and justification in SECTION III, (see table below)</p>
c. <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<p>Are there any site-specific practices proposed in-lieu of, or as an alternative, to the Directional felling of trees within any WLPZ away from the watercourse or lake? 14 CCR 916.3[936.3, 956.3](e)</p> <p>If YES, provide operational information to the LTO under each item selected YES, in SECTION II. Proved the explanation and justification in SECTION III, (see table below)</p>
d. <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<p>Are there any site-specific practices proposed in-lieu of, or as an alternative, to the standard WLPZ(s) width(s) identified in 14 CCR 916.5[936.5, 956.5], Table I?</p> <p>If YES, provide operational information to the LTO under each item selected YES, in SECTION II. Proved the explanation and justification in SECTION III, (see table below)</p>
e. <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<p>Are there any site-specific practices proposed in-lieu of, or as an alternative, to the protection of Class IV watercourse(s)? 14 CCR 916.4[936.4,956.4](c) and 916.5[936.5, 956.5], Table I</p> <p>If YES, provide operational information to the LTO under each item selected YES, in SECTION II. Proved the explanation and justification in SECTION III, (see table below)</p>
f. <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<p>Are there any site-specific practices proposed in-lieu of, or as an alternative, to the exclusion of heavy equipment from the WLPZ except at those locations listed below?</p> <p>Per 14 CCR 916.4[936.4, 956.4](d)&(f) – Heavy equipment shall not be used in timber falling, yarding, or site preparation within the WLPZ unless such use is explained and justified in the THP and approved by the Director.</p> <p>Except at:</p> <ul style="list-style-type: none"> • Prepared tractor crossing described in 14 CCR 914.8[934.8, 954.8](b) • Class III watercourse crossings dry at the time of use • Existing road crossings • New tractor and road crossings approved as part of a Fish and Game Code Process (F&GC 1600 et seq.) <p>If YES, provide operational information to the LTO under each item selected YES, in SECTION II. Proved the explanation and justification in SECTION III, (see table below)</p>
g. <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<p>Are there any site-specific practices proposed in-lieu of, or as an alternative, to the establishment of ELZ(s) for Class III watercourses unless side slopes are, 30% and EHR is low? 14 CCR 916.4[936.4, 956.4](c)(1)</p> <p>If YES, provide operational information to the LTO under each item selected YES, in SECTION II. Proved the explanation and justification in SECTION III, (see table below)</p>
h. <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<p>Are there any site-specific practices proposed in-lieu of, or as an alternative, to the Retention of at least 50% of the overstory canopy in the WLPZ? 14 CCR 916.5[936.5, 956.5](e)“G”</p> <p>If YES, provide operational information to the LTO under each item selected YES, in SECTION II. Proved the explanation and justification in SECTION III, (see table below)</p>
i. <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<p>Are there any site-specific practices proposed in-lieu of, or as an alternative, to the Retention of at least 50% of the understory in the WLPZ? 14 CCR 916.5[936.5, 956.5](e)“G”</p> <p>If YES, provide operational information to the LTO under each item selected YES, in SECTION II. Proved the explanation and justification in SECTION III, (see table below)</p>
j. <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<p>Are there any additional in-lieu or alternative practices proposed for watercourse or lake protection?</p> <p>If YES, provide operational information to the LTO under each item selected YES, in SECTION II. Proved the explanation and justification in SECTION III, (see table below)</p>

ITEM #28 DOMESTIC WATER NOTIFICATIONS

Per 14 CCR 1032.10 – The THP submitter shall provide notice by letter to all other landowners within 1,000 feet downstream of the THP boundary whose ownership adjoins or includes a Class I, II, or IV watercourse(s) which receives surface drainage from the proposed timber operations.

The notice shall request that the THP submitter be advised of surface domestic water use from the watercourse, within the THP or within 1,000 feet downstream of the THP boundary.

When required to notice by letter, publication shall also be given one time by the THP submitter in a newspaper of general circulation in the area affected by the proposed project.

Such letter and publication shall notify the adjoining party:

- of the proposed timber operation
- describe its legal location
- identify the name, if any, of the watercourse it may affect
- request a response by the property owner within ten days of the post-marked date on the letter or the date of publication as appropriate

The RPF may propose, with justification and explanation, an exemption to such notification requirements, and the Director may agree.

Copies of either notice, proof of service and publication, and any responses shall be attached to the THP (SECTION V) when submitted.

If domestic use is noted, the plan shall contain mitigations necessary to protect domestic water use.

THE PLAN SHALL NOT BE SUBMITTED UNTIL TEN DAYS AFTER THE ABOVE NOTIFICATION(S) HAVE BEEN COMPLETED

a. <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Are there any landowners with 1,000 feet downstream of the THP boundary whose ownership adjoins or includes a class I, II or IV watercourse(s) which receive surface drainage from the proposed timber operations? If YES, the requirement of 1032.10. Proof of letter notification shall be included in THP SECTION V. If NO, notification exemption request below need not be answered.
b. <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Is an exemption to the notification requirements requested? (check notification requesting to be exempted) Letter Newspaper Both If YES, provide the explanation and justification for the exemption request in SECTION III of the THP.
c1. <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Was any information received in response to domestic water notifications indicating domestic water supplies may be present within or downstream of the project area?
c2. <input type="checkbox"/> Yes <input type="checkbox"/> No	If YES, are there any additional mitigation measures needed beyond that required by standard watercourse and lake protection rules? If YES, provide the site-specific instruction to the LTO in SECTION II.

ITEM #29 SENSITIVE WATERSHEDS

Yes No

Is any part of the THP area within a Sensitive Watershed as designated by the Board of Forestry and Fire Protection?
If YES, identify the watershed and list the special rules, operating procedures or mitigation that will be used to protect the resources identified at risk.

ITEM #30 HAZARD REDUCTION

Per 14 CCR 917, 937, 957 - Hazard reduction shall provide standards for the treatment of snags and logging slash in order to reduce fire and pest safety hazards in the logging area, to protect such area from potential insect and disease attack, and to prepare the area for natural or artificial reforestation while retaining wildlife habitat.

Per 14 CCR 917.2, 937.2, & 957.2 – The following standards shall apply to the treatment of slash created by timber operations

within the plan area and on roads adjacent to the plan area.	
a. <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Will slash treatment occur within 100 feet of the edge of the traveled surface of a PUBLIC road? <u>Alderpoint Road is a public road that is adjacent to the plan area. Within 100 feet of the edge of the traveled surface of public roads, slash shall be treated by any one or combination of the following: lopping, chipping, piling and burning, or removal from the zone.</u>
b. <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Will slash treatment occur within 50 feet of the edge of the traveled surface of PERMANENT private roads open for public use where permission to pass is not required?
c. <input type="checkbox"/> Yes <input type="checkbox"/> No	[SOUTHERN only] Will slash treatment occur within 50 feet of the edge of the traveled surface of SEASONAL private roads open for public use where permission to pass is not required?
	If YES to any of the above, slash created or trees knocked down by road construction or timber operations shall be treated by: (Select all that apply) The LTO may use the following methods to comply with hazard reduction requirements: <input checked="" type="checkbox"/> lopping for Fire hazard reduction per (14 CCR 895.1) <input checked="" type="checkbox"/> Piling and burning per (14 CCR 917.2, 937.2, 957.2(a)(1-3)) <input checked="" type="checkbox"/> chipping <input type="checkbox"/> burying <input checked="" type="checkbox"/> removal <input type="checkbox"/> Other (explain)
d. <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Are there any permanently located structures maintained for human habitation in the project area requiring slash treatment? If YES, identify distance slash treatment will occur and indicate the method of treatment <input type="checkbox"/> Within 100 feet of permanent structure <input type="checkbox"/> Removed <input type="checkbox"/> Piled and burned per (14 CCR 917.2, 937.2, 957.2(a)(1-3)) <input type="checkbox"/> Other (explain) <input type="checkbox"/> Between 100-200 feet of permanent structure <input type="checkbox"/> Lopped for fire hazard reduction (per 14 CCR 895.1) <input type="checkbox"/> removed <input type="checkbox"/> chipped <input type="checkbox"/> Piled and burned per (14 CCR 917.2, 937.2, 957.2(a)(1-3)) <input type="checkbox"/> Other (explain)
e. <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Has the RPF or Director determined there is an unusual fire risk or other hazard exists within the proposed project area? If YES then lopping is required within 200-500 feet of permanent structures.
f. <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Is the RPF proposing any alternatives to treating slash along roads and within 200 feet of structures. If YES, the RPF shall explain and justify in the plan how equal fire protection will be provided. The explanation and justification shall include:
	Description of the alternative treatment(s):
	Estimated amount / distribution of slash:

Type of remaining vegetation:
Topography:
Climate:
Degree of public exposure fire history:
Provide a description of where the alternative will be used: (mapping area(s) is suggested)

g. <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	<p>Will piling and burning be used for hazard reduction?</p> <p>If YES, refer to 14 CCR 917.2, 937.2, 957.2(a)(1-3). (select all that apply)</p> <p><input checked="" type="checkbox"/> Piles created prior to September 1 shall be treated not later than April 1 of the year following its creation, or within 30 days following climatic access after April 1 of the year following its creation.</p> <p><input checked="" type="checkbox"/> Piles created on or after September 1 shall be treated not later than April 1 of the second year following its creation, or within 30 days following climatic access after April 1 of the second year following its creation.</p>
h. <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<p>Is the RPF proposing any alternatives to piling and burning from those required in 14 CCR 917.2, 937.2, 957.2(a)(1-2)?</p> <p>If YES, the RPF shall provide an explanation and justification in the plan to be approved by the director.</p>

ITEM # 32 – BIOLOGICAL RESOURCES

ITEM #32	LISTED PLANT or ANIMAL SPECIES INCLUDING HABITAT
a. <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	<p>Are there any <u>ANIMAL SPECIES</u>, including their habitat(s), which are listed as rare, threatened or endangered under Federal or state law, or a sensitive species by the Board of Forestry associated with the THP area?</p> <p>If YES, identify the animal species and the provisions to be taken for the protection of the species.</p>

Northern Spotted Owl (NSO): The NSO has been listed under the federal ESA since 1991 and a robust set of protection measures designed to avoid “take” at the federal level are discussed elsewhere in this THP. In June 2017 the California Fish and Game Commission issued a Notice of Findings that the petition to add the NSO to the list of threatened species under the CESA is warranted. The Federal definition of “take” includes the additional concepts of “harm” and “harass” that are not included in the CESA definition. This is particularly important when considering the potential to cause take at the Federal level as a result of timber operations via disruption of behavioral patterns or habitat modification, whereas the State definition only prohibits the direct action, or attempt, of hunting, pursuit, catching, capturing, or killing of the bird. By meeting federal “no take” requirements, there is clearly no additional mitigation necessary to meet the State take avoidance requirements. The plan is within the range of the NSO and suitable habitat is present within all of the harvest units.

The plan will comply with 14CCR 919.9(g) and take will be avoided by the implementation of the following NSO Standard Protection Measures. These protection measures exceed the minimum requirements of 919.9(g) and are adequate to avoid take of NSO.

NSO Standard Protection Measures:

- 1) The breeding season for NSO begins on February 1st and extends through August 31st.
- 2) No timber operations shall occur until such a time as all surveys for the current, or immediately preceding, survey period are complete; the results have been provided to CalFire and amended into the plan.
- 3) Surveys shall follow the most current approved USFWS recommended protocols with modifications allowed through technical

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- assistance from USFWS.
- 4) Within 1,000 feet of an NSO activity center:
 - a. No habitat altering activities shall occur at any time.
 - b. Seasonal Restriction:
 - i. Outside the breeding season timber operations shall be limited to the use of existing roads and other non-habitat altering activities such as road maintenance, crossing installation or removal, road reconstruction, road abandonment, stream enhancement, erosion control, or dust abatement.
 - ii. If the status at an activity center has been determined by protocol surveys to be non-nesting, unoccupied, nesting failure, or fledgling success, then the 1,000 ft seasonal restrictions associated with that activity center may be lifted prior to the end of the breeding season.
 - 5) Seasonal restrictions within 0.25-mile of an NSO activity center:
 - a. During the breeding season timber operations shall be limited to the use of existing, year-round roads.
 - b. If the status at an activity center has been determined by protocol surveys to be non-nesting, unoccupied, nesting failure, or fledgling success, then the 0.25-mile seasonal restriction associated with that activity center may be lifted prior to the end of the breeding season.
 - 6) Within 0.7 mile radius centered on the activity center the following NSO habitat shall be retained and configured as follows:
 - a. 500 acres of habitat with:
 - i. No harvest on 250 acres of nesting/roosting habitat within 0.5-mile of the activity center.
 - ii. If there is not sufficient nesting/roosting habitat to meet the 250-acre requirement, then the best available 250 acres of suitable within 0.5 mile of the activity center habitat shall be retained and designated as no harvest.
 - iii. Retain at least 250 acres of foraging or higher quality habitat.
 - 7) Between 0.7 miles radius and 1.3 miles radius circles centered on the activity center at least 836 acres of suitable habitat shall be retained. No more than 1/3 of the remaining suitable habitat may be converted to an unsuitable condition as a result of timber harvest proposed by this THP.
 - 8) If any new NSO activity centers are discovered or relocated within 1.3 miles of the plan area following plan approval or after annual surveys have been amended to the plan, then CDFW shall be consulted to ensure take is avoided and the plan shall be amended to demonstrate compliance with the NSO Standard Protection Measures for the new NSO activity center prior to further operations.

An analysis of cumulative effects regarding NSO is located in THP Section IV, Biological Resources. Other supporting documentation including NSO Database Reports, habitat analysis, ortho-photos, survey data, and monitoring data can be found in THP Section V.

Gray Wolf (*Canis lupus*) - The Gray Wolf was listed under CESA by the Fish and Game Commission on June 4, 2014. If an active den for this species is observed, all vegetation disturbing activities within 200 feet will be suspended and the RPF or RPF's representative will contact the Department of Fish and Wildlife and Cal Fire for a consultation. The result of the consultation will be added to the THP as a minor amendment, and activities may resume in accordance with the consultation.

Foothill Yellow-Legged Frog (*Rana boylei*) - The foothill yellow-legged frog (FYLF) was petitioned for listing under CESA, and the California Fish and Game Commission determined that listing may be warranted on June 21, 2017. The following protection measures shall apply at any time that FYLF is a candidate for listing, or listed, under the CESA.

Where any in-channel operations such as water drafting, watercourse crossing construction, use, or repair, are to be conducted within a wetted channel, a person knowledgeable with all frog life stages of FYLF and similar species will conduct a visual encounter survey in suitable habitat where water is present. The survey will be diurnal and occur 100 feet above and below the area of in channel operations, and shall be completed within 14 days prior to work. Visual encounter surveys shall consist of walking the entire survey reach and visually scanning in the water and on the banks. Any frog species encountered shall be recorded. If FYLF are observed during surveys or at any time during operations, all vegetation and ground disturbing operations shall cease within 40 feet of the occurrence, and the RPF shall consult with CalFire and CDFW. Any operational modifications resulting from the consultation shall be amended to the plan.

All Other Timber Operations: Adherence to the ASP watercourse protection rules shall be sufficient to avoid take and prevent cumulative adverse impacts to RABO. These protection measures include seasonal operational limitations such as, "Logging roads and landings used for log hauling or other heavy equipment uses during the winter period shall occur on a stable operating surface and, where necessary, be surfaced with rock to a depth and quantity sufficient to maintain such a surface. Use is prohibited on roads that are not hydrologically disconnected and exhibit saturated soil conditions."

Golden eagle (*Aquila chrysaetos*)

1. Surveys shall be completed for golden eagle (GOEA) prior to the first year of operations as follows:
 - a. Surveys shall be conducted by personnel knowledgeable in GOEA biology and survey techniques.
 - b. The survey area shall be defined as the area within 0.5 mile of timber harvest boundaries.
 - c. Survey stations shall be established at one or more major vantage points to provide complete visual coverage of the survey area. See the Golden Eagle Survey Map at the end of THP Section II for the survey area and survey station location.
 - d. Two visits shall be conducted at each station and each visit shall last at least three consecutive hours. Surveys shall not begin prior to 10:00 AM. Visits shall be conducted when weather and daylight conditions allow full visibility of the survey area.
 - e. One survey for GOEA shall be completed between January 15 and February 15. A second survey for GOEA shall be completed on or after March 1, a minimum of 30 days after the first survey.
 - f. Within the survey area, surveyors shall watch for and record any detections of GOEAs flying below 600 feet above ground level; GOEAs perching; GOEAs exhibiting breeding behaviors (courtship, intraspecific and inter-specific territorial defense, nest building, prey delivery, other); and the presence of nest structures. All such occurrences shall be described in detail including the date, time, locations of observers and subjects, number, age, and sex of eagles, and all aspects of behavior and activity observed such as flight direction and altitude, type of vocalizations,

displays, etc.

- g. If GOEA surveys result in breeding behavior observations in the survey area, then additional survey effort shall be conducted as necessary to determine nesting location. These additional efforts may include alternate observation locations and/or stand searches. It should be noted that the GOEA survey area extends beyond the Timberland Owner's property, and search efforts will not be expanded onto neighboring private properties.
 - h. Survey results shall be submitted as an amendment to the plan.
2. Subsequent to the first year of GOEA surveys, the first visit of GOEA surveys outlined above shall be completed prior to operations after January 15 and the second GOEA survey shall be completed prior to March 31. If no GOEA breeding behavior is observed during the first survey visit, then operations may commence concurrent with the fulfillment of the remainder of the survey requirements outlined above. If GOEA breeding behavior is observed, then the remainder of the survey requirements outlined above shall be completed prior to further operations.
3. If an active golden eagle nest is discovered, then the protection measures described in THP Section II, Item 32 for Listed Birds shall apply.

Procedures upon Discovery of Raptors or Raptor Nests - Upon the discovery of any unknown large bird or an occupied nest of any raptor, personnel involved with the harvest operation will suspend vegetation-disturbing activities within 0.25 mile of the nest. Activities may resume after the species using the nest is identified, the appropriate measures below and any specified in the California Forest Practice Rules to protect the nest are determined and implemented on the ground.

Listed Birds - In accordance with Forest Practices Rules, if an occupied nest of a listed bird (ESA, CESA, or Board of Forestry "Sensitive Species") is discovered during timber operations, the timber operator shall protect the nest tree, screening trees, perch trees, and replacement trees. Until any consultation required under Forest Practice Rules occurs, (1) vegetation disturbing activities shall be suspended within ¼-mile of the nest, (2) all operations (per PRC Section 4527) shall be suspended within a 375-foot radius buffer of the occupied nest, and (3) the Department of Fish and Game and Department of Forestry and Fire Protection will be immediately notified. An amendment to the timber harvest plan shall be filed reflecting the protection agreed to between SPI and the Director of the Department of Forestry and Fire Protection after any consultation with the appropriate wildlife agency.

The 375-foot radius buffer is equivalent to a 10-acre area, which is the minimum buffer size for a bald eagle in 14 California Code of Regulations 919.3, 939.3, and 959.3. All other Forest Practice Rules listed species have smaller minimum buffer sizes. The 10-acre buffer was chosen since it is the largest default protection area. A radius of this size is also supported by a recent Biological Opinion of the US Fish and Wildlife Service regarding sight and noise disturbance distances for northern spotted owls and marbled murrelets.

b. <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Are there any <u>PLANTS</u> , including their habitat(s), which are listed as rare threatened or endangered under Federal or state law, or a sensitive species by the Board of Forestry associated with the THP area? If YES, identify the animal species and the provisions to be taken for the protection of the species.
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Sensitive Plants

Scoping

Consistent with the SPI Botany Policy, a botanical scoping was completed for the THP. The scoping was conducted following the process outlined in the California Department of Fish and Game Guidelines for Conservation of Sensitive Native Plant Resources Within the Timber Harvest Review Process and During Timber Harvesting Operations, July 2005. The scoping was prepared by the RPF and reviewed by the plan submitter's staff with expertise in botanical resources. Scoping discussions by species are found in Section V of the THP.

Survey Results

In accordance with SPI's Botany Policy, focused surveys were conducted by the RPF and members of SPI's Wildlife and Botany staff. Surveys were conducted in April and July 2018. Surveys were conducted when the plants identified in the scoping process could be identified in the field. Where available, nearby reference sites were visited by surveyors to determine the identification status and habitat selection of each species. Surveyors also took reference materials such as field guides and photographs of the species to aid in identification. The botanical survey report is included in THP Section V.

During surveys, an occurrence of *Erythronium oregonum* (EROR) was observed at 1 location in the project area, totaling 10 plants. All of the EROR plants are located within a WLPZ, and will be avoided due to their location. No harvest trees or equipment operations are proposed within 50 feet of the occurrence.

The locations of EROR are shown on the Silviculture Map at the end of THP Section II

Plant Protection Measures Applicable in the Unlikely Case of Discovery of Additional Plant Occurrences

In the event any additional sensitive plant species occurrences are observed prior to or during operations, the Plant Protection Measures described in the Botanical Assessment in THP Section V shall be implemented. The protection

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measures shall be submitted to the CalFire as an amendment to the THP. CDFW shall be allowed 7 working days to review the additional information and associated protection measures prior to the initiation of operations within 50 feet of the occurrences.

See the THP Section III, Plan Addendum to Item 32; THP Section IV, Biological Resources; and THP Section V, Botanical Scoping Report for more information regarding sensitive species associated with the THP area.

NON-LISTED SPECIES IMPACTS	
c. <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Are there any NON-LISTED species which will be significantly impacted by the operation? If yes, identify the species and the provisions to be taken for the protection of the species.

While, we have answered question 32(b) no, we have chosen to include the following actions or protection measures, since the THP is an informational document, the public can see how we are managing the species listed below.

Non-listed Raptors

If an occupied nest of a non-listed raptor is discovered during timber operations, the timber operator will suspend all vegetation disturbing activities within ¼-mile of the occupied nest until an SPI biologist or forester under a biologist’s supervision has designated the nest tree, perch trees(s), screening tree(s), and replacement trees(s), which shall be left standing and unharmed. Since SPI can designate and not cut any trees it so chooses, no amendment to the THP is necessary. If the RPF decides to file an amendment it shall be considered a minor amendment to the timber harvesting plan and shall reflect the protection measures implemented.

ITEM #33	SNAGS
Per 14 CCR 919, 939, 959 – Timber operations shall be planned and conducted to maintain suitable habitat for wildlife species as specified by the provisions of Article 9 of the Forest Practice Rules.	
Within the logging area all snags shall be retained to provide wildlife habitat with the exception of snags for safety reasons Per 14 CCR 919.1, 939.1, 959.1(a)-(f)	
a. <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Are there any snags which must be felled for fire protection or safety reasons? Snags that pose a safety hazard to workers in the harvesting area will be felled. To provide protections and benefits for wildlife, all other snags shall be retained.
b. <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Will snags over 20 feet in height and 16 inches dbh be felled within 100 feet of a main ridge that is suitable for fire suppression? If YES, ridge shall be delineated on a THP map.
c. <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Will snags over 20 feet in height and 16 inches dbh be felled within 100 feet of all public roads, permanent roads, landings and railroads? (select all that apply) <input checked="" type="checkbox"/> Public road(s) <input type="checkbox"/> Permanent road(s) <input checked="" type="checkbox"/> Landing(s) <input type="checkbox"/> Railroad(s)
d. <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Will snags be felled where federal and state safety laws and regulations require the felling of snags?
e. <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Will snags be felled within 100 feet of structures maintained for human habitation?
f. <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Will merchantable snags be felled in any location as provided for in the plan?
g. <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Will snags be felled as required to control insect or disease concerns?

ITEM #34	LATE SUCCESSIONAL FOREST STANDS
a. <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Are any Late Successional Forest stands proposed for harvest? If YES, describe measures to be implemented by the LTO to avoid long-term significant adverse effects on fish, wildlife and listed species known to be primarily associated with late successional forests.

Describe:

ITEM # 35 OTHER WILDLIFE PROTECTION REQUIRED BY FOREST PRACTICE RULES

a. Yes No Are there any other provisions for wildlife protection required by the rules?
If YES, describe.

Description:

ITEM #36 ARCHAEOLOGICAL / HISTORICAL

a. Yes No Has an archaeological / historical survey been made for the THP area?

b. Yes No Has a current archaeological / historical records check been conducted for the THP area?

c. Yes No During pre-field research and surveys were archaeological or historical sites identified within the plan area?

IF YES, THIS INFORMATION IS CONFIDENTIAL AND NOT AVAILABLE TO REVIEW AGENCIES, OTHER THAN CAL FIRE, AND THE GENERAL PUBLIC.

RPF is advised to complete the Confidential Archaeological Addendum (CAA) and place in Section VI of the THP.

ITEM # 37 GROWTH AND YIELD INFORMATION

Yes No Has any inventory or growth and yield information designated "TRADE SECRET" been submitted in a separate confidential envelope in Section VI of this THP?

IF YES, THIS INFORMATION IS CONFIDENTIAL AND NOT AVAILABLE TO REVIEW AGENCIES.

ITEM # 38 SPECIAL INSTRUCTIONS OR CONSTRAINTS

CONDITION Flagging codes / water drafting / paint colors etc.	INSTRUCTION
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<p><u>SPI Habitat Retention Objectives to Enhance Wildlife Opportunities</u></p>	<p><u>Within Timber Harvest Plan areas, snags will be retained that are not hazardous or are obstructions to operations. Hazardous or obstructive snags 15 in. dbh or greater that are felled (and others toppled by operations) will be left on the ground as operationally feasible for the purposes of providing down wood. If accumulations of down wood would prevent meeting 14 CCR §917/937/957, the RPF may propose treatments to reduce excessive buildups of down wood.</u></p> <p><u>Within all regeneration units or rehabilitation areas an average of two or more green wildlife trees (or 2 for every 20 ac. in larger area rehabs or emergency notice harvest areas in wildfire salvage or in aggregate group selection areas) will be retained where available. Retention of these trees, as well as retained snags, will be emphasized in WLPZs. The primary candidate trees for retention are large conifer and hardwood species (> 30 in. dbh and > 22 in. dbh, respectively) that contain cavities, basal hollows, re-formed tops, obvious signs of heart rot, or a number of large diameter branches.</u></p> <p><u>Habitat Retention Areas (HRA): Within tractor even-aged regeneration units, rehabilitation, or aggregated group selection harvest areas, approximately 2% of the unit area will be retained in islands of green trees 0.1 acre or larger in size generally containing dominant and co-dominant trees ranging between 8 and 18 in. dbh. Where available, the focus for the green tree retention is oaks greater than 22 in. dbh. These islands of unharvested trees will be left unmanaged to promote future structural diversity and to provide legacy features and ecological processes associated with tree damage and mortality from insects, disease, and inter-tree competition. Where feasible to meet multiple objectives, HRAs may also be located in areas that will help address potential effects to other resources areas such as watershed resources, soil productivity, recreation resources, or visual resources.</u></p>
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	<p><u>When hardwoods are present in the stands proposed for regeneration, rehabilitation, or aggregated group selection harvest areas two individual hardwoods greater than 22 in. dbh (or 2 for every 20 ac. in larger area rehabs or emergency notice harvest areas in wildfire salvage or in aggregate group selection areas) will be retained in order to maintain the existing presence of larger hardwoods on the landscape. Within these same areas and in order to insure the future presence of hardwoods of all life stages on the landscape, an average of up to two regenerating hardwood trees per acre will be achieved (by seeding, sprouting or retention) and will be protected from mortality from any potential herbicide applications or pre-commercial thinning. These early seral hardwoods can be clumped in similar fashion as the larger tree retention areas and do not need to be uniformly spaced across the harvest area. If observations of the older regeneration units in the area don't show successful achievement of these hardwood objectives, validation that this objective is being met shall be included with the stocking report if requested by the Department. State mandated stocking success is unrelated to this objective.</u></p> <p><u>In individual marked tree harvest areas, SPI retains at least two hardwoods per acre, which will be greater than 22 in. dbh, when available.</u></p>
<p><u>Unstable Areas</u></p>	<p><u>Within the plan, there were several areas identified that exhibited geomorphic and vegetative irregularities that are commonly associated with unstable areas. Some of the unstable areas within the plan area are adjacent to watercourses and have been included in ELZs associated with Class III watercourses or WLPZs associated with Class I and II watercourses. Where unstable areas are located outside of water course protection zones, they have been included in an equipment exclusion zone. No trees are marked for harvest on unstable areas. There are no equipment operations proposed on unstable areas. All other unstable areas have been excluded from the plan area. The locations of the unstable areas are shown on the THP Map at the end of THP Section II.</u></p>
<p><u>Diversion – Unit 20F</u></p>	<p><u>Near the southwest corner of Unit 20F a watercourse has been diverted by an old skid trail. A deeply incised diversion channel has developed as a result, which runs approximately 650 feet before it returns flow to the natural channel. The diversion channel has steep, sometimes vertical, sideslopes and will continue to have some stream bank erosion. The original channel measures approximately 150 feet from the skid trail diversion to the confluence with a larger watercourse downstream. If the point of diversion were to be repaired, then some erosion would be likely to occur in the original channel. The reviewing agencies inspected both channels from the point of diversion downstream and determined that repair of the site was not necessary due to the likelihood that there would not be any net benefit to water quality or beneficial uses as a result. The diversion is labeled as F3 on the Road/Skid Work Map. No corrective action is proposed at this location.</u></p>

Notification of Commencement of Operations

The designated personnel within the Department who should be notified in accordance with 1035.4 is the current office technician at (707) 726-1253. Address: 118 Fortuna Blvd., Fortuna, CA 95540. If using email, the email address of the current office technician will be in the following format: First Name.Last Name@fire.ca.gov

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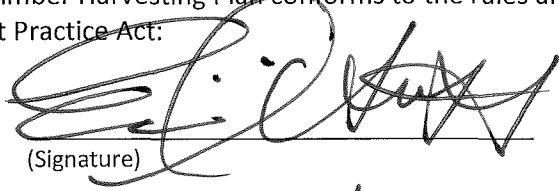
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DIRECTOR OF FORESTRY AND FIRE PROTECTION

This Timber Harvesting Plan conforms to the rules and regulations of the Board of Forestry and Fire Protection and the Forest Practice Act:

By:



(Signature)

Eric K. HUFF

(Printed Name)

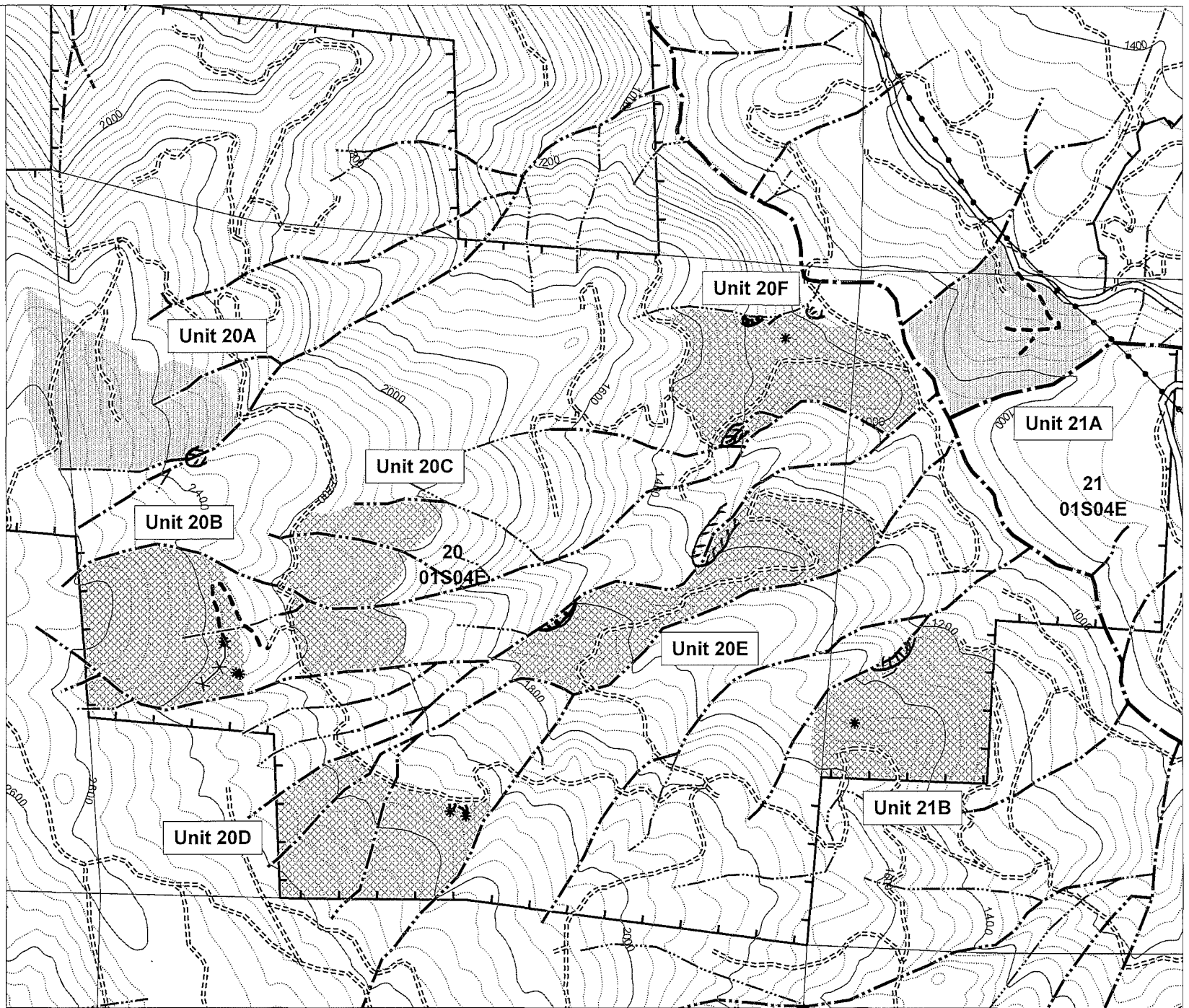
April 20, 2020

(Date)

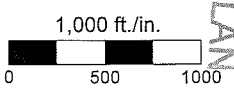
Staff Chief - Forest Practice

(Title)

-  Harvest Unit - Low EHR
-  Harvest Unit - Moderate EHR
-  Ownership Boundary
-  Class I Watercourse - Potential Spawning &
-  Class II Watercourse
-  Class III Watercourse
-  Wet Area
-  County Road
-  Seasonal Road
-  Proposed Seasonal Road
-  Proposed Temporary Road
-  Powerline
-  UNSTABLE AREA



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








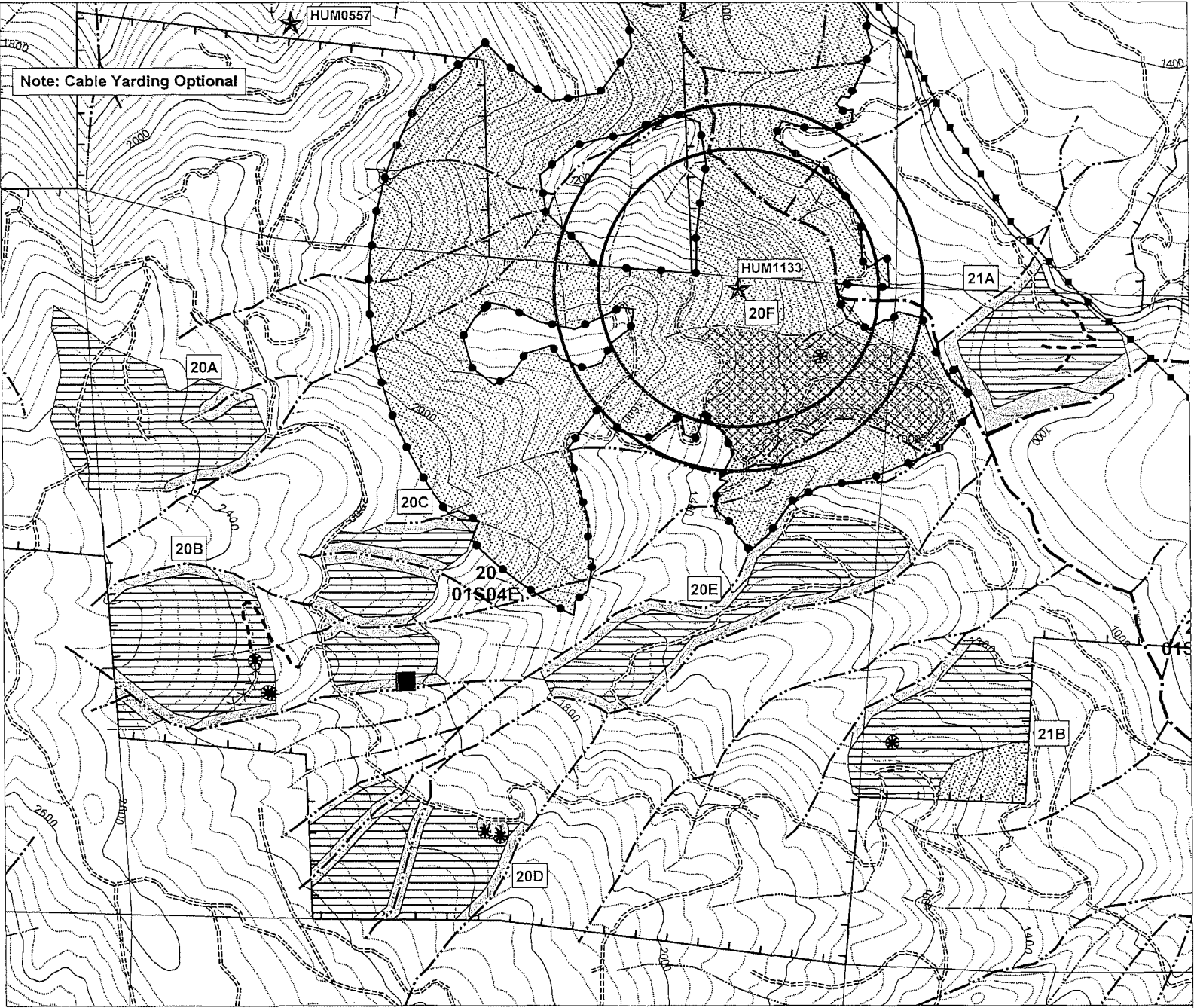
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THP Map

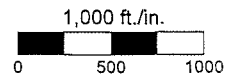
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-  Clearcut-Tractor
-  Rehab - Tractor
-  Selecion (WLPZ) - Tractor
-  No Harvest - Deferred
-  Ownership Boundary
-  Class I Watercourse
-  Class II Watercourse
-  Class III Watercourse
-  Wet Area
-  County Road
-  Seasonal Road
-  Proposed Seasonal Road
-  Proposed Temporary Road
-  Powerline
-  NSO Activity Center
-  NSO 1000' & 0.25 Mile Buffers
-  NSO Core Area
-  Erythronium oregonium



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











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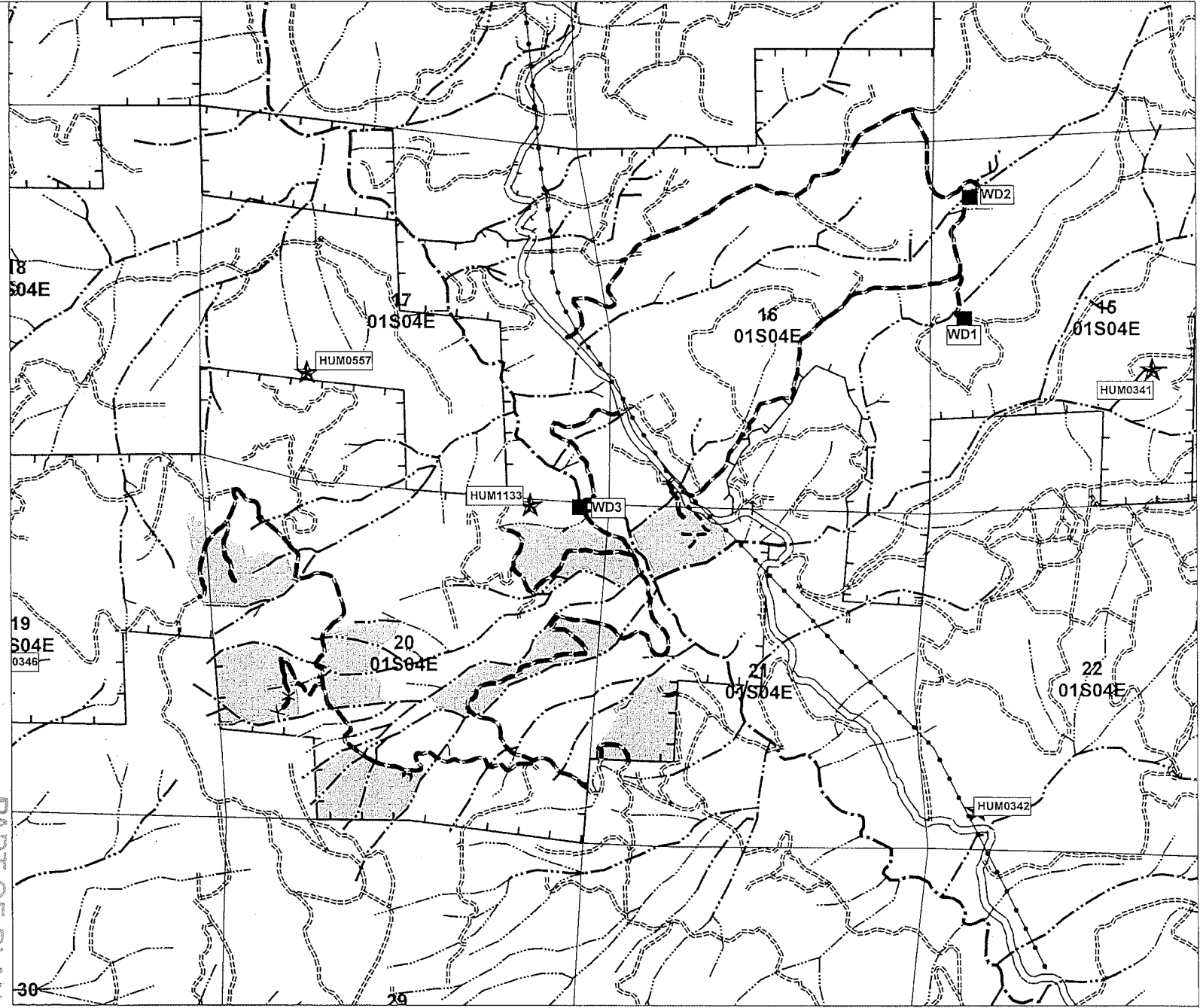


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Silviculture Map**

Contours = 40'

-  Harvest Unit
-  Ownership Boundary
-  Appurtenant Road
-  County Road
-  Seasonal Road
-  Proposed Seasonal Road
-  Proposed Temporary Road
-  Class I Watercourse
-  Class II Watercourse
-  Class III Watercourse
-  Powerline
-  Water Drafting Location
-  NSO Activity Center



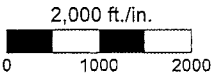
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












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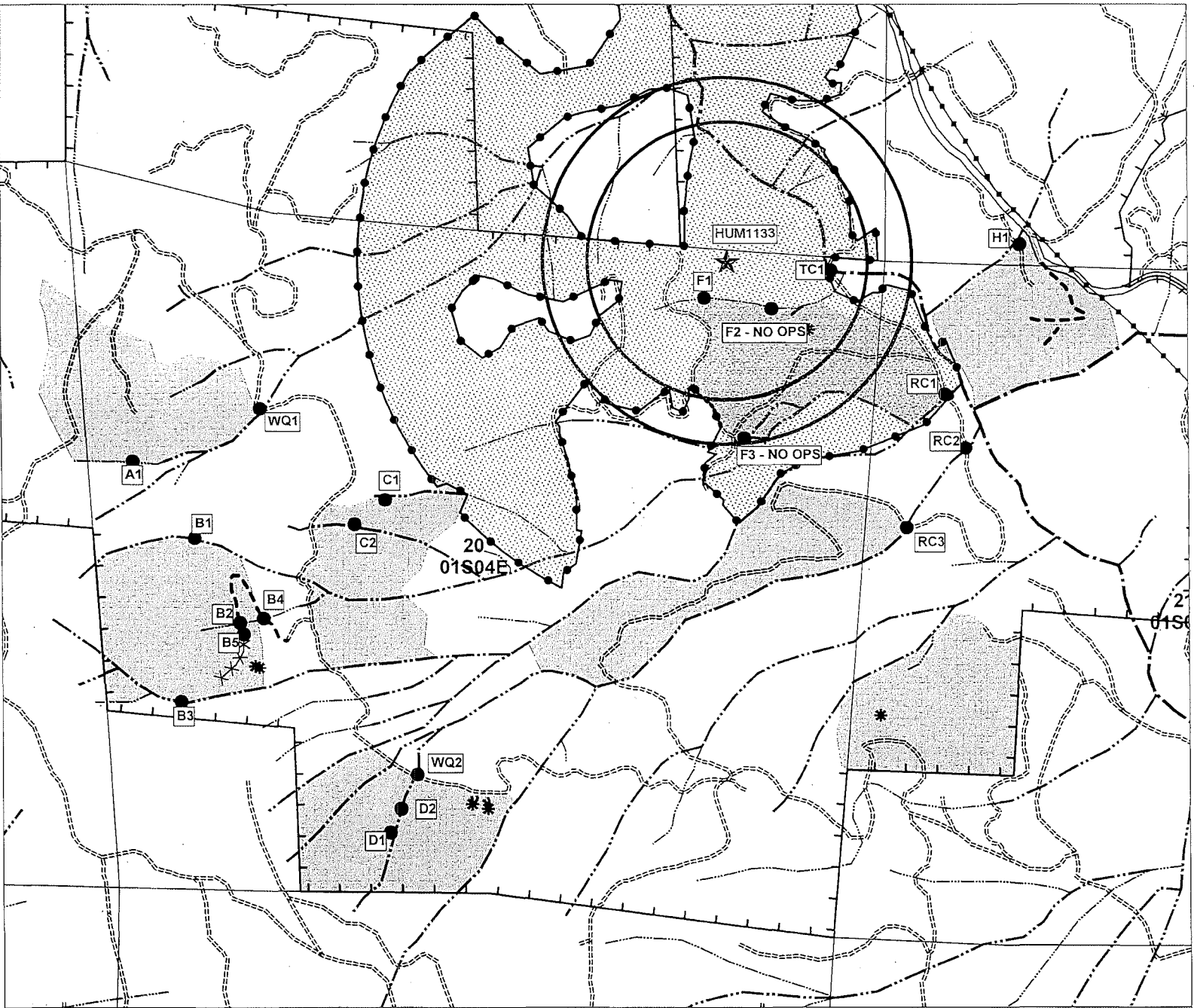
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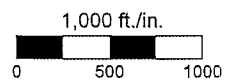
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Appurtenant Road Map

-  Harvest Unit
-  Ownership Boundary
-  Class I Watercourse
-  Class II Watercourse
-  Class III Watercourse
-  Wet Area
-  County Road
-  Seasonal Road
-  Proposed Seasonal Road
-  Proposed Temporary Road
-  Powerline
-  NSO Activity Center
-  NSO 1000' & 0.25-mile Buffers
-  NSO Core Area
-  Road/Skid Work Site



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Road/Skid Work Map

Contours = 40'

Work Order - Jets THP Truck and Skid Road Repair Sites

Site	Existing Feature	Problem	Solution	Culvert Diameter (inches)	Comments
A1	Fill xing	erosion; SES	remove xing	NA	remove prior to the first winter period following operations in Unit 20A
B1	failed Humboldt xing	erosion; SES	remove xing	NA	remove prior to the first winter period following operations in Unit 20B
B2	Fill xing	erosion; SES	rocked ford	NA	Temp xing optional
B3	Fill xing	erosion; SES	remove xing	NA	remove prior to the first winter period following operations in Unit 20B
B4	New xing	none	rocked ford	NA	Temp xing optional
B5	none	wet surface	temp xing	NA	A temporary crossing shall be installed in a manner that maintains the current surface shape of the wet area. The preferred option is to place a flow through fill material, such as small logs and slash, on top of the wet area and build up the road surface to maintain a stable operating surface. If surface water persists, then install a temporary pipe of adequate size to carry flow at the time of operations may be installed in conjunction with the flow through fill material. The crossing shall be removed in a manner that restores the wet area as close as feasible to its original configuration.
C1	Fill xing	erosion; SES	remove xing	NA	remove prior to the first winter period following operations in Unit 20C
C2	skid xing	erosion; SES	temp xing	NA	remove prior to the first winter period following use; armor with LWD as necessary to prevent headcutting
D1	fill xing	erosion; SES	remove xing	NA	remove crossing prior to the first winter period following use; armor with LWD as necessary to prevent headcutting.
D2	fill xing	erosion; SES	temp xing	NA	remove prior to the first winter period following use
F1	Fill xing	erosion; SES	remove xing	NA	remove prior to the first winter period following operations in Unit 20F
F2 & F3	Fill xings	diversion; SES	NONE	NA	These sites are skid trail crossings located along watercourses that border Unit 20F, and have resulted in diversions of the watercourses. <u>No corrective action is proposed at these locations due to lack of feasible treatment and an increased risk of negative impacts to water quality.</u> An unstable area adjacent to F2 has made the skid trail leading to the site impassable, and re-construction of the skid trail would potentially exacerbate the instability and lead to more extensive sediment input than the failed crossing. The repair of site F3 would potentially contribute to increased erosion in the original channel. The reviewing agencies have agreed that the site repair is not feasible or beneficial given the circumstances.
H1	failed xing	erosion; SES	remove xing	NA	remove fill to the extent feasible, armor as necessary to prevent headcutting
RC1	Rocked Ford	none	maintenance	NA	add rip rap at outboard; add surface rock; If surface water is present, then install a temporary pipe of adequate size to carry flow at the time of operations.
RC2	Rocked Ford	none	maintenance	NA	If surface water is present, then install a temporary pipe of adequate size to carry flow at the time of operations.
RC3	Rocked Ford	none	maintenance	NA	If surface water is present, then install a temporary pipe of adequate size to carry flow at the time of operations.
TC1	Ford	surface water	temp xing	36" half round culverts side by side	TC1 is located in Larabee Creek in a gravel bar that has been previously used for temporary crossings. A sufficient number of 36" half round culverts shall be utilized to span the wetted width of the channel during installation. Utilize gravel from the adjacent gravel bar to ramp over culverts. Remove prior to the winter period
WQ1	Culvert	outlet erosion	energy dissipator	NA	The culvert is not installed to grade and the downspout appears to have been removed resulting in erosion below the outlet of the culvert. Install rock armoring below the culvert outlet that extends down to the natural channel to serve as an energy dissipator. The rock armoring shall extend to the stream banks and form a spillway to direct water into the natural channel and avoid streambank erosion.
WQ2	Culvert	outlet erosion	rock armor	NA	The culvert outlet is directed at the right streambank causing unnecessary erosion. Rock armor shall be placed below the outlet to prevent streambank erosion.

*Note: Crossings shall be installed to handle seasonal surface flow by utilization of a flow through fill (clean rock or logs) or a temporary pipe that is of sufficient size (min. 3" x 15') to handle flow during operations.

SES: Significant Erosion Sites shall be repaired in the order of timber operations. Each site shall be completed prior to the first winter period following use, or the first winter period following harvest of the unit that contains the site.


If rock is used to stabilize the outlets of crossings, then it shall be adequately sized to resist mobilization. Minimum rock size used for this purpose shall be equivalent to 12 inches in diameter.

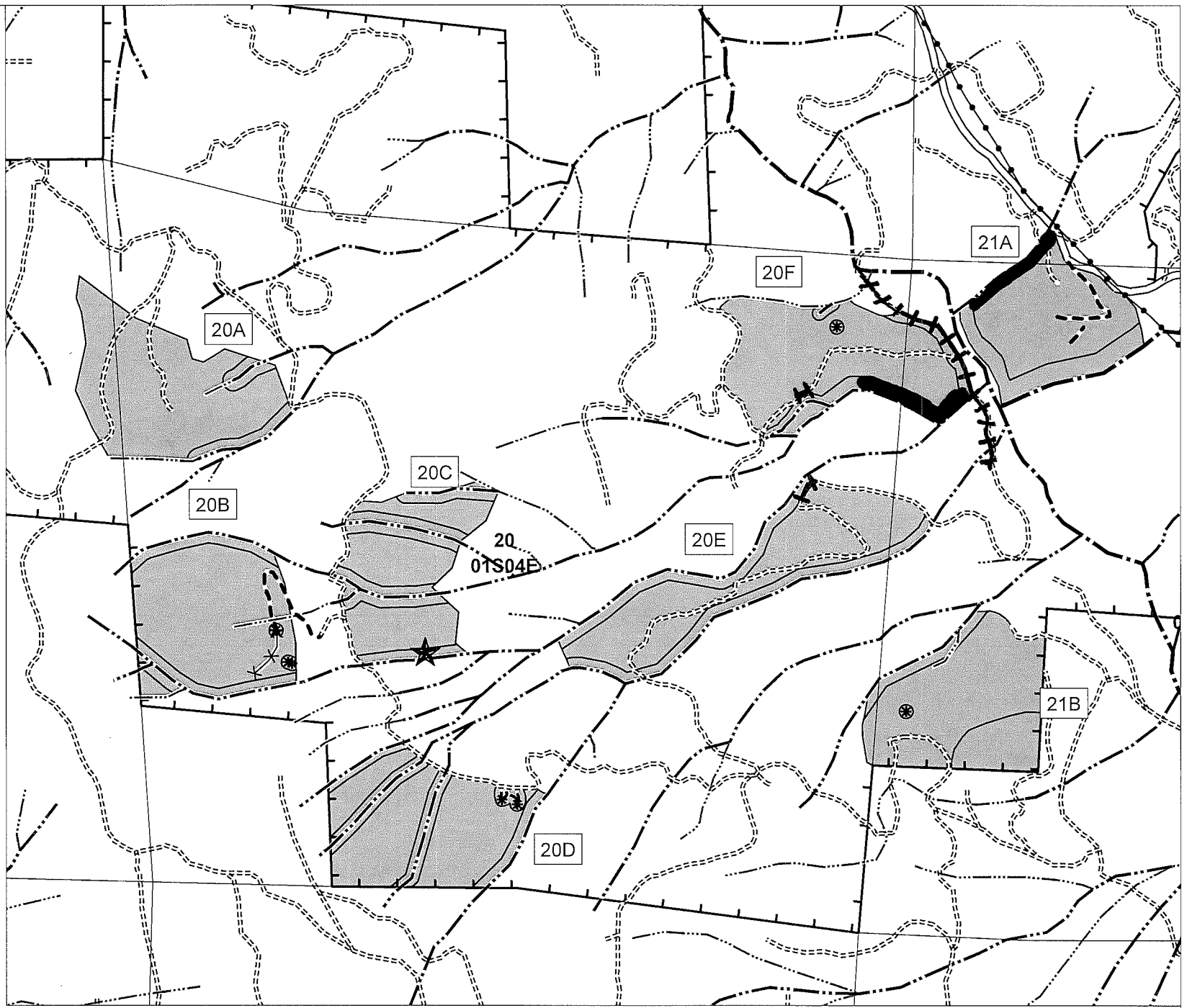
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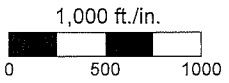
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-  Harvest Unit
-  Ownership Boundary
-  Class I Watercourse
-  Class II Watercourse
-  Class III Watercourse
-  Wet Area
-  WLPZ Road
-  County Road
-  Seasonal Road
-  Proposed Seasonal Road
-  Proposed Temporary Road
-  Powerline
-  Erythronium oregonium
-  CLASS II LARGE WLPZ



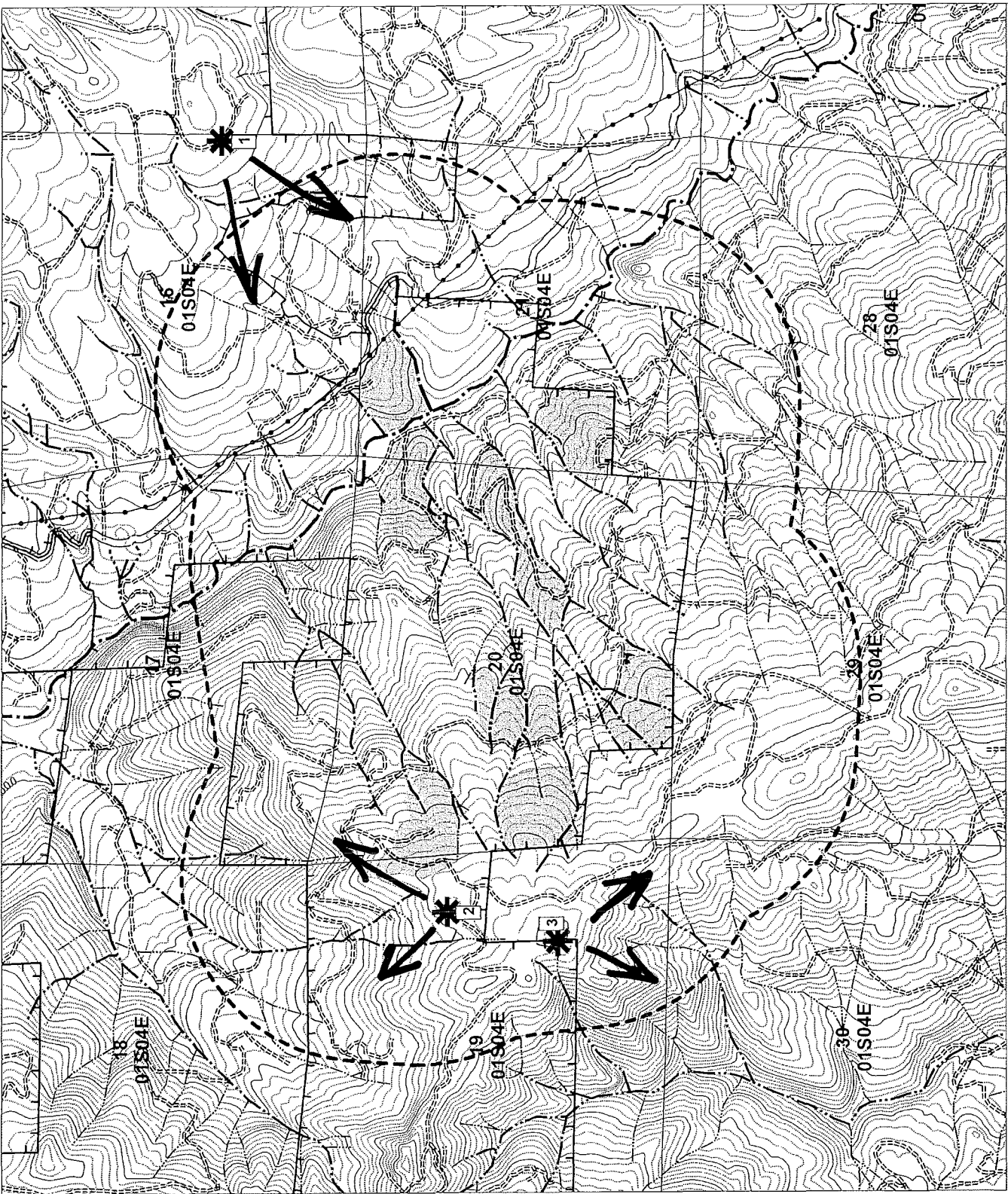
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Watercourse Map



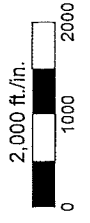
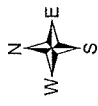
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GOEA Map

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- Harvest Unit
- Ownership Boundary
- GOEA Survey Area
- Class I Watercourse
- Class II Watercourse
- Class III Watercourse
- County Road
- Seasonal Road
- Powerline
- GOEA Survey Station

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54.1 NEW 3/6/2020

Appendix L

Mitigation Measure- Biology-5, NRM August 2020:

Danthonia californica and *Elymus glaucus* Prairie
Mitigation and Monitoring Plan for Rolling Meadow Ranch

Mitigation Measure- Biology-5
Danthonia californica and *Elymus glaucus* Prairie
(Sensitive Natural Community)
Mitigation and Monitoring Plan:
Rolling Meadow Ranch

Prepared by

Claire Brown, Botanist
Natural Resources Management Corporation
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Prepared for

Rolling Meadow Ranch LLC.
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Vero Beach, FL 92960
Contact: Andrew Machata
Tel: 772-299-3739



August 2020

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1.0 Introduction

A proposed project at Rolling Meadow Ranch will affect stands of *Danthonia californica* prairie (association code 41.050.05, *Danthonia californica* Herbaceous Alliance, S3) and stands of *Elymus glaucus* prairie (association code 41.640.01, *Bromus carinatus* - *Elymus glaucus* Herbaceous Alliance, S3). A total of 0.97 acres *Danthonia californica* prairie and 0.89 acres of *Elymus glaucus* prairie will be impacted. These vegetation communities each have a State Rank of S3 and are considered Sensitive Natural Communities by the California Department Fish and Wildlife (CDFW 2020). Impacts to these communities therefore warrant impact analysis under CEQA (CEQA Guidelines checklist at IVb).

To compensate for unavoidable project impacts, and to reduce these impacts to less than significant, degraded stands of *Danthonia californica* prairie and *Elymus glaucus* prairie will be enhanced and expanded in an appropriate part of the ranch property.

The goal of this Plan is to guide the successful enhancement and restoration of a total of approximately 0.97 acres (42,446 square feet) of *Danthonia californica* prairie and approximately 0.89 acres (38,925 square feet) of *Elymus glaucus* prairie.

1.1 Document Preparer Qualifications

Document preparer is Claire Brown, Staff Botanist at Natural Resources Management Corporation (NRM) in Eureka, CA. Claire Brown is a botanist and restoration ecologist with 8 years' experience in a professional setting. She has designed and implemented restoration projects, authored mitigation monitoring plans, performed mitigation monitoring, and written monitoring reports.

1.2 Site Location

The project is located on the main stem of the Eel River in southeastern Humboldt County. In its entirety, Rolling Meadow Ranch is comprised of 7,110 acres of agricultural and timber land within contiguous ownership including Humboldt County APNs APN: 217-181-028, 217-201-001.

1.3 Project Description

Rolling meadows Ranch is planning the construction of Cannabis cultivation infrastructure. Some of this infrastructure construction will result in impacts to sensitive natural communities.

1.4. Responsible Parties

Plan approval and success evaluation will be overseen by Humboldt County and the California Department of Fish and Wildlife. Rolling Meadow Ranch, LLC. is responsible for project implementation.

2.0 Mitigation Plan Goals and Objectives

This Plan is intended to address environmental impact mitigation required for the certification of a Mitigated Negative Declaration under CEQA. The mitigation goal of this project is as follows:

1. To restore a total of approximately 0.97 acres (42,446 square feet) of *Danthonia californica* prairie and approximately 0.89 acres (38,925 square feet) of *Elymus glaucus* prairie to a high quality condition (as defined below) which meets the membership rules of these vegetation alliance types, as described by the Manual of California Vegetation (MCV) (MCV 2020).

3.0 Mitigation Plan

3.1 Existing Site Conditions and Site Selection

Many parts of the project parcel (ranch) have grasslands that have been severely degraded by historic grazing and are currently dominated by nonnative grasses and forbs. However, in some areas, large stands of native grassland (including *Danthonia californica* prairie and *Elymus glaucus* prairie) persist. These stands vary in the degree to which they are currently invaded by nonnative species.

Several of these stands will be mapped and evaluated as part of the mitigation site selection process. Stands will be categorized as:

- High quality: ~0-30% non-native,
- Moderately invaded: ~31-60% non-native, and
- Heavily invaded: ~61-90% non-native.

These categories will be assigned using stand data collected according to the California Native Plant Society relevé protocol (CNPS 2000). Mitigation sites will be created within stands that are moderately to heavily invaded and have the potential to be restored to a category of “high quality” by a combination of weeding and planting.

Fifty percent (50%) of the mitigation area will be within “moderately invaded” stands, and fifty percent (50%) will be within “heavily invaded” stands. Implementing mitigation via the restoration of existing stands is a better guarantee for success than planting into areas currently unoccupied by the target species, as these sites are more likely to have suitable environmental conditions for high quality prairie development. Once the mitigation areas have been identified, they will be mapped and visually demarcated in the field. The baseline stand conditions over the mitigation areas will be documented and mapped.

3.2 Prairie Mitigation Design

The prairie mitigation site(s) will be referred to as the mitigation prairies for the purpose of the design. Mitigation prairies meeting the “high quality” criterion will be created to compensate for impacts at a 1 to 1 ratio. Therefore, a total of approximately 0.97 acres (42,446 square feet) of high quality *Danthonia californica* prairie and approximately 0.5 acres (21,807 square feet) of high quality *Elymus glaucus* prairie will be created via restoration. **A design specific to the selected mitigation sites will be developed.**

Table 1. Prairie Mitigation Design Summary

Feature	Area (Square Feet)	Area (Acres)
<i>Danthonia californica</i> prairie	42,446	0.97
<i>Elymus glaucus</i> prairie	38,925	0.89
Total	81,371	1.86

3.3 Site Preparation

Invasive and nonnative species management within the site shall precede all other activity. The primary species of concern are purple velvet grass (*Holcus lanatus*) and yellow star thistle (*Centaurea solstitialis*). Once sites are selected, a weeds management plan tailored to the sites and specific to the problem species there will be developed and implemented.

3.3 Work Schedule

The following outline illustrates the work schedule for mitigation and monitoring.

Year 0:

- 1) Site selection and documentation of baseline stand conditions within the mitigation areas.
- 2) Development of restoration plan specific to the selected sites.
- 3) On-site seed collection and Contracted grow-out of container stock
- 4) Invasive species and seedbank management in the 12 months preceding construction.
- 5) Post-rain weeding.
- 6) Plant installation.

Year 1:

- 1) Spring monitoring visit in April.
- 2) Weeds management work as needed.
- 3) Winter replanting as needed
- 4) Submission of Annual Monitoring Report by December 31.

Year2:

- 1) Spring monitoring visit in April.
- 2) Weeds management work as needed.
- 3) Winter replanting as needed
- 4) Submission of Annual Monitoring Report by December 31.

Year 3:

- 1) Spring monitoring visit in April.
- 2) Weeds management work as needed.
- 3) Winter replanting as needed
- 4) Submission of Annual Monitoring Report by December 31.

Year 4:

- 1) Spring monitoring visit in April.
- 2) Weeds management work as needed.
- 3) Winter replanting as needed
- 4) Submission of Annual Monitoring Report by December 31.

Year 5:

- 1) Spring monitoring visit in April.
- 2) Weeds management work as needed.
- 3) Winter replanting as needed
- 4) Submission of Annual Monitoring Report by December 31.

3.4 Restoration and Planting Plan

For this Plan and for Annual Monitoring reports, the mitigation areas will be categorized as *Danthonia californica* prairie and *Elymus glaucus* prairie. Plants must be installed by restoration practitioners qualified to utilize adaptive management in plant placement and follow the installations methods described below. Inspections and tracking of work progress is required.

3.4.1 *Danthonia californica* Prairie Plantings

As determined by the site-specific plan, the *Danthonia californica* Prairie be planted with ‘plug’ size *Danthonia californica* plants, grown from seed collected on site (on the ranch). Plugs will be planted on 2-ft centers or as needed. After planting, the site may also be seeded with additional *Danthonia California* seed collected on site or purchased.

Table 2. Species Recommended for the *Danthonia californica* Prairie.

Species	Quantity	Size
California Oatgrass <i>Danthonia californica</i>	To be determined	Plug
California Oatgrass <i>Danthonia californica</i>	To be determined	Seed

3.4.2 *Elymus glaucus* Prairie Plantings

As determined by the site-specific plan, the *Elymus glaucus* Prairie be planted with ‘plug’ size *Elymus glaucus* plants, grown from seed collected on site (on the ranch). Plugs will be planted on 2-ft centers, or as needed. After planting, the site may also be seeded with additional *Elymus glaucus* seed collected on site or purchased.

Table 3. Species Recommended for Lower Transitional Area.

Species	Quantity	Size
Blue wild rye <i>Elymus glaucus</i>	To be determined	Plug
Blue wild rye <i>Elymus glaucus</i>	To be determined	seed

3.4.3 Container Planting Instructions

All plugs must be planted in the late fall or early winter, after the first rains have infiltrated and adequately moistened the soil down to a depth of at least 24 inches. Plants used shall have enough root mass to fill their container size prior to being transplanted. It is preferred that plant stock be planted as soon as it arrives on site. No irrigation will be required.

Container plants will be out-planted in the following manner:

- Excavate a hole twice the diameter and one and a half times the depth of the plant's container.
- Scarify the sides of the hole to loosen the soil.
- Back-fill the hole with loose soil until it is the same depth as the container.
- Place plant into hole. Care shall be taken that roots hang freely, and the plant crown is correctly positioned relative to the surrounding soil level. The use of a stick-level can aid in this determination.
- Back-fill with soil around the root ball, packing gently but firmly.

3.4.4 Direct Seeding Instructions

The seeds of the recommended species are small, and shall be sown directly on the soil surface, gently and shallowly harrowed with a rake and then tamped. Seeds shall be sown prior to the application of erosion control materials such as straw or wood mulch. Mulch in these areas shall not be spread more than ½-inch thick. Adaptive management must be utilized to determine the best use of available seed sources.

3.4.5 Tracking

Accurate records of how many plugs are planted must be kept during plant installation. These records are crucial for accurate project monitoring. A qualified botanist or restoration practitioner must be on-site immediately prior to and during plant installation to inspect and collect these records.

3.5 Materials Quality Assurances

Tables 2-3 show all plant species proposed for installation in this project. Plant material must be sourced from a nursery that utilizes BMPs that minimize risk of infection with plant pathogens (PNHWG 2016).

Other than the plant stock, materials may include:

- Weed-free wood mulch (sourced locally).
- Weed free rice straw.

To assure quality of materials, installation procedures, and to provide technical assistance a qualified botanist or revegetation specialist shall be on-site to inspect the site prior to the installation of plants.

5.0 Maintenance

5.1 Invasive Species Management

Across the mitigation site, invasive plants (and non-native plant species that threaten to prevent the project from meeting the Success Criteria) shall be intensively managed. Management emphasis will be

placed on any invasive species with a Cal-IPC rank of High* or Moderate, and on any non-native plants threatening the successful establishment of any native plantings or natural recruits, herein referred to as weedy species (Cal-IPC 2018). Non-native species without a Cal-IPC rating and that do not threaten the establishment of native plantings or recruits will not be a management priority. Species meeting the criteria for removal are herein referred to as target species. At this site, target species are expected to include yellow star thistle and weedy perennial grasses.

*Species with a rank of “High” have severe ecological impacts on physical processes, plant and animal communities, and vegetation structure. Their reproductive biology and other attributes are conducive to moderate to high rates of dispersal and establishment. Most are widely distributed (Cal-IPC 2020).

Each year for the five years following planting in the month of April, an individual qualified to identify target species (as described above) will visit the site, and all occurrences of target species within the prairie mitigation site shall be recorded and mapped. All mapped species will be targeted for mechanical removal during a maintenance visit, which will occur within one month. If feasible, the mapping and maintenance can happen in the same visit. Any mechanically removed invasive plant parts shall be properly disposed of to reduce the chance of spread. This may include hauling off-site. If invasive plants are shipped off site for disposal they shall be transported in closed or covered containers and delivered to a suitable destination such as a waste disposal facility.

If weedy species management is to include mowing, mowing crews must be familiarized with planted and desirable species to avoid inadvertent impacts.

5.2 Documentation

Weeding, management techniques, and other maintenance work completed will be included in the Annual Monitoring report, which will be submitted to Humboldt County and CDFW for review and comment.

6.0 Success Criteria

The following performance criteria will be used to evaluate project success. See Section 6.1 for definition of terms.

The Project will be considered successful if by Monitoring Year 5:

1. A total of approximately 0.97 acres (42,446 square feet) *Danthonia californica* prairie and approximately 0.89 acres (38,925 square feet) of *Elymus glaucus* prairie have been established, which meet the ‘high quality’ category defined below **and** the membership rules of these vegetation alliance types as described by the Manual of California Vegetation (MCV) (MCV 2020).
 - a. ‘High quality’ stands will be defined as being between 0% and 30% invaded by non-native plants with a Cal-IPC rank.

- b. For the *Danthonia californica* Herbaceous Alliance (California oat grass prairie) the membership rules include:
 - *Danthonia californica* > 50% relative cover in the herbaceous canopy.
 - *Danthonia californica* generally > 25% absolute cover in the herbaceous layer.
 - c. For the *Bromus carinatus* - *Elymus glaucus* Herbaceous Alliance (California brome - blue wildrye prairie), membership rules include:
 - *Elymus glaucus* > 30% relative cover in the herbaceous layer.
 - *Bromus carinatus*, *Elymus glaucus*, or *Pteridium aquilinum* > 30% relative cover in the herbaceous layer.
2. Total absolute cover (Section 6.1) by invasive species with a Cal-IPC rank of “High” shall be less than 10% at the site.

6.1 Definition of Terms

Absolute Cover: “The percentage of the ground covered by the vertical projection of the plant crowns of a species or defined set of plants (also known as the vertical projection of foliage of plants) as viewed from above. Small openings in the canopy and overlap are excluded. The absolute cover of herbaceous plants includes any standing (attached to a living plant, and not lying on the ground) plant parts, whether alive or dead; this definition excludes litter and other separated plant material” (CNPS 2018).

Membership Rules: Definition of a vegetation alliance within the Manual of California Vegetation (MCV) (MCV 2020).

7.0 Monitoring Plan

7.1 Monitoring Overview

Annual Monitoring and Maintenance site visits shall occur every year beginning in the first growing season after construction for at least five (5) years or until Success Criteria are met (see Adaptive Management Section 10). Monitoring visits shall be conducted within the same three-week period in end of April-beginning of May each monitoring year to maintain seasonal consistency between surveys, and to allow time for needed maintenance or replacement plantings to be arranged for. Qualified botanists or restoration specialists shall perform annual monitoring.

7.2 Monitoring Methods

7.2.1 All Monitoring Years

1. Monitor survival of plantings:

- Site will be visually assessed for areas of low plug or seeding survivorship. Any such areas will be mapped and described.

2. *Monitor absolute vegetative cover in the prairie mitigation sites.*

- 20-30 randomly selected 1-square meter plots will be sampled within the *Danthonia californica* prairie, and 20-30 plots will be sampled within the *Elymus glaucus* prairie. Within each plot, total absolute vegetative cover and absolute cover (Section 6.1) for each species present (including plantings and natural /seeded recruits) will be ocularly estimated. The number of plots will be determined by what is needed for sampling adequacy.

3. *Monitor and report Cal-IPC rank High species and other weedy species.*

- All occurrences of Cal-IPC ranked “Moderate” or “High” invasive species (see Section 5.1), shall be recorded and mapped within the Mitigation Area. The results will be used to develop a concise maintenance plan, if needed. Any other non-native, weedy species that are impacting plantings or the character of the site shall also be addressed.

4. *Report pertinent site conditions:*

- Any pertinent ecological conditions (outside of those outlined specifically in the Success Criteria) shall be recorded for reporting in the Annual Monitoring report. Adaptive management shall be utilized to determine a corrective course of action for any conditions that may impact project success, create water quality issues or otherwise negatively impact the site. Examples of such conditions include animal impacts, flood events, or wildfire. These observations will enhance the representation of site conditions in the Monitoring Reports.

5. *Establishment of four (4) photo points around the project area:*

- Initial photos shall be taken before restoration implementation, then once annually following restoration for each monitoring year. Photo point locations shall be permanently established and described, mapped, and images included in Annual Monitoring Reports. Photo point protocols shall conform to methods of the USDA Photo Point Monitoring Handbook (Hall, 2002).

8.0 Analysis

Appropriate statistical methods will be utilized to determine the relative and absolute cover of all plant species. Change in total cover of species over time will be analyzed. This data will be useful in characterizing vegetation development over the site, and assessment of progress towards meeting the Success Criteria.

9.0 Reporting

The results of the annual monitoring will be used to create an Annual Monitoring report which tracks progress toward meeting Success Criteria and recommends adaptive management and contingency

plans for any problems, issues, additional maintenance needs etc. An Annual Monitoring Report will be submitted to Humboldt County and CDFW by December 31 of each monitoring year.

Each report will include:

- A summary of maintenance done that year;
- Description of site conditions;
- Monitoring methods used;
- Photo points;
- Discussion of any needed corrective actions or proposed method changes;
- Results of Annual Monitoring, as compared to each preceding year, including:
 - a. Percent survival of plantings (where applicable)
 - b. Total absolute cover estimates (Section 6.1) for vegetative cover plots;
 - c. Total absolute cover estimates for native herbaceous cover where applicable;
 - d. Absolute cover of target invasive species within the revegetation areas;
 - e. Analysis and discussion of progress towards meeting Success Criteria.

10.0 Adaptive Management

The annual monitoring of this site will allow ample opportunity to gage the effectiveness of mitigation strategies. Adaptive management allows for the alteration of site features or the development of alternative techniques not outlined in this plan in order to achieve goals. If, by the 2nd or 3rd monitoring year, the Success Criteria for the project appear unfeasible, the mitigation practitioners must coordinate with responsible agencies (Humboldt County, CDFW) to develop alternative plans to guide the project towards meeting the Success Criteria.

Monitoring reports shall highlight areas of underperforming vegetation and priorities for invasive species/weed management or erosion control. Invasive plants shall be treated at the first opportunity following the most recent monitoring visit. Deficiencies in planting establishment shall be addressed at the first opportunity for planting following monitoring. Plans for any such work will be developed by a qualified mitigation practitioner, at direction of and in consultation with CDFW. All such adaptive management decisions and corrective actions taken shall be documented in the Annual Monitoring Reports.

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Appendix M

Delineation of Waters Report; July 2020, NRM

Delineation of Waters Report:

Survey Name: Humboldt County 217-181-028-000 and 217-201-001-000

Survey Dates: April 27th, April 28th, May 18th, June 12th, and June 16th 2020

Prepared for

Rolling Meadow Ranch LLC.

3060 Airport West Drive

Vero Beach, FL 92960

Contact: Andrew Machata

Tel: 772-299-3739

Prepared by

Claire Brown

July 2020

Natural Resources Management Corporation

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Summary

On behalf of Rolling Meadow Ranch, LLC, a property owner, Claire Brown of Natural Resources Management Corporation conducted an investigation of aquatic resources and wetland delineation (delineation of 'Waters') on Humboldt County APN 217-181-028-000 on April 27th, April 28th and May 18th, 2020 and APN 217-201-001-000 on May 18th, June 12th and June 16th, 2020. The nature of this investigation was a survey for the potential presence of jurisdictional Waters of the United States, and California 'Waters of the State' within a portion of the parcel. Therefore, the investigation was conducted in full accordance with the 1987 *Corps of Engineers Wetland Delineation Manual* (USACE 1987) and the 2010 *Regional Supplement: Western Mountains, Valleys and Coast Region* (Version 2.0) (USACE 2010).

A total of approximately 3.4 acres were surveyed on parcel 217-181-028-000, and approximately 1.4 acres were surveyed on parcel 217-201-001-000 during the investigation, for a total of 4.8 acres surveyed. We identified 0.4229 acres of a 'seasonal wetland-upland mosaic' containing potential jurisdictional Waters on parcel 217-181-028-000, and 0.2975 acres of potential seasonal wetland within two features on parcel 217-201-001-000. The total acreage of potential seasonal wetland and seasonal wetland mosaic delineated is 0.7204. All features identified categorized as Seasonally Saturated Nontidal Palustrine Persistent Emergent Wetland (PEM1B) (Cowardin et. al 1977). See Table 1 and Figures 6 and 8.

The Seasonal Wetland- Upland Mosaic is mapped as a mosaic due to the complex patchiness of the seasonal wetland – upland boundaries, which were not visually distinguishable by vegetation or landform transition.

The Study Area was chosen based on proximity to potential development plans over the site. Findings only reflect features within the boundaries of the Study Area, and do not reflect any presence or absence of potential Waters outside of the Study Area.

However, due to potential project development plans on parcel 217-181-028-000, an additional 1.41665 of seasonal wetland-upland mosaic' containing potential jurisdictional Waters were mapped outside of the Study Area, as a conservative measure. This area was not fully delineated, and therefore not included within the defined Study Area. However, the landform and vegetation suggest that this area could contain wetlands and is therefore included as a "conservative estimate" of what wetlands occur outside the Study Area. More field work would be needed to prove that any part of this area is not wetland or jurisdictional Waters. The inclusion of this area brings the total wetlands mapped at this site to 1.83945 acres. See Figure 7.

Table 1. Total Resource Acreage by Feature Within Study Area.

Aquatic Resource Name	Cowardin Name	Cowardin Code	Size (Acres)	Aquatic Resource Location (NAD83 Zone 10)
Seasonal Wetland-Upland Mosaic	Seasonally Saturated Nontidal Palustrine Persistent Emergent Wetland	PEM1B	0.4229	N40.31806, W123.79897
Seasonal Wetland 1	Seasonally Saturated Nontidal Palustrine Persistent Emergent Wetland	PEM1B	0.1356	N40.32495 W123.77016
Seasonal Wetland 2	Seasonally Saturated Nontidal Palustrine Persistent Emergent Wetland	PEM1B	0.1619	N40.32507 W123.7707
Total Acreage			0.7204	

1.0 Introduction

The Study Area covers an approximately 3.4-acre area within Humboldt County 217-181-028-000 and approximately 1.4 acres on parcel 217-201-001-000 for a total of 4.8 acres surveyed. The purpose of this report is to identify and describe potential aquatic resources, to document aquatic resource boundary determinations for review by regulatory authorities and provide background information. The property owner is:

Rolling Meadow Ranch LLC.
3060 Airport West Drive
Vero Beach, FL 92960
Contact: Andrew Machata
Tel: 772-299-3739

2.0 Location

The Study Area is in unincorporated Humboldt County, near the community of Whitlow. It is composed of two parts one each on Humboldt County APNs 217-181-028-000 and 217-201-001-000. The Study Area lies within the Lower Eel River Watershed (HUC 8: 18010105; HUC 12 180101050502). The legal description of the Study Area is T02S, R03E, Section 2; T02S, R04E Section 6, HB&M; USGS 7.5' Quadrangle Myers Flat. The site can be reached by taking exit 663 from US-101 South for CA-254 toward South Fork/Honeydew. Use CA 254 South (Avenue of the Giants) for 0.2 miles and take the first left onto Dyersville Loop Rd. Continue east for approximately 6.5 Miles, then take right onto McCann Rd, cross the seasonal bridge, and continue east on McCann Rd for approximately 2 miles, pass through the locked private gate and the site is on the left in another 0.2 miles. See Figures 1-5.

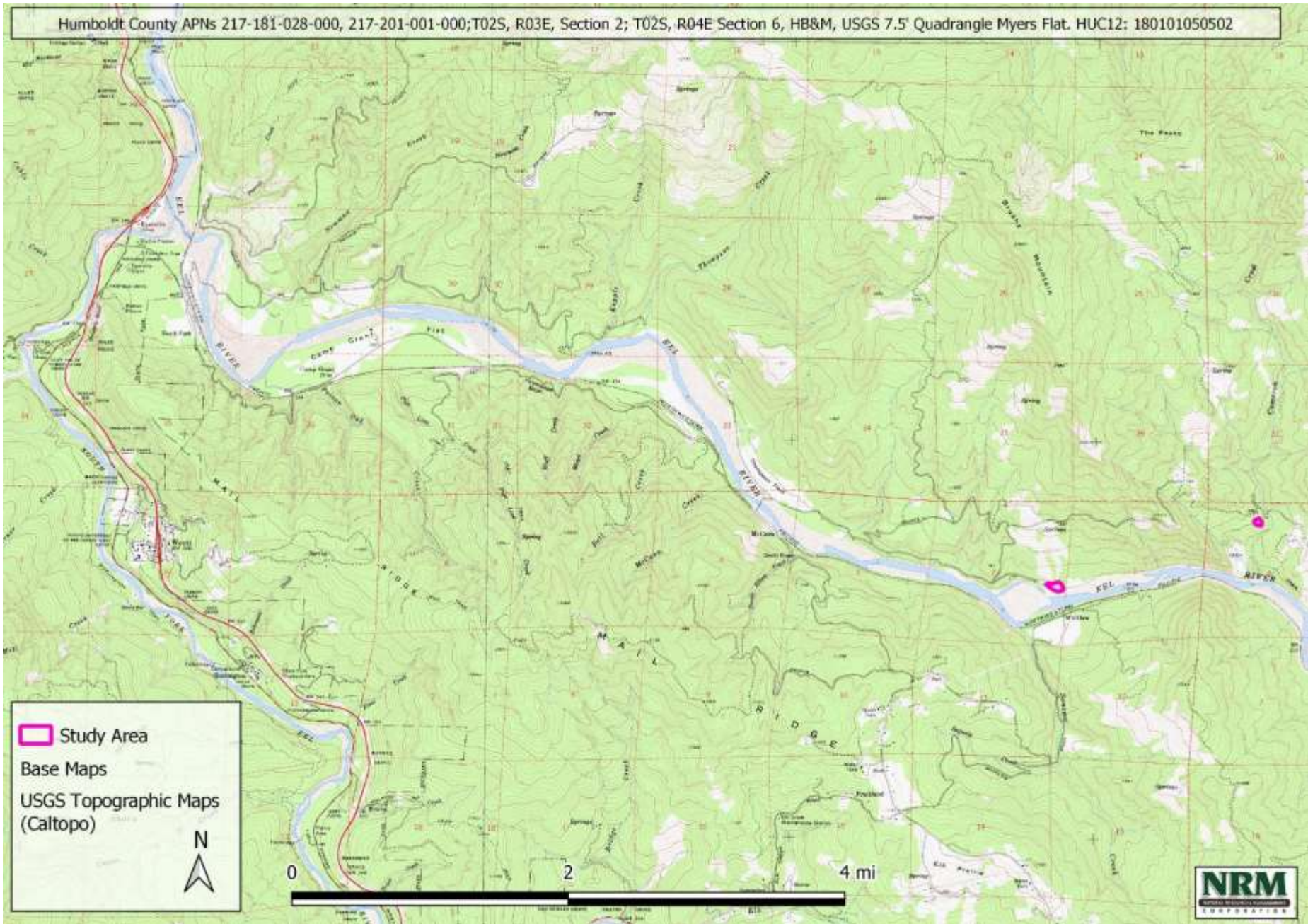


Figure 1 .Study Area Vicinity Map, on USGS 7.5' Quadrangle Myers Flat



Figure 2. Study Area Overview Map 1: APN 217-181-028-000.

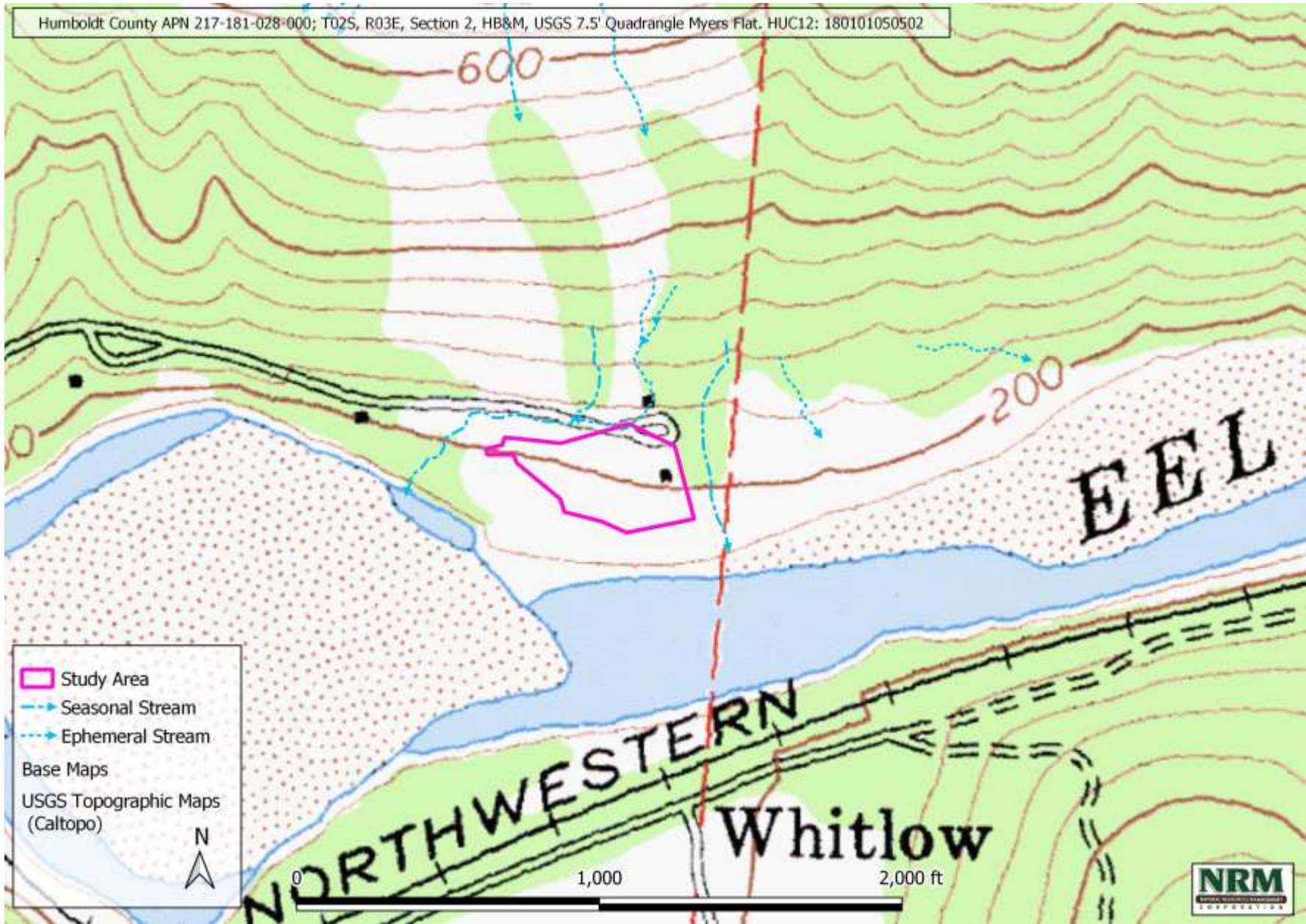


Figure 3. Study Area Overview: Topographic 1: APN 217-181-028-000.



Figure 4. Study Area Overview Map 2: APN 217-201-001-000

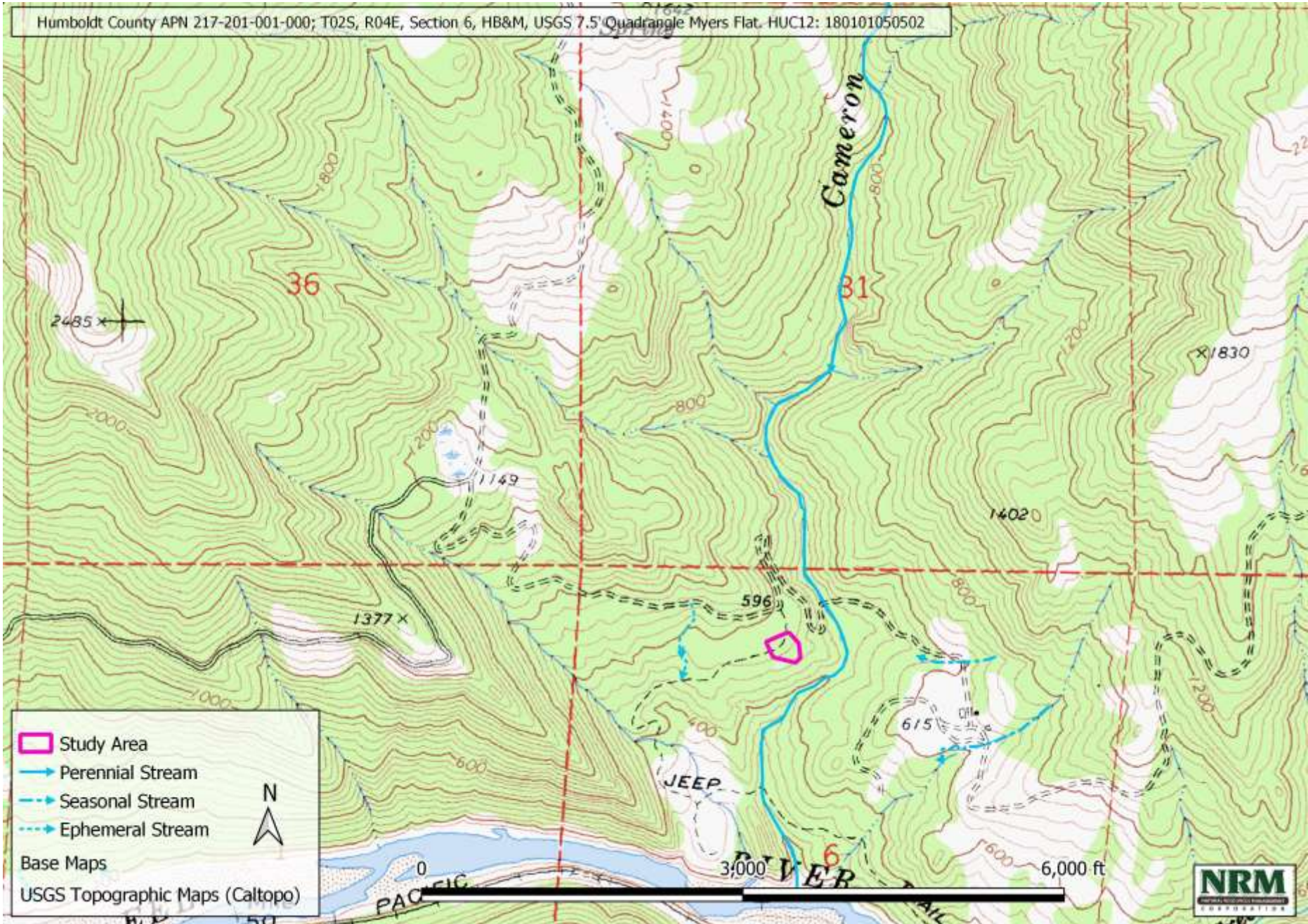


Figure 5. Study Area Overview Map 2 Topographic: APN 217-201-001-000

3.0 Methods

3.1 Overview

The survey was conducted using three-parameter plot investigations, in accordance with the USACE 1987 Manual and the 2010 Regional Supplement (USACE 1987; 2010). Per Section 404 of the Federal Clean Water Act, USACE is charged with regulating project activities that propose to dredge or fill a wetland resource or other Waters of the United States. These methods also satisfy the definition of wetlands under the California State Water Resources Control Board (SWRCB), which regulates any discharge of waste that could affect the quality of the “Waters of the State” (under the California Porter-Cologne Water Quality Control Act and Section 401 of the Federal Clean Water Act) (SWRCB 2019).

No portion of the Study Area is classified as Wetland or Deepwater habitat by the U.S. Fish and Wildlife Survey National Wetland Inventory (NWI) (USFWS 2020).

Freshwater and Deepwater habitat nomenclature conform to *Classification of Wetlands and Deepwater Habitats of the United States* (Cowardin et al. 1979). Plant nomenclature conforms to *The Jepson Manual, 2nd Edition* (Baldwin et. al 2012).

3.2 Three - Parameter Plot Investigation:

3.2.1 Overview

The three-parameter USACE method identifies a jurisdictional wetland (Waters of the United States) based on the presence of three wetland indicators: dominance of hydrophytes (plants adapted to anaerobic conditions resulting from a prolonged inundation with water), hydric soils (soils resulting from a prolonged inundation with water), and wetland hydrology. Standard USACE data forms for routine wetland determinations were completed for each sampling point and are attached in Appendix D.

A total of 19 plots were subjectively established within the Study Area on 217-181-028-000 . A total of 6 plots were subjectively established within the Study Area on 217-201-001-000. Plots P1-P13 were surveyed on April 27th and 28th, and Plots 1C-6C were surveyed on May 18th. Plots 1R-3R were surveyed on June 12th, and Plots 4R-6R were surveyed on June 16th. The plots were subjectively placed in points representative of elevation, vegetative cover type, and hydrological gradients across the site. See Figures 6 and 7 for location details. At each sampling plot, vegetation, hydrology, and soils were examined according to USACE delineation protocols. The entirety of the Survey Area on 217-181-028-000 appears to have been historically impacted by the development of a homestead and encroachment by invasive plants (see 4.1.2 Land Use History below).

3.2.2 Vegetation analysis

Dominant plant species were recorded at each sampling point and each species was assigned an indicator status using The National Wetlands Plant List – Western Mountains, Valleys & Coast (Lichvar et al., 2016). The indicator status assigned to a species designates the probability of that species occurring in a wetland, and are defined as follows:

- OBL= Obligate, almost always is a hydrophyte, rarely in uplands.
- FACW= Facultative Wetland, usually is a hydrophyte but occasionally found in uplands.
- FAC=Facultative, commonly occurs as either a hydrophyte or non-hydrophyte.
- FACU= Facultative Upland, occasionally is a hydrophyte, but usually occurs in uplands.
- UPL=Upland, rarely is a hydrophyte, almost always in uplands.

Species with a wetland indicator of OBL, FACW, and FAC are typically adapted for life in a wetland. Thus, species with these indicators were used in this wetland determination to decide whether a prevalence of hydrophytic vegetation existed at each sampling point.

3.2.3 Hydrology Analysis

Presence of wetland hydrological primary and/or secondary indicators, as listed in the USACE 1987 Wetland Delineation Manual and the 2010 Regional Supplement for Western Mountains, Valleys and Coast Region (Version 2.0), was noted at each sampling point (USACE, 1987; 2010). Factors influencing wetland hydrology include the frequency, duration, and seasonality of inundation and/or saturation. Primary field indicators of wetland hydrology include visual observation of inundation, saturation within the upper 12 inches of soil, observation of water marks, drift lines, or sediment deposits, and observation of oxidized root-hair channels with living roots still present in the upper 12 inches of soil. Secondary indicators of wetland hydrology include factors such as geomorphic position and the FAC-neutral test (i.e., dropping species rated as FAC from the vegetation analysis). One primary indicator or two secondary indicators must be present at a sampling point for the hydrology to be considered wetland (USACE, 2010).

3.2.4 Soils Analysis

A soil pit was dug at each sampling point to a minimum depth of 16 to 22 inches. In each pit, distinct soil layers were noted and measured, and soil texture and color were analyzed. Soil matrix colors and mottle colors were compared to the Munsell soil color chart (2017 edition) for color appearance (hue), strength (chroma), and lightness (value). Soils were considered hydric if they displayed any of the primary indicators listed in the 2018 Natural Resources Conservation Service (NRCS) Field Indicators of Hydric Soils in the United States Version 8.2. (NRCS 2018). USACE data forms are included in Appendix D.

3.2.5 Mapping

The data collected during the plot investigations were extrapolated over the portion of the Study Area of which they were representative. The boundaries of these areas were marked using a Garmin GPS unit, and the points and track files were used to generate a map in GIS software. However, the dimensions of the mapped features and the distances between them were also measured in the field.

4.0 Existing Conditions

4.1 Landscape Setting

4.1.1 Weather and Climate

The survey was conducted between the hours of 10:00 am and 4:00 pm on April 27th and April 28th 2020, clear sunny days; on May 18th, 2020, a partially rainy day, on June 12th, a partially rainy day, and June 16th, a clear sunny day. On April 27th, twenty-two days had passed since the site had received significant precipitation (NOAA 2020). The cumulative precipitation received at the NOAA station in Scotia, CA between October 1st, 2019 and April 31, 2020 was 24.96 inches. “Normal” for that period of accumulation is 42.67 inches (NOAA 2020). The Station had received an additional 0.85 inches by May 17th and received another 0.96 inches on May 18th. The cumulative precipitation received at the NOAA station in Scotia, CA between October 1st, 2019 and June 16th, 2020 was 31.02 inches. “Normal” for that period of accumulation is 48.75 inches (NOAA 2020). Table 2 compares 2019/2020 precipitation data to predictions of “normal” from NOAA (NOAA 2020).

The total accumulated precipitation received at the Scotia station between October 1, 2019 and April 31, 2020 was **17.71 inches below ‘normal’** (NOAA 2020). The total accumulated precipitation received at the Scotia station between October 1, 2019 and June 16, 2020 was **17.43 inches below ‘normal’**. However, rainfall during the month of May 2020 was 1.84 inches over ‘normal’.

Table 2. Precipitation Data from the NOAA Station in Scotia, CA (NOAA 2020).

Month	Monthly Precipitation Totals 2019-2020 (in Inches)	‘Normal’ Monthly Precipitation (in Inches) 1988-2010
October	(2019) 0.76	2.56
November	(2019) 2.04	6.39
December	(2019) 11.06	10.20
January	(2020) 8.01	8.61
February	(2020) 0.74	7.59
March	(2020) 2.34	7.00
April	(2020) 2.42	3.73
May	(2020) 3.72	1.88
June	(as of June 16th, 2020) 0.49	0.49

4.1.2 Land Use History

The Study Area includes portions of two semi-undeveloped rural parcels in unincorporated Humboldt County, California.

The portion of the Study Area on parcel 217-181-028-000 is within a portion of the parcel which bears evidence of a former homestead site. Power lines serve the area, and a portion of the area appears to have been graded. Soil compaction from apparent prior grading and heavy use by cattle is evident. Cattle are free to move across the site, and some vegetation had been recently and heavily grazed at the time of the survey. While no materials from a structure remain, plants associated with old homestead sites such as bearded iris and daffodils are present. Two ephemeral streams appear to have been historically diverted from flowing across the Survey Area and are currently directed into artificial ditches at a road crossing. A private dirt road provides access to the site.

The portion of the Study Area on parcel 217-201-001-000 is on a natural terrace within the hillslope above the Eel River. A dirt track ranch road transects the area east to west, but the area is otherwise undeveloped. At the time of the survey, the portion of the Study Area within and surrounding this ranch road had been highly disturbed by road improvement work. This work had significantly shifted the vegetation community from what had been observed during a previous site visit in 2019.

4.1.3 Vegetation

APN 217-181-028-000

The majority of the Study Area on 217-181-028-000 is vegetated by non-native weedy grasses and forbs, including Italian ryegrass (*Festuca perennis*, FAC), rough bluegrass (*Poa trivialis*, FAC) purple velvet grass (*Holcus lanatus*, FAC), plantain (*Plantago lanceolata*, FACU), sub-clover (*Trifolium subterraneum*, UPL), and smooth brome (*Bromus racemosus*, UPL). This vegetation type is typical of the central- western portion of the Study Area, including most of the area that appears to have been formerly graded and which appears most heavily utilized by cattle.

The northeastern-central portion of the study area is dominated by annual grasses and forbs such as wild oats (*Avena barbata*, UPL), filaree (*Erodium botrys*, FACU) and various species of brome (*Bromus* spp.)

The southern and westernmost portions on the Study Area is being heavily invaded by Himalayan blackberry (*Rubus armeniacus*, FAC). These areas also have patches of whiteroot sedge (*Carex barbarae*, FAC), foothill sedge, (*Carex tumicola*, FACU), smooth scouring rush (*Equisetum laevigatum*, FACW), and some pennyroyal (*Mentha pulegium*, OBL).

The northeast corner of the Survey Area, south of where a seasonal watercourse flows down an artificial ditch, has patches dominated by pennyroyal and white clover *Trifolium repens*, FAC), interspersed with grey rush (*Juncus patens*, FACW).

APN 217-201-001-000

During a 2019 site visit, the upper portion of the Study Area on 217-201-001-000 was observed to be vegetated by native species such as spikerush (*Eleocharis c.f. palustris*, OBL) and toad rush (*Juncus bufonius*, FACW). However, this area was impacted (later in 2019) by road improvement work, disrupting the natural vegetation and resulting in higher cover by weedy species such as purple velvet grass (*Holcus lanatus*, FAC) and Italian rye (*Festuca perennis*, FAC). The lower portion of the Area is dominated by a mix of native and nonnative Facultative (FAC) and Facultatively Wetland (FACW) grasses, graminoids and forbs. However, invasive species such as purple velvet grass (*Holcus lanatus*, FAC) are dominant over large portions of the area.

4.1.4 Hydrology

APN 217-181-028-000

The nearest USGS blue-line stream is the mainstem Eel River, which lies approximately 150 feet to the south of the Survey Area. Several seasonal and ephemeral tributaries to the Eel River are found near the Survey Area (Figures 2-3), mapped during prior NRM visits to the site. Two of these tributaries appear to have been diverted from presumed natural courses through the Survey Area by artificial ditches (Figures 2-3). No portion of the Study Area is classified as Wetland or Deepwater habitat by the U.S. Fish and Wildlife Survey National Wetland Inventory (NWI) (USFWS 2020).

APN 217-201-001-000

The nearest USGS blue-line stream is Cannon Creek, which flows south to the mainstem Eel River approximately 400 feet to the east and South of the Survey Area. No National Wetland Inventory Wetland or Deepwater Habitat were identified within the Survey Area (USFWS 2019). Several ephemeral tributaries to the Eel River are found west the Survey Area (Figures 4-5), mapped during prior NRM visits to the site.

4.1.5 Geology and Soils

APN 217-181-028-000

Soils within the in the Survey Area on APN 217-181-028-000 are mapped by the Natural Resources Conservation Service (NRCS) as belonging to Map Unit 663—Yorknorth-Windynip. 15 to 30 percent slopes. According the NRCS: “The Yorknorth series consists of very deep, moderately well drained soils that formed in material weathered from chloritic schist and other sedimentary and metamorphic rocks. Yorknorth soils are on hills and mountains and have slopes of 2 to 50 percent. The mean annual precipitation is about 1650 millimeters and the mean annual temperature is about 14 degrees C. The Windynip series consists of very deep, well drained soils that formed in colluvium and residuum derived from sandstone and mudstone. Windynip soils are on mountains and have slopes of 5 to 50 percent. The mean annual precipitation is about 2160 millimeters and the mean annual temperature is about 13 degrees C” (NRCS 2020). See Appendix C for NRCS Soils Map.

APN 217-201-001-000

Soils within the in the Survey Area on APN 217-201-001-000 are mapped by the Natural Resources Conservation Service (NRCS) as belonging to Map Unit 665—Yorknorth-Witherell Complex, 15 to 30 percent slopes. According the NRCS: “The Yorknorth series consists of very deep, moderately well drained soils that formed in material weathered from chloritic schist and other sedimentary and metamorphic rocks. Yorknorth soils are on hills and mountains and have slopes of 2 to 50 percent. The mean annual precipitation is about 1650 millimeters and the mean annual temperature is about 14 degrees C. The Witherell series consists of very deep, somewhat excessively drained soils formed in material weathered from sandstone. Witherell soils are loamy in the upper part of the profile with fragmental gravel in the lower. These soils are on hills and mountains and have slopes of 5 to 75 percent. The mean annual precipitation is about 1500 millimeters (50 inches) and the mean annual temperature is about 14 degrees C (57 degrees F).”

4.2 Findings: Aquatic Resources ('Waters') APN 217-181-028-000

4.2.1. Overview

A total of approximately 3.4 acres were surveyed during the investigation. A total of approximately 0.4229 acres of a potential 'seasonal wetland-upland mosaic' containing potential jurisdictional Waters were identified within the Study Area, including of Seasonally Saturated Nontidal Palustrine Persistent Emergent Wetland (PEM1B) (Cowardin et. al 1977). See Table 1 and Figure 6.

The Study Area was chosen based on proximity to potential development plans over the site. Findings only reflect features within the boundaries of the Survey Area, and do not reflect any presence or absence of potential Waters outside of the Survey Area.

However, due to potential project development plans at this site, an additional 1.41665 of seasonal wetland-upland mosaic' containing potential jurisdictional Waters were mapped outside of the Study Area, as a conservative measure. This area was not fully delineated, and therefore not included within the defined Study Area. However, the landform and vegetation suggest that this area could contain wetlands and is therefore included as a “conservative estimate” of what wetlands occur outside the Study Area. More field work would be needed to prove that any part of this area is not wetland or jurisdictional Waters. The inclusion of this area brings the total wetlands mapped at this site to 1.83945 acres. See Figure 7.

The potential wetland feature is mapped as a mosaic due to the complex patchiness of the seasonal wetland – upland boundaries, which were not visually distinguishable by vegetation or landform transition. No wetland patches were found to be outside of the delineated boundary within the Study Area.

Figure 6 shows the mapped boundaries of this potential seasonal wetland-upland mosaic. Boundaries of the mosaic complex were determined by using plot data to interpret where vegetation, soil, and hydrologic gradients indicate a change from potential wetland to upland. These boundaries are not visually distinct in the field, as some of the same vegetation communities are

dominant over the wetland and non-wetland portions of the Study Area. There are slight variations in landform within the Study Area including low points, but no real distinctive concave landform visually demarcating a boundary. However, the site is at the toe of a hillslope and is the lowest point in the local relief. The landform rises sharply north of the Study Area.



Figure 6. 'Waters' Delineation Map APN 217-181-028-000

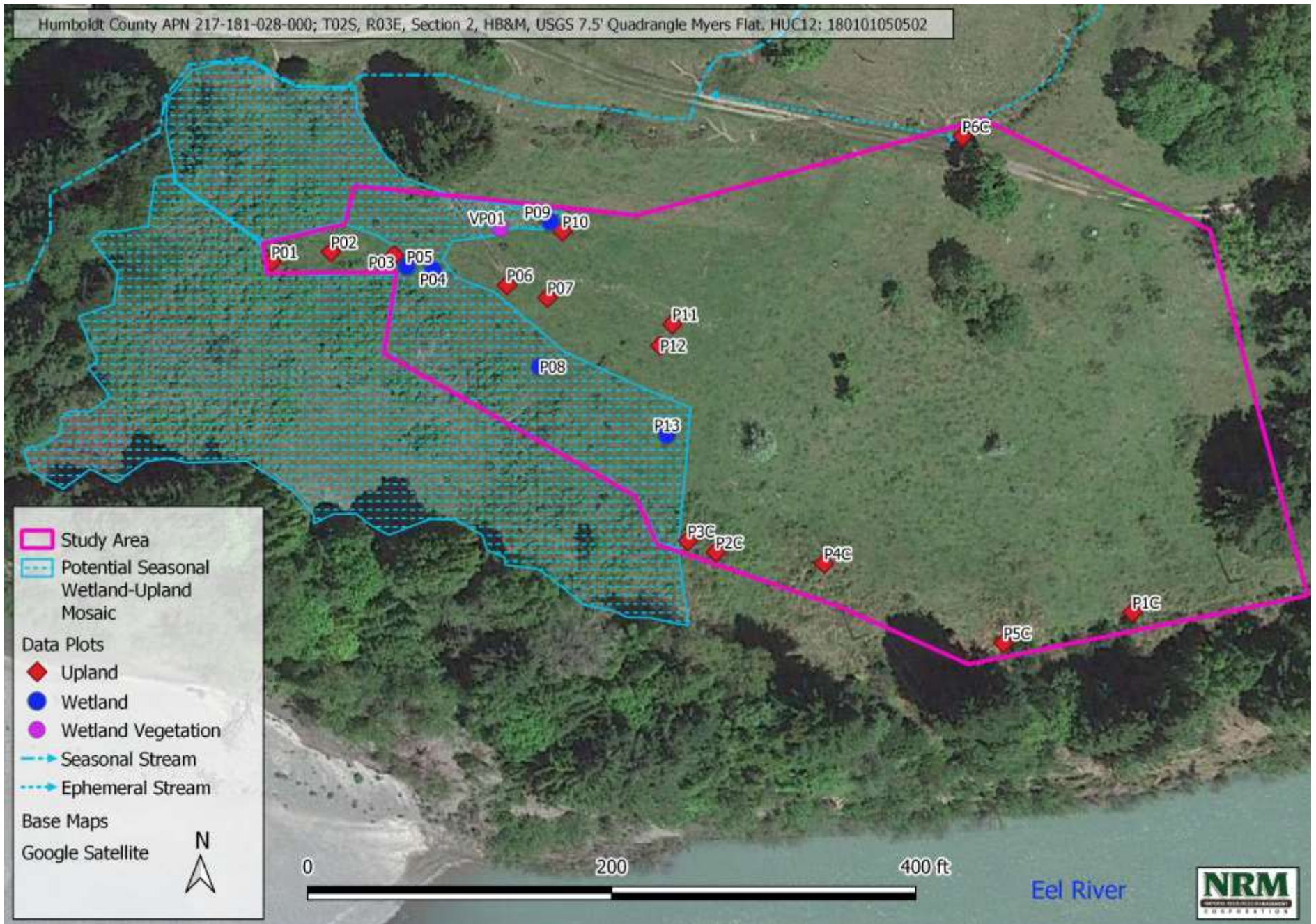


Figure 7. "Conservative Estimate" 'Waters' Delineation Map APN 217-181-028-000

4.2.2. Hydrology

The potential seasonal wetland portion of the mosaic met the Primary Hydrology Indicators C3 (Oxidized Rhizospheres along Living Roots). No saturation within the upper 12 inches, high water table or surface water was observed during surveys, but it should be noted that the to-date precipitation accumulation was just over half of 'normal' (NOAA 2020). There are currently no channelized surface water inputs to the feature, and it appears all hydrology is attributable to direct precipitation and overland flow. However, it appears that a seasonal watercourse and an ephemeral watercourse were historically diverted away from the Study Area (Figures 2,3,6).

4.2.3 Vegetation

Most of the mosaic is dominated by nonnative perennial grasses and forbs with a 'Facultative' indicator status, such as rough bluegrass (*Poa trivialis*, FAC), Italian rye (*Festuca perennis*, FAC), and white clover (*Trifolium repens*, FAC). However, some patches are dominated or co-dominated by pennyroyal (*Mentha pulegium*, OBL) and/or Himalayan blackberry (*Rubus armeniacus*, FAC). There is no visually distinct vegetation community transition between wetland and upland portions of the mosaic.

4.2.4 Soils

Soils within the potential seasonal wetland portion of the mosaic met the Hydric Soils Indicators F6 (Redox Dark Surface). Some portions also meet F3 (Depleted Matrix). Soils within the area thought to be historically graded contained varying amounts of sharp angular rock and jumbled inclusions of what appeared to be sandstones and shales. These inclusions are much less abundant or absent in areas outside the grading footprint, further indicating historic disturbance. Furthermore, hydric soil indicators were identified in some of the plots placed within the historically graded area, even in areas dominated by non-hydrophytic vegetation (P6, P7).

4.3 Findings: Aquatic Resources ('Waters') APN 217-201-001-000

4.3.1. Overview

We identified 0.2975 acres of potential seasonal wetland within two features on parcel 217-201-001-000. Seasonal Wetland 1 is approximately 0.1356 acres, and Seasonal Wetland 2 is approximately 0.1619 acres. All features identified are categorized as Seasonally Saturated Nontidal Palustrine Persistent Emergent Wetland (PEM1B). See Figure 8.

The Study Area was chosen based on proximity to potential development plans over the site. Findings only reflect features within the boundaries of the Study Area, and do not reflect any presence or absence of potential Waters outside of the Study Area.

Figure 8 shows the mapped boundaries of the potential seasonal wetland features. Boundaries of the were determined by using plot data to interpret where vegetation, soil, and hydrologic gradients indicate a change from potential wetland to upland. These boundaries are not entirely visually distinct in the field, as some of the same vegetation communities are dominant over the wetland and non-wetland portions of the Study Area. However, there is a distinctive concave landform visually demarcating the boundary of Seasonal Wetland 2.



Figure 8. Delineation Map APN 217-201-001-000.

4.3.2. Hydrology

The potential Seasonal Wetlands met the Primary Hydrology Indicators “Other” due to saturation to surface and standing water having been observed during a site visit on May 18th, 2020 and a site visit on April 9, 2019. There are currently no channelized surface water inputs to the feature, and it appears all hydrology is attributable to direct precipitation and overland flow.

4.3.3 Vegetation

During an April 2019 site visit, Seasonal Wetland 1 was observed to be vegetated by native species such as spikerush (*Eleocharis c.f. palustris*, OBL) and toad rush (*Juncus bufonius*, FACW). However, this area was impacted (later in 2019) by road improvement work, disrupting the natural vegetation and resulting in higher cover by weedy species such as purple velvet grass (*Holcus lanatus*, FAC) and Italian rye (*Festuca perennis*, FAC). Seasonal Wetland 2 is dominated by a mix of native and nonnative Facultative (FAC) and Facultatively Wetland (FACW) grasses, graminoids and forbs such as wonderwoman sedge (*Carex gynodynamis*, FAC). However, invasive species such as purple velvet grass (*Holcus lanatus*, FAC) are dominant over large portions of the area.

4.3.4 Soils

Soils within the potential seasonal wetland met the Hydric Soils Indicators F6 (Redox Dark Surface). Some portions also meet F3 (Depleted Matrix), Depleted Below Dark Surface (A11), and Thick Dark Surface (A12). These very well-developed Hydric Soil indicators (remarkably high carbon accumulation), indicate that these potential wetland features have occurred on the landscape for a long time.

5.0 References Cited

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Appendix A: Site Photos (photo dates: bottom right corner of image)



Photo 1. Looking southwest over Study Area APN 217-181-028-000 (4-27-2020).



Photo 2. Non-hydrophytic vegetation in Plot 6 (Not Wetland) (4-27-2020).



Photo 3. Hydric Soil Indicator F6 and Hydrologic Indicator C3 in Plot 6 (Not Wetland) (4-27-2020).



Photo 5. Hydrophytic vegetation in Plot 13 (Wetland) (4-28-2020)



Photo 6. Hydrophytic vegetation in Plot 2C (Not Wetland) (5-18-2020)



Photo 7. Hydrophytic vegetation in Plot 4C (Not Wetland) (5-18-2020)



Photo 8. Looking West over Study Area APN 217-201-001-000 (6-16-2020)



Photo 9. Surface water within Study Area APN 217-201-001-000 (5-18-2020)



Photo 10. Looking east over Study Area APN 217-201-001-000 (4-9-2020)

Appendix B: Plant List

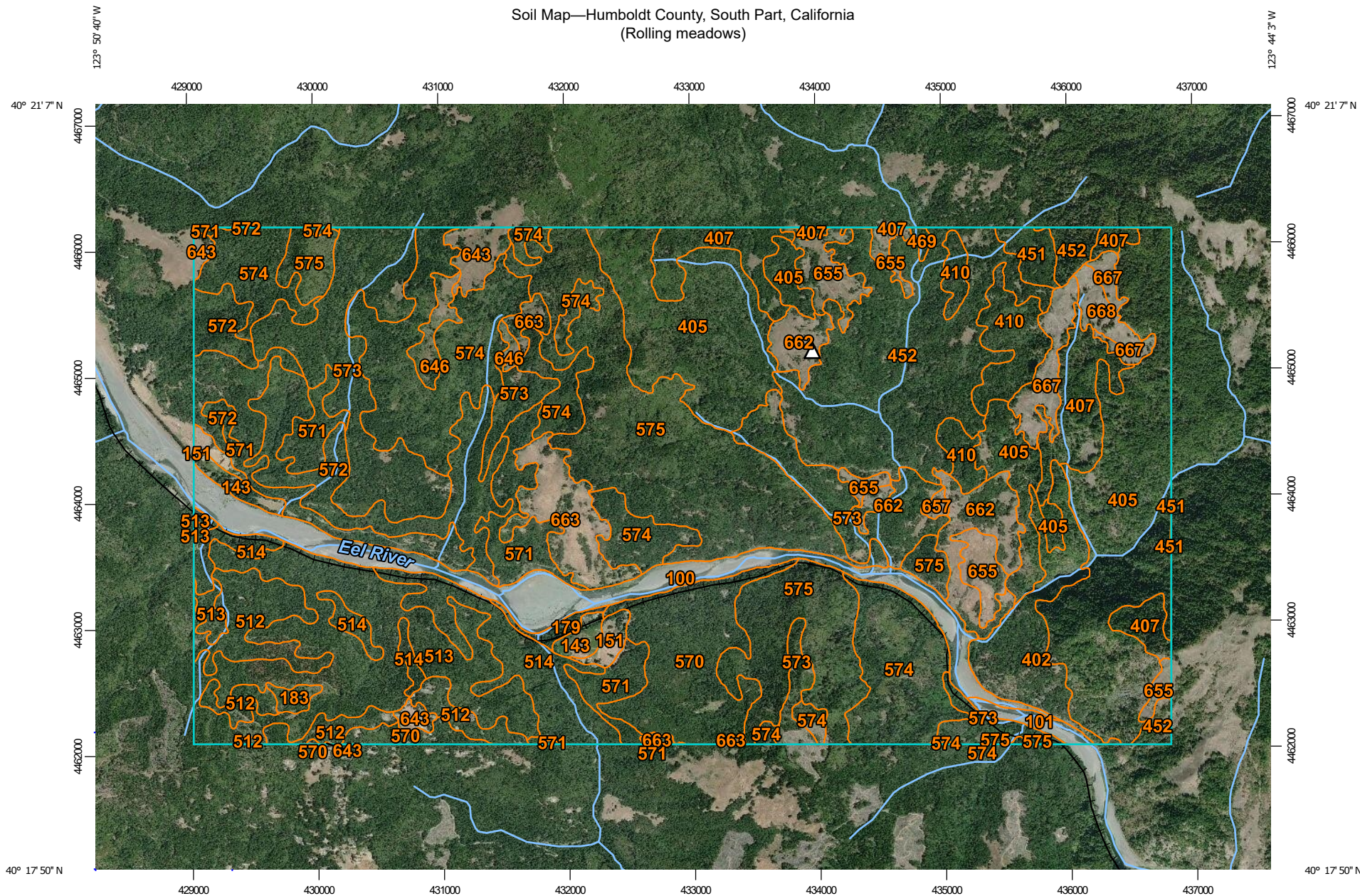
FAMILY	SCIENTIFIC NAME	COMMON NAME	LIFEFORM
APIACEAE	<i>Daucus carota</i>	Wild carrot	Herbaceous
	<i>Daucus pusillus</i>	rattlesnake weed	Herbaceous
ASTERACEAE		Italian thistle	Herbaceous
	<i>Carduus pycnocephalus</i>		
	<i>Baccharis pilularis</i>	Coyote bush	Shrub
	<i>Centaurea solstitialis</i>	Yellow star thistle	Herbaceous
	<i>Cichorium intybus</i>	Chicory	Herbaceous
	<i>Cirsium vulgare</i>	Bull thistle	Herbaceous
	<i>Crepis capillaris</i>	Hawks beard	Herbaceous
	<i>Hypochaeris radicata</i>	Cat's ear	Herbaceous
	<i>Lactuca virilis</i>	Bitter lettuce	Herbaceous
	<i>Lactuca virosa</i>	Bitter lettuce	Herbaceous
	<i>Leucanthemum vulgare</i>	Oxeye daisy	Herbaceous
	<i>Logfia filaginoides</i>	california cottonrose	Herbaceous
	<i>Logfia gallica</i>	Narrowleaf cottonrose	Herbaceous
	<i>Madia exigua</i>	Small tarweed	Herbaceous
	<i>Madia gracilis</i>	Grassy tarweed	Herbaceous
	<i>Silybum marianum</i>	Milk thistle	Herbaceous
		<i>Sonchus asper ssp. asper</i>	Spiny sow's thistle
	<i>Sonchus oleraceus</i>	Sow's thistle	Herbaceous
CARYOPHYLLACEAE	<i>Spergularia rubra</i>	Purple sand spurry	Herbaceous
CONVOLVULACEAE	<i>Convolvulus arvensis</i>	Bindweed	Herbaceous
CUPRESSACEAE	<i>Sequoia sempervirens</i>	Coast redwood	Tree
CYPERACEAE	<i>Carex barbarae</i>	Valley sedge	Grasses and Graminoids
	<i>Carex tumulicola</i>	Split awn sedge	Perennial grasslike herb
DENNSTAEDTIACEAE	<i>Pteridium aquilinum var. pubescens</i>	Western bracken fern	Ferns and Allies
DIPSACACEAE	<i>Dipsacus fullonum</i>	Teasel	Herbaceous
EQUISETACEAE	<i>Equisetum laevigatum</i>	Smooth scouring rush	Fern
FABACEAE	<i>Acmispon americanus var. americanus</i>	American lotus	Herbaceous
	<i>Acmispon parviflorus</i>	Hill lotus	Herbaceous
	<i>Medicago polymorpha</i>	Medic	Herbaceous
	<i>Trifolium dubium</i>	Shamrock clover	Herbaceous
	<i>Trifolium hirtum</i>	Rose clover	Herbaceous
	<i>Trifolium repens</i>	White clover	Herbaceous
	<i>Trifolium subterraneum</i>	Subterranean clover	Annual herb
	<i>Vicia sativa subsp. nigra</i>	Common vetch	Herbaceous
	<i>Vicia tetrasperma</i>	Four seeded vetch	Annual herb
GENTIANACEAE	<i>Zeltnera muehlenbergii</i>	Centaury	Herbaceous
GERANIACEAE	<i>Erodium botrys</i>	Broad leaved filaree	Herbaceous
	<i>Geranium dissectum</i>	Cut leaved geranium	Herbaceous
HYPERICACEAE	<i>Hypericum perforatum</i>	St. John's wort	Herbaceous

IRIDACEAE	<i>Iris germanica</i>	Bearded Iris	Herbaceous
IRIDACEAE	<i>Sisyrinchium bellum</i>	Blue-eyed grass	Herbaceous
JUNCACEAE	<i>Juncus bufonius</i> var. <i>bufonius</i>	Toad rush	Grasses and Graminoids
	<i>Juncus effuses</i> ssp. <i>pacificus</i>	Common rush	Grasses and Graminoids
	<i>Juncus patens</i>	Grey rush	Grasses and Graminoids
LAMIACEAE	<i>Mentha pulegium</i>	Pennyroyal	Herbaceous
	<i>Prunella vulgaris</i> ssp. <i>vulgaris</i>	Self-heal	Herbaceous
	<i>Stachys rigida</i> var. <i>quercetorum</i>	Rough hedgenettle	Herbaceous
LINACEAE	<i>Linum bienne</i>	Pale flax	Herbaceous
LYTHRACEAE	<i>Lythrum hyssopifolia</i>	Hyssop loosestrife	Herbaceous
ONAGRACEAE	<i>Clarkia purpurea</i>	Winecup clarkia	Herbaceous
	<i>Epilobium ciliatum</i> ssp. <i>ciliatum</i>	Willow herb	Herbaceous
PAPAVERACEAE	<i>Eschscholzia californica</i>	California poppy	Herbaceous
PLANTAGINACEAE	<i>Plantago lanceolata</i>	English plantain	Herbaceous
	<i>Veronica serpyllifolia</i> ssp. <i>humifusa</i>	Bright Blue speedwell	Herbaceous
POACEAE	<i>Agrostis capillaris</i>	Colonial bentgrass	Grasses and Graminoids
	<i>Aira caryophyllea</i>	Silver hairgrass	Grasses and Graminoids
	<i>Anthoxanthum odoratum</i>	Sweet vernal grass	Grasses and Graminoids
	<i>Arrhenatherum elatius</i>	Tall Oatgrass	Grasses and Graminoids
	<i>Avena barbata</i>	Wild Oats	Grasses and Graminoids
	<i>Briza maxima</i>	Rattlesnake grass	Grasses and Graminoids
	<i>Bromus diandrus</i>	Rip gut brome	Grasses and Graminoids
	<i>Bromus madritensis</i> ssp. <i>rubens</i>	Foxtail brome	Grasses and Graminoids
	<i>Bromus racemosa</i>	Smooth brome	Grasses and Graminoids
	<i>Bromus sterilis</i>	Poverty Brome	Grasses and Graminoids
	<i>Cynodon dactylon</i>	Burmuda Grass	Grasses and Graminoids
	<i>Cynosurus echinatus</i>	Hedgehog dogtail grass	Grasses and Graminoids
	<i>Dactylis glomerata</i>	Orchard grass	Grasses and Graminoids
	<i>Danthonia californica</i>	California oat grass	Grasses and Graminoids
	<i>Deschampsia elongata</i>	Hairgrass	Grasses and Graminoids
	<i>Elymus caput-medusae</i>	Medusa Head	Herbaceous
	<i>Elymus glaucus</i>	Blue wild rye	Grasses and Graminoids
	<i>Festuca arundinacea</i>	Tall fescue	Grasses and Graminoids
	<i>Festuca myuros</i>	Sixweeks grass	Grasses and Graminoids
	<i>Festuca perennis</i>	Italian Rye	Grasses and Graminoids
	<i>Holcus lanatus</i>	Purple velvet grass	Grasses and Graminoids
	<i>Hordeum marinum</i>	Seaside Barley	Herbaceous
	<i>Hordeum murinum</i> ssp. <i>leporinum</i>	Barley	Herbaceous
	<i>Poa trivialis</i>	Rough blue grass	Perennial grass
POLYGONACEAE	<i>Polygonum aviculare</i>	Prostrate knotweed	Herbaceous
	<i>Rumex acetosella</i>	Sheep sorrel	Herbaceous

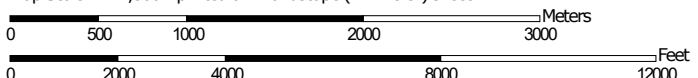
	<i>Rumex pulcher</i>	Fiddle dock	Herbaceous
ROSACEAE	<i>Rosa rubiginosa</i>	Sweet Briar	Shrub
	<i>Rubus armeniacus</i>	Himalayan blackberry	Shrub
	<i>Rubus ursinus</i>	California blackberry	Shrub
SAPINDACEAE	<i>Acer macrophyllum</i>	Bigleaf maple	Tree
THEMIDACEAE	<i>Brodiaea elegans ssp. elegans</i>	Harvest Brodiaea	Herbaceous
VERBENACEAE	<i>Verbena lasiostachys</i>	Western vervain	Herbaceous

Appendix C: NRCS Soil Map NRCS 2020

Soil Map—Humboldt County, South Part, California
(Rolling meadows)



Map Scale: 1:42,800 if printed on A landscape (11" x 8.5") sheet.




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



Soil Map—Humboldt County, South Part, California
(Rolling meadows)

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.

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, South Part, California
Survey Area Data: Version 8, Sep 17, 2019

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

Date(s) aerial images were photographed: Dec 31, 2009—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
100	Water and Fluvents, 0 to 2 percent slopes	316.2	4.0%
101	Typic Udifluvents-Fluvents complex, 0 to 2 percent slopes	27.4	0.3%
143	Shivelyflat, 0 to 2 percent slopes	48.2	0.6%
151	Parkland-Garberville complex, 2 to 9 percent slopes	35.8	0.5%
179	Eelriver and Cottoneva soils, 0 to 2 percent slopes	22.3	0.3%
183	Battery, 2 to 15 percent slopes	15.9	0.2%
402	Tannin-Wohly-Rockyglen complex, 50 to 75 percent slopes	183.9	2.3%
405	Tannin-Wohly-Rockyglen complex, 30 to 50 percent slopes	1,065.1	13.5%
407	Tannin-Wohly complex, 9 to 30 percent slopes	264.3	3.3%
410	Rockyglen-Hollowtree-Rock outcrop complex, 50 to 100 percent slopes	151.4	1.9%
451	Burgsblock-Coolyork-Tannin complex, 15 to 30 percent slopes	38.9	0.5%
452	Burgsblock-Coolyork-Tannin complex, 30 to 50 percent slopes	641.7	8.1%
469	Tannin-Burgsblock-Rockyglen complex, 50 to 75 percent slopes	6.0	0.1%
512	Redwoodhouse-Yagercreek-Mailridge complex, 15 to 30 percent slopes	219.4	2.8%
513	Redwoodhouse-Yagercreek-Mailridge complex, 30 to 50 percent slopes	497.6	6.3%
514	Redwoodhouse-Yagercreek-Mailridge complex, 50 to 75 percent slopes	252.7	3.2%
570	Sproulsh-Canoecreek-Redwohly complex, 15 to 30 percent slopes	305.3	3.9%
571	Sproulsh-Canoecreek-Redwohly complex, 30 to 50 percent slopes	370.2	4.7%

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
572	Canoecreek-Sproulish-Redwohly complex, 50 to 75 percent slopes	308.8	3.9%
573	Sproulish-Canoecreek-Redwohly complex, 15 to 30 percent slopes, warm	621.6	7.9%
574	Sproulish-Canoecreek-Redwohly complex, 30 to 50 percent slopes, warm	834.4	10.5%
575	Canoecreek-Sproulish-Redwohly complex, 50 to 75 percent slopes, warm	946.7	12.0%
643	Windynip-Rainbear complex, 15 to 50 percent slopes	68.9	0.9%
646	Wirefence-Windynip-Devilshole complex, 5 to 30 percent slopes	45.6	0.6%
655	Yorknorth-Witherell complex, 15 to 30 percent slopes	148.3	1.9%
657	Yorknorth-Witherell complex, 2 to 15 percent slopes	8.0	0.1%
662	Yorknorth-Witherell complex, 30 to 50 percent slopes	175.3	2.2%
663	Yorknorth-Windynip complex, 15 to 50 percent slopes	161.5	2.0%
667	Dryfield-Yorknorth-Witherell complex, 5 to 30 percent slopes	99.3	1.3%
668	Dryfield-Yorknorth-Witherell complex, 30 to 50 percent slopes	37.0	0.5%
Totals for Area of Interest		7,917.7	100.0%

Appendix D: USACE Wetland Data Sheets

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project/Site: Rolling Meadows - lower terrace City/County: Humboldt Sampling Date: 4-27-2020
 Applicant/Owner: _____ State: CA Sampling Point: P1(009)
 Investigator(s): CB/JJ Section, Township, Range: _____
 Landform (hillslope, terrace, etc.): terrace Local relief (concave, convex, none): none Slope (%): 22
 Subregion (LRR): A Lat: 40.31821 Long: 123.79955 Datum: NAD83
 Soil Map Unit Name: 663 NWI classification: none

Are climatic / hydrologic conditions on the site typical for this time of year? Yes _____ No X (If no, explain in Remarks.) *
 Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes X No _____
 Are Vegetation X, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes <u>X</u> No _____ Hydric Soil Present? Yes _____ No <u>X</u> Wetland Hydrology Present? Yes _____ No <u>X</u>	Is the Sampled Area within a Wetland? Yes _____ No <u>X</u>
Remarks: <u>dominated by invasive shrub, FAC dominant</u> <u>* - Record Drought</u> <u>aren sampled within range</u>	

VEGETATION – Use scientific names of plants.

Rubus arm. patches west side of survey area

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	
1. _____				
2. _____				
3. _____				
4. _____				
_____ = Total Cover				
Sapling/Shrub Stratum (Plot size: <u>1m²</u>)	Absolute % Cover	Dominant Species?	Indicator Status	
1. <u>Rubus armeniacus</u>	<u>70</u>	<u>X</u>	<u>FAC</u>	
2. _____				
3. _____				
4. _____				
5. _____				
_____ = Total Cover				
Herb Stratum (Plot size: <u>1m²</u>)	Absolute % Cover	Dominant Species?	Indicator Status	
1. <u>Vicia tetrasperma</u>	<u>41</u>		<u>UPL</u>	
2. <u>Equisetum laevigatum</u>	<u>1</u>	<u>X</u>	<u>FACW</u>	
3. <u>Carex c. l. tunicata</u>	<u>1</u>	<u>Y</u>	<u>FACU</u>	
4. <u>Holcus lanatus</u>	<u>1</u>			
5. <u>Cirsium arvense</u>	<u>1</u>			
6. <u>Compositae. arvensis</u>	<u>1</u>			
7. <u>Trifolium repens</u>	<u>1</u>			
8. <u>Poa sp (trivialis)</u>	<u>5</u>	<u>Y</u>	<u>FAC</u>	
9. _____				
10. _____				
11. _____				
_____ = Total Cover				
Woody Vine Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	
1. _____				
2. _____				
_____ = Total Cover				
% Bare Ground in Herb Stratum <u>10</u>				
Remarks: _____				Hydrophytic Vegetation Present? Yes <u>X</u> No _____

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 3 (A)

Total Number of Dominant Species Across All Strata: 4 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 75 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species _____	x 1 = _____
FACW species _____	x 2 = _____
FAC species _____	x 3 = _____
FACU species _____	x 4 = _____
UPL species _____	x 5 = _____
Column Totals: _____ (A)	_____ (B)
Prevalence Index = B/A = _____	

Hydrophytic Vegetation Indicators:

____ 1 - Rapid Test for Hydrophytic Vegetation

X 2 - Dominance Test is >50%

____ 3 - Prevalence Index is ≤3.0¹

____ 4 - Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)

____ 5 - Wetland Non-Vascular Plants¹

____ Problematic Hydrophytic Vegetation¹ (Explain)

¹Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

SOIL

Sampling Point: 1 (009)

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-4	10YR 3/2	100%					Clay loam	Roots, gravel
4-13	10YR 3/2	75	10YR 5/6	41	C	M		redox ↓ questionable - appears like sandstone
	10YR 5/6	5						* chunks of sandstone
	10YR 5/8	5						* chunks of sandstone
	10YR 6/1	5						* chunks of rock
	10YR 5/2	5						* "

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. ²Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

<input type="checkbox"/> Histosol (A1)	<input type="checkbox"/> Sandy Redox (S5)	<input type="checkbox"/> 2 cm Muck (A10)
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Stripped Matrix (S6)	<input type="checkbox"/> Red Parent Material (TF2)
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Loamy Mucky Mineral (F1) (except MLRA 1)	<input type="checkbox"/> Very Shallow Dark Surface (TF12)
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Loamy Gleyed Matrix (F2)	<input type="checkbox"/> Other (Explain in Remarks)
<input type="checkbox"/> Depleted Below Dark Surface (A11)	<input type="checkbox"/> Depleted Matrix (F3)	
<input type="checkbox"/> Thick Dark Surface (A12)	<input type="checkbox"/> Redox Dark Surface (F6)	³ Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.
<input type="checkbox"/> Sandy Mucky Mineral (S1)	<input type="checkbox"/> Depleted Dark Surface (F7)	
<input type="checkbox"/> Sandy Gleyed Matrix (S4)	<input type="checkbox"/> Redox Depressions (F8)	

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes _____ No X

Remarks:

4-13

disturbance
inclusion
large
chunks

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)		Secondary Indicators (2 or more required)
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Water-Stained Leaves (B9) (except MLRA 1, 2, 4A, and 4B)	<input type="checkbox"/> Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Salt Crust (B11)	<input type="checkbox"/> Drainage Patterns (B10)
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Aquatic Invertebrates (B13)	<input type="checkbox"/> Dry-Season Water Table (C2)
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)	<input type="checkbox"/> Geomorphic Position (D2)
<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Shallow Aquitard (D3)
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)	<input type="checkbox"/> FAC-Neutral Test (D5)
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Stunted or Stressed Plants (D1) (LRR A)	<input type="checkbox"/> Raised Ant Mounds (D6) (LRR A)
<input type="checkbox"/> Surface Soil Cracks (B6)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> Frost-Heave Hummocks (D7)
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)		
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)		

Field Observations:

Surface Water Present? Yes _____ No X Depth (inches): _____

Water Table Present? Yes _____ No X Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes _____ No X Depth (inches): _____

Wetland Hydrology Present? Yes _____ No X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: 13 inch hole, waited 40 min for water table

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project/Site: Rolling Meadows Lower terrace City/County: Humboldt Sampling Date: 4-27-2020
 Applicant/Owner: _____ State: CA Sampling Point: P2 (011)
 Investigator(s): CB/JJ Section, Township, Range: _____
 Landform (hillslope, terrace, etc.): terrace Local relief (concave, convex, none): _____ Slope (%): 22%
 Subregion (LRR): A Lat: 40.31823 Long: -123.79942 Datum: NAD83
 Soil Map Unit Name: 663 NWI classification: NOAR
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes _____ No X (If no, explain in Remarks. ★)
 Are Vegetation N, Soil N, or Hydrology N significantly disturbed? Are "Normal Circumstances" present? Yes X No _____
 Are Vegetation N, Soil N, or Hydrology N naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes <u>(X)</u>	No _____	Is the Sampled Area within a Wetland?	Yes _____	No <u>(X)</u>
Hydric Soil Present?	Yes _____	No <u>(X)</u>			
Wetland Hydrology Present?	Yes _____	No <u>(X)</u>			
Remarks:	<u>★ see plot 1</u>				

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:	
1. _____	_____	_____	_____	Number of Dominant Species That Are OBL, FACW, or FAC:	<u>2</u> (A)
2. _____	_____	_____	_____	Total Number of Dominant Species Across All Strata:	<u>2</u> (B)
3. _____	_____	_____	_____	Percent of Dominant Species That Are OBL, FACW, or FAC:	<u>100</u> (A/B)
4. _____	_____	_____	_____	= Total Cover	
_____ = Total Cover				Prevalence Index worksheet:	
Sapling/Shrub Stratum (Plot size: _____)				Total % Cover of:	Multiply by:
1. _____	_____	_____	_____	OBL species _____	x 1 = _____
2. _____	_____	_____	_____	FACW species _____	x 2 = _____
3. _____	_____	_____	_____	FAC species _____	x 3 = _____
4. _____	_____	_____	_____	FACU species _____	x 4 = _____
5. _____	_____	_____	_____	UPL species _____	x 5 = _____
_____ = Total Cover				Column Totals:	_____ (A) _____ (B)
Herb Stratum (Plot size: <u>1m²</u>)				Prevalence Index = B/A = _____	
1. <u>Trifolium repens</u>	<u>45</u>	<u>Y</u>	<u>FAC</u>	Hydrophytic Vegetation Indicators:	
2. <u>Daucus carota</u>	<u>3</u>	_____	_____	_____ 1 - Rapid Test for Hydrophytic Vegetation	
3. <u>Equisetum laevigatum</u>	<u>21</u>	_____	_____	<u>X</u> 2 - Dominance Test is >50%	
4. <u>Poa sp</u>	<u>30</u>	<u>Y</u>	<u>FAC</u>	_____ 3 - Prevalence Index is ≤3.0 ¹	
5. <u>Convolvulus arvensis</u>	<u>21</u>	_____	_____	_____ 4 - Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet)	
6. <u>Briiza maxima</u>	<u>21</u>	_____	_____	_____ 5 - Wetland Non-Vascular Plants ¹	
7. <u>medicago/black'?</u>	<u>21</u>	_____	_____	_____ Problematic Hydrophytic Vegetation ¹ (Explain)	
8. <u>vicia sativa</u>	<u>21</u>	_____	_____	¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.	
9. _____	_____	_____	_____		
10. _____	_____	_____	_____		
11. _____	_____	_____	_____		
_____ = Total Cover					
Woody Vine Stratum (Plot size: _____)				Hydrophytic Vegetation Present?	
1. _____	_____	_____	_____	Yes <u>(X)</u>	No _____
2. _____	_____	_____	_____		
_____ = Total Cover					
% Bare Ground in Herb Stratum <u>25</u>					
Remarks: <u>★ FAC Dominant</u>					

SOIL

Sampling Point: 2(011)

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-2	10YR 3/2	98	10YR 5/8	1	C	PL	Clayloam	root!
2-4	10YR 3/2	99	10YR 6/8	4	C	PL		
4-14	10YR 3/2	94						
	10YR 5/8	2						sandstone inclusion 5cm!!
	10YR 6/1	2						ROCKS
	10YR 5/2	2						ROCK

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. ²Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

<input type="checkbox"/> Histosol (A1)	<input type="checkbox"/> Sandy Redox (S5)	<input type="checkbox"/> 2 cm Muck (A10)
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Stripped Matrix (S6)	<input type="checkbox"/> Red Parent Material (TF2)
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Loamy Mucky Mineral (F1) (except MLRA 1)	<input type="checkbox"/> Very Shallow Dark Surface (TF12)
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Loamy Gleyed Matrix (F2)	<input type="checkbox"/> Other (Explain in Remarks)
<input type="checkbox"/> Depleted Below Dark Surface (A11)	<input type="checkbox"/> Depleted Matrix (F3)	
<input type="checkbox"/> Thick Dark Surface (A12)	<input type="checkbox"/> Redox Dark Surface (F6)	³ Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.
<input type="checkbox"/> Sandy Mucky Mineral (S1)	<input type="checkbox"/> Depleted Dark Surface (F7)	
<input type="checkbox"/> Sandy Gleyed Matrix (S4)	<input type="checkbox"/> Redox Depressions (F8)	

Restrictive Layer (if present):
 Type: _____
 Depth (inches): _____

Hydric Soil Present? Yes _____ No X

Remarks: soil dry

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)		Secondary Indicators (2 or more required)
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Water-Stained Leaves (B9) (except MLRA 1, 2, 4A, and 4B)	<input type="checkbox"/> Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Salt Crust (B11)	<input type="checkbox"/> Drainage Patterns (B10)
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Aquatic Invertebrates (B13)	<input type="checkbox"/> Dry-Season Water Table (C2)
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)
<input type="checkbox"/> Sediment Deposits (B2)	<input checked="" type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)	<input type="checkbox"/> Geomorphic Position (D2)
<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Shallow Aquitard (D3)
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)	<input type="checkbox"/> FAC-Neutral Test (D5)
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Stunted or Stressed Plants (D1) (LRR A)	<input type="checkbox"/> Raised Ant Mounds (D6) (LRR A)
<input type="checkbox"/> Surface Soil Cracks (B6)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> Frost-Heave Hummocks (D7)
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)		
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)		

Field Observations:

Surface Water Present?	Yes _____ No <u>X</u>	Depth (inches): _____	Wetland Hydrology Present? Yes _____ No <u>X</u>
Water Table Present?	Yes _____ No <u>X</u>	Depth (inches): _____	
Saturation Present? (includes capillary fringe)	Yes _____ No <u>X</u>	Depth (inches): _____	
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:			

Remarks: waited 20 min for water table

* TAKEN @ 21⁺M

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project/Site: Rolling Meadows City/County: Humboldt Sampling Date: 4/27/2020
 Applicant/Owner: _____ State: CA Sampling Point: P3 (669)
 Investigator(s): Jenell Jackson & (AIME BROWN) Section, Township, Range: _____
 Landform (hillslope, terrace, etc.): terrace Local relief (concave, convex, none): _____ Slope (%): <2%
 Subregion (LRR): A Lat: 40.31623 Long: 123.79926 Datum: NAD83
 Soil Map Unit Name: 663 NWI classification: none
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes _____ No X (If no, explain in Remarks.)
 Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes X No _____
 Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes <u>X</u> No _____	Hydic Soil Present? Yes _____ No <u>X</u>	Is the Sampled Area within a Wetland? Yes _____ No <u>X</u>
Wetland Hydrology Present? Yes _____ No <u>X</u>		
Remarks: <u>Recent Drought</u>		

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:
1. _____				Number of Dominant Species That Are OBL, FACW, or FAC: <u>2</u> (A)
2. _____				Total Number of Dominant Species Across All Strata: <u>2</u> (B)
3. _____				Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100%</u> (A/B)
4. _____				
_____ = Total Cover				Prevalence Index worksheet:
Sapling/Shrub Stratum (Plot size: _____)				Total % Cover of: _____ Multiply by: _____
1. _____				OBL species _____ x 1 = _____
2. _____				FACW species _____ x 2 = _____
3. _____				FAC species _____ x 3 = _____
4. _____				FACU species _____ x 4 = _____
5. _____				UPL species _____ x 5 = _____
_____ = Total Cover				Column Totals: _____ (A) _____ (B)
Herb Stratum (Plot size: <u>1m x 1m</u>)				Prevalence Index = B/A = _____
1. <u>Triticum repens</u>	<u>20</u>	<u>X</u>	<u>FAC</u>	Hydrophytic Vegetation Indicators: _____ 1 - Rapid Test for Hydrophytic Vegetation <input checked="" type="checkbox"/> 2 - Dominance Test is >50% _____ 3 - Prevalence Index is ≤3.0 ¹ _____ 4 - Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) _____ 5 - Wetland Non-Vascular Plants ¹ _____ Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
2. <u>Equisetum laevigatum</u>	<u>1</u>		<u>FACW</u>	
3. <u>Poa trivialis</u>	<u>30</u>	<u>X</u>	<u>FAC</u>	
4. <u>BRIZA minor</u>	<u>1</u>		<u>FAC</u>	
5. <u>Mentha arvensis</u>	<u>2</u>		<u>OBL</u>	
6. <u>Convolvulus arvensis</u>	<u>1</u>		<u>UPL</u>	
7. <u>Geranium sp. dissectum</u>	<u>1</u>		<u>UPL</u>	
8. <u>Plantago lanceolata</u>	<u>1</u>		<u>FACU</u>	
9. <u>Rumex sp. (?)</u>	<u>1</u>		<u>—</u>	
10. <u>Daucus carota</u>	<u><1</u>		<u>FACU</u>	
11. _____				
_____ = Total Cover <u>28.5%</u>				
Woody Vine Stratum (Plot size: _____)				Hydrophytic Vegetation Present? Yes <u>X</u> No _____
1. _____				
2. _____				
_____ = Total Cover <u>43</u>				
% Bare Ground in Herb Stratum _____				
Remarks: _____				

SOIL

Sampling Point: P3(069)

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
1-6	10YR 3/2	100					CLAY LOAM	roots
6-12	10YR 3/2	99	10YR 8/4	<1%	C	M	CLAY LOAM	ROCKS PRESENT
12-18								

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. ²Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

Indicators for Problematic Hydric Soils³:

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Sandy Mucky Mineral (S1)
- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Loamy Mucky Mineral (F1) (except MLRA 1)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)

- 2 cm Muck (A10)
- Red Parent Material (TF2)
- Very Shallow Dark Surface (TF12)
- Other (Explain in Remarks)

³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____
Depth (inches): _____

Hydric Soil Present? Yes _____ No X

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)		Secondary Indicators (2 or more required)
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Water-Stained Leaves (B9) (except MLRA 1, 2, 4A, and 4B)	<input type="checkbox"/> Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Salt Crust (B11)	<input type="checkbox"/> Drainage Patterns (B10)
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Aquatic Invertebrates (B13)	<input type="checkbox"/> Dry-Season Water Table (C2)
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)	<input type="checkbox"/> Geomorphic Position (D2)
<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Shallow Aquitard (D3)
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)	<input type="checkbox"/> FAC-Neutral Test (D5)
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Stunted or Stressed Plants (D1) (LRR A)	<input type="checkbox"/> Raised Ant Mounds (D6) (LRR A)
<input type="checkbox"/> Surface Soil Cracks (B6)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> Frost-Heave Hummocks (D7)
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)		
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)		

Field Observations:

Surface Water Present? Yes _____ No X Depth (inches): _____
 Water Table Present? Yes _____ No X Depth (inches): _____
 Saturation Present? (includes capillary fringe) Yes _____ No X Depth (inches): _____

Wetland Hydrology Present? Yes _____ No X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project/Site: Rolling Meadows lower terrace City/County: Humboldt Sampling Date: 4-27-2009
 Applicant/Owner: _____ State: CA Sampling Point: PL(012)
 Investigator(s): CB/JJ Section, Township, Range: _____
 Landform (hillslope, terrace, etc.): terrace Local relief (concave, convex, none): none Slope (%): 42
 Subregion (LRR): A Lat: 40.31820 Long: -123.79917 Datum: NAD83
 Soil Map Unit Name: 663 NWI classification: _____
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes _____ No X (If no, explain in Remarks.)
 Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes X No _____
 Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes <u>X</u> No _____ Hydric Soil Present? Yes <u>X</u> No _____ Wetland Hydrology Present? Yes <u>X</u> No _____	Is the Sampled Area within a Wetland? Yes <u>X</u> No _____
Remarks: <u>see p 1</u>	

VEGETATION – Use scientific names of plants.

Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:
<u>Tree Stratum</u> (Plot size: _____)				Number of Dominant Species That Are OBL, FACW, or FAC: <u>2</u> (A)
1. _____				Total Number of Dominant Species Across All Strata: <u>2</u> (B)
2. _____				Percent of Dominant Species That Are OBL, FACW, or FAC: _____ (AVB)
3. _____				Prevalence Index worksheet: Total % Cover of: _____ Multiply by: OBL species _____ x 1 = _____ FACW species _____ x 2 = _____ FAC species _____ x 3 = _____ FACU species _____ x 4 = _____ UPL species _____ x 5 = _____ Column Totals: _____ (A) _____ (B) Prevalence Index = B/A = _____
4. _____				
_____ = Total Cover				
<u>Sapling/Shrub Stratum</u> (Plot size: _____)				
1. _____				
2. _____				
3. _____				
4. _____				
5. _____				
_____ = Total Cover				
<u>Herb Stratum</u> (Plot size: <u>1m²</u>)				Hydrophytic Vegetation Indicators: ___ 1 - Rapid Test for Hydrophytic Vegetation <u>X</u> 2 - Dominance Test is >50% ___ 3 - Prevalence Index is ≤3.0 ¹ ___ 4 - Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) ___ 5 - Wetland Non-Vascular Plants ¹ ___ Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
1. <u>Mentha pulegium</u>	<u>20</u>	<u>OX</u>	<u>OBL</u>	
2. <u>Convolvulus arvensis</u>	<u>2</u>			
3. <u>Holcus lanatus</u>	<u>1</u>			
4. <u>Poa trivialis</u>	<u>25</u>	<u>X</u>	<u>FAC</u>	
5. <u>Geranium dissectum</u>	<u>41</u>			
6. <u>Vicia tetrasperma</u>	<u>41</u>			
7. <u>Equisetum laevigatum</u>	<u>1</u>			
8. <u>Rumex sp.</u>	<u>41</u>			
9. _____				
10. _____				
11. _____				
_____ = Total Cover	<u>49</u>			
<u>Woody Vine Stratum</u> (Plot size: _____)				Hydrophytic Vegetation Present? Yes <u>X</u> No _____
1. _____				
2. _____				
_____ = Total Cover				
% Bare Ground in Herb Stratum <u>51</u>				
Remarks: _____				

SOIL

Sampling Point: 4

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-5	10YR 3/2	94	7.5YR 5/8	5	C	PL	clay loam	
			7.5YR 5/8	1	C	M		
5-18	10YR 4/1	93	10YR 5/8	2	C	PL	silt loam	
			10YR 4/6	2	C	M		
			10YR 4/6	3	C	PL		

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. ²Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

<input type="checkbox"/> Histosol (A1)	<input type="checkbox"/> Sandy Redox (S5)	Indicators for Problematic Hydric Soils³:	
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Stripped Matrix (S6)		<input type="checkbox"/> 2 cm Muck (A10)
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Loamy Mucky Mineral (F1) (except MLRA 1)		<input type="checkbox"/> Red Parent Material (TF2)
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Loamy Gleyed Matrix (F2)		<input type="checkbox"/> Very Shallow Dark Surface (TF12)
<input type="checkbox"/> Depleted Below Dark Surface (A11)	<input checked="" type="checkbox"/> Depleted Matrix (F3)		<input type="checkbox"/> Other (Explain in Remarks)
<input type="checkbox"/> Thick Dark Surface (A12)	<input checked="" type="checkbox"/> Redox Dark Surface (F6)		
<input type="checkbox"/> Sandy Mucky Mineral (S1)	<input type="checkbox"/> Depleted Dark Surface (F7)		
<input type="checkbox"/> Sandy Gleyed Matrix (S4)	<input type="checkbox"/> Redox Depressions (F8)		

³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes No

Remarks: Soil damp below 7"

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)		Secondary Indicators (2 or more required)
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Water-Stained Leaves (B9) (except MLRA 1, 2, 4A, and 4B)	<input type="checkbox"/> Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Salt Crust (B11)	<input type="checkbox"/> Drainage Patterns (B10)
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Aquatic Invertebrates (B13)	<input type="checkbox"/> Dry-Season Water Table (C2)
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)
<input type="checkbox"/> Sediment Deposits (B2)	<input checked="" type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)	<input type="checkbox"/> Geomorphic Position (D2)
<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Shallow Aquitard (D3)
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)	<input type="checkbox"/> FAC-Neutral Test (D5)
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Stunted or Stressed Plants (D1) (LRR A)	<input type="checkbox"/> Raised Ant Mounds (D6) (LRR A)
<input type="checkbox"/> Surface Soil Cracks (B6)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> Frost-Heave Hummocks (D7)
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)		
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)		

Field Observations:

Surface Water Present? Yes No Depth (inches): _____

Water Table Present? Yes No Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes No Depth (inches): _____

Wetland Hydrology Present? Yes No

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: waited 30 min for water

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project/Site: Rolling Meadows City/County: Humboldt State: CA Sampling Date: 4/27/2020
 Applicant/Owner: _____ Sampling Point: P5 (070)
 Investigator(s): Jenell Jackson Section, Township, Range: _____
 Landform (hillslope, terrace, etc.): terrace Local relief (concave, convex, none): none Slope (%): <2%
 Subregion (LRR): A Lat: _____ Long: _____ Datum: NAD 83
 Soil Map Unit Name: 663 NWI classification: none
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes _____ No X (If no, explain in Remarks.)
 Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes X No _____
 Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes <u>X</u> No _____ Hydric Soil Present? Yes <u>X</u> No _____ Wetland Hydrology Present? Yes <u>X</u> No _____	Is the Sampled Area within a Wetland? Yes <u>X</u> No _____
Remarks:	

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:
1. _____	_____	_____	_____	Number of Dominant Species That Are OBL, FACW, or FAC: <u>2</u> (A)
2. _____	_____	_____	_____	Total Number of Dominant Species Across All Strata: <u>2</u> (B)
3. _____	_____	_____	_____	Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100%</u> (A/B)
4. _____	_____	_____	_____	Prevalence Index worksheet:
_____ = Total Cover				
Sapling/Shrub Stratum (Plot size: _____)				OBL species _____ x 1 = _____
1. _____	_____	_____	_____	FACW species _____ x 2 = _____
2. _____	_____	_____	_____	FAC species _____ x 3 = _____
3. _____	_____	_____	_____	FACU species _____ x 4 = _____
4. _____	_____	_____	_____	UPL species _____ x 5 = _____
5. _____	_____	_____	_____	Column Totals: _____ (A) _____ (B)
_____ = Total Cover				Prevalence Index = B/A = _____
Herb Stratum (Plot size: _____)				Hydrophytic Vegetation Indicators:
1. <u>Poa trivialis</u>	<u>30</u>	<u>X</u>	<u>FAC</u>	<input checked="" type="checkbox"/> 1 - Rapid Test for Hydrophytic Vegetation
2. <u>Tritolium repens</u>	<u>25</u>	<u>X</u>	<u>FAC</u>	<input checked="" type="checkbox"/> 2 - Dominance Test is >50%
3. <u>Involvulus arvensis</u>	<u><1</u>	_____	_____	_____ 3 - Prevalence Index is ≤3.0 ¹
4. <u>Rumex sp.</u>	<u><1</u>	_____	_____	_____ 4 - Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet)
5. <u>Paucus carota</u>	<u><1</u>	_____	_____	_____ 5 - Wetland Non-Vascular Plants ¹
6. <u>Equisetum laevigatum</u>	<u><1</u>	_____	_____	_____ Problematic Hydrophytic Vegetation ¹ (Explain)
7. _____	_____	_____	_____	¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
8. _____	_____	_____	_____	Hydrophytic Vegetation Present? Yes <u>X</u> No _____
9. _____	_____	_____	_____	
10. _____	_____	_____	_____	Remarks:
11. _____	_____	_____	_____	
Woody Vine Stratum (Plot size: _____)				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
<u>15</u> = Total Cover				
% Bare Ground in Herb Stratum <u>15</u>				
<u>70</u> = Total Cover				

SOIL

Sampling Point: P5 (070)

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
1-7	10 YR 3/1	98	5 YR 5/2	2	C	P	CLAY LOAM	SOME SMALL ROCKS
7-12	10 YR 3/1	97	7 YR 5/3	3	C	P	SILT LOAM	

SOIL DEV

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. ²Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

Indicators for Problematic Hydric Soils³:

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Sandy Mucky Mineral (S1)
- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Loamy Mucky Mineral (F1) (except MLRA 1)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)

- 2 cm Muck (A10)
- Red Parent Material (TF2)
- Very Shallow Dark Surface (TF12)
- Other (Explain in Remarks)

³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____
Depth (inches): _____

Hydric Soil Present? Yes No

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

Secondary Indicators (2 or more required)

- Surface Water (A1)
- High Water Table (A2)
- Saturation (A3)
- Water Marks (B1)
- Sediment Deposits (B2)
- Drift Deposits (B3)
- Algal Mat or Crust (B4)
- Iron Deposits (B5)
- Surface Soil Cracks (B6)
- Inundation Visible on Aerial Imagery (B7)
- Sparsely Vegetated Concave Surface (B8)
- Water-Stained Leaves (B9) (except MLRA 1, 2, 4A, and 4B)
- Salt Crust (B11)
- Aquatic Invertebrates (B13)
- Hydrogen Sulfide Odor (C1)
- Oxidized Rhizospheres along Living Roots (C3)
- Presence of Reduced Iron (C4)
- Recent Iron Reduction in Tilled Soils (C6)
- Stunted or Stressed Plants (D1) (LRR A)
- Other (Explain in Remarks)

- Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)
- Drainage Patterns (B10)
- Dry-Season Water Table (C2)
- Saturation Visible on Aerial Imagery (C9)
- Geomorphic Position (D2)
- Shallow Aquitard (D3)
- FAC-Neutral Test (D5)
- Raised Ant Mounds (D6) (LRR A)
- Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present? Yes No Depth (inches): _____
 Water Table Present? Yes No Depth (inches): _____
 Saturation Present? (includes capillary fringe) Yes No Depth (inches): _____

Wetland Hydrology Present? Yes No

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project/Site: Rolling Meadows Lower terrace City/County: Humboldt Sampling Date: 4-27-2020
 Applicant/Owner: _____ State: CA Sampling Point: 6(013)
 Investigator(s): CB/JJ Section, Township, Range: _____
 Landform (hillslope, terrace, etc.): terrace Local relief (concave, convex, none): none Slope (%): 22
 Subregion (LRR): A Lat: 40.31818 Long: -123.79900 Datum: NAD83
 Soil Map Unit Name: 663 NWI classification: none
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes _____ No X (If no, explain in Remarks.)
 Are Vegetation X, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes X No _____
 Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes _____ No <u>X</u> Hydric Soil Present? Yes <u>X</u> No _____ Wetland Hydrology Present? Yes <u>X</u> No _____	Is the Sampled Area within a Wetland? Yes _____ No <u>X</u>
Remarks: <u>Record Drought</u>	

VEGETATION – Use scientific names of plants.

Stratum	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:
Tree Stratum (Plot size: _____)				Number of Dominant Species That Are OBL, FACW, or FAC: <u>0</u> (A)
1. _____				Total Number of Dominant Species Across All Strata: <u>1</u> (B)
2. _____				Percent of Dominant Species That Are OBL, FACW, or FAC: <u>0</u> (A/B)
3. _____				
4. _____				
_____ = Total Cover				Prevalence Index worksheet:
Sapling/Shrub Stratum (Plot size: _____)				Total % Cover of: _____ Multiply by: _____
1. _____				OBL species <u>0</u> x 1 = _____
2. _____				FACW species <u>0</u> x 2 = _____
3. _____				FAC species <u>10</u> x 3 = <u>30</u>
4. _____				FACU species <u>0</u> x 4 = _____
5. _____				UPL species <u>80</u> x 5 = <u>400</u>
_____ = Total Cover				Column Totals: <u>90</u> (A) <u>430</u> (B)
Herb Stratum (Plot size: _____)				Prevalence Index = B/A = <u>4.7</u>
1. <u>Trifolium subterraneum</u>	<u>80</u>	<u>Y</u>	<u>VPL</u>	Hydrophytic Vegetation Indicators: ___ 1 - Rapid Test for Hydrophytic Vegetation ___ 2 - Dominance Test is >50% ___ 3 - Prevalence Index is ≤3.0 ¹ ___ 4 - Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) ___ 5 - Wetland Non-Vascular Plants ¹ ___ Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
2. <u>Daucus carota</u>	<u>1</u>	<u>N</u>		
3. <u>Convolvulus arvensis</u>	<u>1</u>	<u>N</u>		
4. <u>Poa trivialis</u>	<u>10</u>	<u>N</u>	<u>FAC</u>	
5. _____				
6. _____				
7. _____				
8. _____				
9. _____				
10. _____				
11. _____				
<u>90</u> = Total Cover				Hydrophytic Vegetation Present? Yes _____ No <u>X</u>
Woody Vine Stratum (Plot size: _____)				
1. _____				
2. _____				
_____ = Total Cover				
% Bare Ground in Herb Stratum <u>10</u>				
Remarks: <u>cattle recently grazed this area heavily</u>				

SOIL

Sampling Point: 6

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (Inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-4	10YR 3/2	94	5YR 5/8	6	C	PL	Clayloam	
4-12	10YR 4/1	90	10YR 4/6	5	C	M		
4-12			10YR 4/6	2	C	PL		
4-12			10YR 6/2	1	D	M		
4-12			7.5YR 5/6	1	C	M		
4-12	10YR 5/1	1						*Rocks this color 'inclusions'

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. ²Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

<input type="checkbox"/> Histosol (A1)	<input type="checkbox"/> Sandy Redox (S5)	<input type="checkbox"/> 2 cm Muck (A10)
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Stripped Matrix (S6)	<input type="checkbox"/> Red Parent Material (TF2)
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Loamy Mucky Mineral (F1) (except MLRA 1)	<input type="checkbox"/> Very Shallow Dark Surface (TF12)
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Loamy Gleyed Matrix (F2)	<input type="checkbox"/> Other (Explain in Remarks)
<input type="checkbox"/> Depleted Below Dark Surface (A11)	<input checked="" type="checkbox"/> Depleted Matrix (F3)	
<input type="checkbox"/> Thick Dark Surface (A12)	<input checked="" type="checkbox"/> Redox Dark Surface (F6)	
<input type="checkbox"/> Sandy Mucky Mineral (S1)	<input type="checkbox"/> Depleted Dark Surface (F7)	
<input type="checkbox"/> Sandy Gleyed Matrix (S4)	<input type="checkbox"/> Redox Depressions (F8)	

Indicators for Problematic Hydric Soils³:

³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (Inches): _____

Hydric Soil Present? Yes No

Remarks: plot in obviously graded area

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)	Secondary Indicators (2 or more required)
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Drainage Patterns (B10)
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Aquatic Invertebrates (B13)
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)
<input type="checkbox"/> Drift Deposits (B3)	<input checked="" type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Presence of Reduced Iron (C4)
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)
<input type="checkbox"/> Surface Soil Cracks (B6)	<input type="checkbox"/> Stunted or Stressed Plants (D1) (LRR A)
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Other (Explain in Remarks)
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)	

Field Observations:

Surface Water Present? Yes No Depth (inches): _____

Water Table Present? Yes No Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes No Depth (inches): _____

Wetland Hydrology Present? Yes No

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: waited 20 min for water table

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project/Site: Pollery Meadows City/County: Humboldt Sampling Date: 4/27/2020
 Applicant/Owner: _____ State: CA Sampling Point: P7 (014) CMRCS C-7PS
 Investigator(s): Jennell Jackson Section, Township, Range: _____
 Landform (hillslope, terrace, etc.): _____ Local relief (concave, convex, none): NONE Slope (%): <2
 Subregion (LRR): A Lat: 40.31815 Long: 123.79890 Datum: NAD83
 Soil Map Unit Name: 653 NWI classification: _____

Are climatic / hydrologic conditions on the site typical for this time of year? Yes _____ No X (If no, explain in Remarks.)
 Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes X No _____
 Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes _____	No <u>X</u>	Is the Sampled Area within a Wetland? Yes _____ No <u>X</u>
Hydric Soil Present?	Yes <u>X</u>	No _____	
Wetland Hydrology Present?	Yes <u>X</u>	No _____	
Remarks:			

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:
1. _____	_____	_____	_____	Number of Dominant Species That Are OBL, FACW, or FAC: <u>0</u> (A)
2. _____	_____	_____	_____	Total Number of Dominant Species Across All Strata: <u>1</u> (B)
3. _____	_____	_____	_____	Percent of Dominant Species That Are OBL, FACW, or FAC: <u>0%</u> (A/B)
4. _____	_____	_____	_____	Prevalence Index worksheet: Total % Cover of: _____ Multiply by: OBL species _____ x 1 = _____ FACW species _____ x 2 = _____ FAC species _____ x 3 = _____ FACU species _____ x 4 = _____ UPL species _____ x 5 = _____ Column Totals: _____ (A) _____ (B) Prevalence Index = B/A = _____
_____ = Total Cover				
Sapling/Shrub Stratum (Plot size: _____)				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	_____ = Total Cover
Herb Stratum (Plot size: <u>1m x 1m</u>)				
1. <u>Hordeum maximum</u>	<u>10</u>	_____	_____	Hydrophytic Vegetation Indicators: ___ 1 - Rapid Test for Hydrophytic Vegetation ___ 2 - Dominance Test is >50% ___ 3 - Prevalence Index is ≤3.0 ¹ ___ 4 - Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) ___ 5 - Wetland Non-Vascular Plants ¹ ___ Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
2. <u>Festuca perennis</u>	<u>3</u>	_____	_____	
3. <u>Trifolium subterraneum</u>	<u>45</u>	<u>X</u>	<u>VPL</u>	
4. <u>Daucus carota</u>	<u>1</u>	_____	_____	
5. <u>Festuca binniiodes</u>	<u><1</u>	_____	_____	
6. <u>Bromus racemosus</u>	<u><1</u>	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
9. _____	_____	_____	_____	
10. _____	_____	_____	_____	
11. _____	_____	_____	_____	
<u>49</u> = Total Cover <u>44.5</u>				
Woody Vine Stratum (Plot size: _____)				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
<u>04</u> = Total Cover				
% Bare Ground in Herb Stratum <u>15</u>				
Remarks:				

SOIL

Sampling Point: P7(014)

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
1-5	10YR 2/2	98	5YR 5/8	2%	C	P	SILT LOAM	SOIL DRY
5-12	10YR 2/2	90	7.5YR 1/6	2%	C	M	↓	many forks included
5-12	10YR 4/1	10						many rocks

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. ²Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)		Indicators for Problematic Hydric Soils³:
<input type="checkbox"/> Histosol (A1)	<input type="checkbox"/> Sandy Redox (S5)	<input type="checkbox"/> 2 cm Muck (A10)
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Stripped Matrix (S6)	<input type="checkbox"/> Red Parent Material (TF2)
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Loamy Mucky Mineral (F1) (except MLRA 1)	<input type="checkbox"/> Very Shallow Dark Surface (TF12)
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Loamy Gleyed Matrix (F2)	<input type="checkbox"/> Other (Explain in Remarks)
<input type="checkbox"/> Depleted Below Dark Surface (A11)	<input type="checkbox"/> Depleted Matrix (F3)	
<input type="checkbox"/> Thick Dark Surface (A12)	<input checked="" type="checkbox"/> Redox Dark Surface (F6)	
<input type="checkbox"/> Sandy Mucky Mineral (S1)	<input type="checkbox"/> Depleted Dark Surface (F7)	
<input type="checkbox"/> Sandy Gleyed Matrix (S4)	<input type="checkbox"/> Redox Depressions (F8)	

³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):
 Type: _____
 Depth (inches): _____

Hydric Soil Present? Yes No

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:		
Primary Indicators (minimum of one required; check all that apply)		Secondary Indicators (2 or more required)
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Water-Stained Leaves (B9) (except MLRA 1, 2, 4A, and 4B)	<input type="checkbox"/> Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Salt Crust (B11)	<input type="checkbox"/> Drainage Patterns (B10)
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Aquatic Invertebrates (B13)	<input type="checkbox"/> Dry-Season Water Table (C2)
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)
<input type="checkbox"/> Sediment Deposits (B2)	<input checked="" type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)	<input type="checkbox"/> Geomorphic Position (D2)
<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Shallow Aquitard (D3)
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)	<input type="checkbox"/> FAC-Neutral Test (D5)
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Stunted or Stressed Plants (D1) (LRR A)	<input type="checkbox"/> Raised Ant Mounds (D6) (LRR A)
<input type="checkbox"/> Surface Soil Cracks (B6)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> Frost-Heave Hummocks (D7)
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)		
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)		

Field Observations:

Surface Water Present? Yes _____ No _____ Depth (inches): _____

Water Table Present? Yes _____ No _____ Depth (inches): _____

Saturation Present? Yes _____ No _____ Depth (inches): _____
 (includes capillary fringe)

Wetland Hydrology Present? Yes No

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project/Site: Rolling Meadows lower terrace City/County: Humboldt Sampling Date: 4-27-2020
 Applicant/Owner: _____ State: CA Sampling Point: P8 (016)
 Investigator(s): CB/JS Section, Township, Range: _____
 Landform (hill/slope, terrace, etc.): terrace Local relief (concave, convex, none): none Slope (%): 12
 Subregion (LRR): A Lat: 40.31803 Long: -123.79892 Datum: _____
 Soil Map Unit Name: 663 NWI classification: none

Are climatic / hydrologic conditions on the site typical for this time of year? Yes _____ No X (If no, explain in Remarks.)
 Are Vegetation X, Soil N, or Hydrology N significantly disturbed? Are "Normal Circumstances" present? Yes X No _____
 Are Vegetation N, Soil N, or Hydrology N naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes <u>X</u> No _____	Is the Sampled Area within a Wetland? Yes <u>X</u> No _____
Hydric Soil Present?	Yes <u>X</u> No _____	
Wetland Hydrology Present?	Yes <u>X</u> No _____	
Remarks: <u>Record Drought</u>		

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:
1. _____	_____	_____	_____	Number of Dominant Species That Are OBL, FACW, or FAC: <u>1</u> (A)
2. _____	_____	_____	_____	Total Number of Dominant Species Across All Strata: <u>1</u> (B)
3. _____	_____	_____	_____	Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100</u> (A/B)
4. _____	_____	_____	_____	Prevalence Index worksheet: Total % Cover of: _____ Multiply by: _____ OBL species _____ x 1 = _____ FACW species _____ x 2 = _____ FAC species _____ x 3 = _____ FACU species _____ x 4 = _____ UPL species _____ x 5 = _____ Column Totals: _____ (A) _____ (B) Prevalence Index = B/A = _____
_____ = Total Cover				
Sapling/Shrub Stratum (Plot size: _____)				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
_____ = Total Cover				
Herb Stratum (Plot size: <u>1m²</u>)				
1. <u>Poa trivialis</u>	<u>70</u>	<u>Y</u>	<u>FAC</u>	
2. <u>Daucus carota</u>	<u>5</u>			
3. <u>Equisetum laevigatum</u>	<u>2</u>			
4. <u>Vicia tetrasperma</u>	<u>1</u>			
5. <u>Convolvulus arvensis</u>	<u>2</u>			
6. <u>Bromus c. racemosus</u>	<u>1</u>			
7. <u>Holcus lanatus</u>	<u>1</u>			
8. <u>Germium dissectum</u>	<u>1</u>			
9. _____	_____	_____	_____	
10. _____	_____	_____	_____	
11. _____	_____	_____	_____	
<u>90</u> = Total Cover				
Woody Vine Stratum (Plot size: _____)				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
_____ = Total Cover				
% Bare Ground in Herb Stratum <u>20</u>				
Hydrophytic Vegetation Present? Yes <u>X</u> No _____				
Remarks: <u>* FAC Dominant</u>				

SOIL

Sampling Point: 8

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-6	10YR3/2	94	5YR4/6	3	C	PL	clay loam	lots of roots
			10YR5/8	3	C	M		
6-12	10YR4/1	50	7.5YR4/6	5	C	M		
	10YR3/2	45						

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains.

²Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

Indicators for Problematic Hydric Soils³:

- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Sandy Mucky Mineral (S1)
- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Loamy Mucky Mineral (F1) (except MLRA 1)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)

- 2 cm Muck (A10)
- Red Parent Material (TF2)
- Very Shallow Dark Surface (TF12)
- Other (Explain in Remarks)

³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____
Depth (inches): _____

Hydric Soil Present? Yes No

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

Secondary Indicators (2 or more required)

- Surface Water (A1)
- High Water Table (A2)
- Saturation (A3)
- Water Marks (B1)
- Sediment Deposits (B2)
- Drift Deposits (B3)
- Algal Mat or Crust (B4)
- Iron Deposits (B5)
- Surface Soil Cracks (B6)
- Inundation Visible on Aerial Imagery (B7)
- Sparsely Vegetated Concave Surface (B8)
- Water-Stained Leaves (B9) (except MLRA 1, 2, 4A, and 4B)
- Salt Crust (B11)
- Aquatic Invertebrates (B13)
- Hydrogen Sulfide Odor (C1)
- Oxidized Rhizospheres along Living Roots (C3)
- Presence of Reduced Iron (C4)
- Recent Iron Reduction in Tilled Soils (C6)
- Stunted or Stressed Plants (D1) (LRR A)
- Other (Explain in Remarks)

- Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)
- Drainage Patterns (B10)
- Dry-Season Water Table (C2)
- Saturation Visible on Aerial Imagery (C9)
- Geomorphic Position (D2)
- Shallow Aquitard (D3)
- FAC-Neutral Test (D5)
- Raised Ant Mounds (D6) (LRR A)
- Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present? Yes No Depth (inches): _____
 Water Table Present? Yes No Depth (inches): _____
 Saturation Present? Yes No Depth (inches): _____
 (includes capillary fringe)

Wetland Hydrology Present? Yes No

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

soil moist below 5" but not saturated

F066 plot

JJ 09PS

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project/Site: Rolling Meadows City/County: Humboldt Sampling Date: 4/28/2020
 Applicant/Owner: _____ State: CA Sampling Point: P9 (VP1)
 Investigator(s): Jewell Jackson Section, Township, Range: T2S R3E S2
 Landform (hillslope, terrace, etc.): terrace Local relief (concave, convex, none): none Slope (%): <2%
 Subregion (LRR): A Lat: 40.31829 Long: 123.79890 Datum: NAD83
 Soil Map Unit Name: 663 NWI classification: _____

Are climatic / hydrologic conditions on the site typical for this time of year? Yes _____ No _____ (If no, explain in Remarks.)
 Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes No _____
 Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes <input checked="" type="checkbox"/> No _____	Is the Sampled Area within a Wetland?	Yes <input checked="" type="checkbox"/> No _____
Hydric Soil Present?	Yes <input checked="" type="checkbox"/> No _____		
Wetland Hydrology Present?	Yes <input checked="" type="checkbox"/> No _____		
Remarks: <u>area is a historically graded flat</u>			

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:	
1. _____	_____	_____	_____	Number of Dominant Species That Are OBL, FACW, or FAC:	<u>2</u> (A)
2. _____	_____	_____	_____	Total Number of Dominant Species Across All Strata:	<u>3</u> (B)
3. _____	_____	_____	_____	Percent of Dominant Species That Are OBL, FACW, or FAC:	<u>66%</u> (A/B)
4. _____	_____	_____	_____	= Total Cover _____	
= Total Cover _____				Prevalence Index worksheet:	
Total % Cover of: _____		Multiply by:		_____	
OBL species _____		x 1 = _____		_____	
FACW species _____		x 2 = _____		_____	
FAC species _____		x 3 = _____		_____	
FACU species _____		x 4 = _____		_____	
UPL species _____		x 5 = _____		_____	
Column Totals: _____		(A) _____		(B) _____	
Prevalence Index = B/A = _____				Hydrophytic Vegetation Indicators:	
<input checked="" type="checkbox"/> 1 - Rapid Test for Hydrophytic Vegetation <input checked="" type="checkbox"/> 2 - Dominance Test is >50% <input type="checkbox"/> 3 - Prevalence Index is ≤3.0 ¹ <input type="checkbox"/> 4 - Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) <input type="checkbox"/> 5 - Wetland Non-Vascular Plants ¹ <input type="checkbox"/> Problematic Hydrophytic Vegetation ¹ (Explain)					
¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.					
Herb Stratum (Plot size: _____)				Hydrophytic Vegetation Present?	
1. <u>Trifolium subterraneum</u>	<u>20</u>	<input checked="" type="checkbox"/>	<u>UPL</u>	Yes <input checked="" type="checkbox"/> No _____	
2. <u>Hordeum murinum</u>	<u>8</u>	<input checked="" type="checkbox"/>	<u>FAC</u>		
3. <u>Festuca perennis</u>	<u>11</u>	<input checked="" type="checkbox"/>	<u>FAC</u>		
4. <u>Bromus racemosus</u>	<u>1</u>	_____	_____		
5. <u>Cerastium dissectum</u>	<u>21</u>	_____	_____		
6. <u>Carex humicola</u>	<u><1</u>	_____	_____		
7. <u>Lychnis viscaria</u>	<u><1</u>	_____	_____		
8. <u>Festuca monoides</u>	<u>21</u>	_____	_____		
9. _____	_____	_____	_____		
10. _____	_____	_____	_____		
11. _____	_____	_____	_____		
= Total Cover <u>40</u>				= Total Cover <u>20</u>	
Woody Vine Stratum (Plot size: _____)				= Total Cover <u>66</u>	
1. _____	_____	_____	_____	= Total Cover _____	
2. _____	_____	_____	_____	= Total Cover _____	
% Bare Ground in Herb Stratum _____				= Total Cover _____	
Remarks: _____					

SOIL

Sampling Point: 9

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
1-7	10 YR 3/2	100%	10 YR 7/8	2	C	P	CLAY LOAM	
7-12	10 YR 2/1	10%	10 YR 7/8				CLAY LOAM	many angular rocks
7-12	10 YR 3/2	90%	10 YR 7/8	2	C	M	CLAY LOAM	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. ²Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

Indicators for Problematic Hydric Soils³:

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Sandy Mucky Mineral (S1)
- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Loamy Mucky Mineral (F1) (except MLRA 1)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)

- 2 cm Muck (A10)
- Red Parent Material (TF2)
- Very Shallow Dark Surface (TF12)
- Other (Explain in Remarks)

³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____
Depth (inches): _____

Hydric Soil Present? Yes No

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

Secondary Indicators (2 or more required)

- Surface Water (A1)
- High Water Table (A2)
- Saturation (A3)
- Water Marks (B1)
- Sediment Deposits (B2)
- Drift Deposits (B3)
- Algal Mat or Crust (B4)
- Iron Deposits (B5)
- Surface Soil Cracks (B6)
- Inundation Visible on Aerial Imagery (B7)
- Sparsely Vegetated Concave Surface (B8)
- Water-Stained Leaves (B9) (except MLRA 1, 2, 4A, and 4B)
- Salt Crust (B11)
- Aquatic Invertebrates (B13)
- Hydrogen Sulfide Odor (C1)
- Oxidized Rhizospheres along Living Roots (C3)
- Presence of Reduced Iron (C4)
- Recent Iron Reduction in Tilled Soils (C6)
- Stunted or Stressed Plants (D1) (LRR A)
- Other (Explain in Remarks)

- Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)
- Drainage Patterns (B10)
- Dry-Season Water Table (C2)
- Saturation Visible on Aerial Imagery (C9)
- Geomorphic Position (D2)
- Shallow Aquitard (D3)
- FAC-Neutral Test (D5)
- Raised Ant Mounds (D6) (LRR A)
- Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present? Yes _____ No _____ Depth (inches): _____
Water Table Present? Yes _____ No _____ Depth (inches): _____
Saturation Present? Yes _____ No _____ Depth (inches): _____
(includes capillary fringe)

Wetland Hydrology Present? Yes No

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

SOIL

Sampling Point: 10

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-3	10YR 3/2	95	10YR 5/8	5	C	PL		lots of angular rock
4-12	10YR 3/2	98	10YR 5/8	1	C	M		some rocks light colored, sandstone inclusions present
			10YR 5/8	1	C	PL		

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. ²Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

<input type="checkbox"/> Histosol (A1)	<input type="checkbox"/> Sandy Redox (S5)	<input type="checkbox"/> 2 cm Muck (A10)
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Stripped Matrix (S6)	<input type="checkbox"/> Red Parent Material (TF2)
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Loamy Mucky Mineral (F1) (except MLRA 1)	<input type="checkbox"/> Very Shallow Dark Surface (TF12)
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Loamy Gleyed Matrix (F2)	<input type="checkbox"/> Other (Explain in Remarks)
<input type="checkbox"/> Depleted Below Dark Surface (A11)	<input type="checkbox"/> Depleted Matrix (F3)	
<input type="checkbox"/> Thick Dark Surface (A12)	<input type="checkbox"/> Redox Dark Surface (F6)	³ Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.
<input type="checkbox"/> Sandy Mucky Mineral (S1)	<input type="checkbox"/> Depleted Dark Surface (F7)	
<input type="checkbox"/> Sandy Gleyed Matrix (S4)	<input type="checkbox"/> Redox Depressions (F8)	

Restrictive Layer (if present):

Type: _____

Depth (Inches): _____

Hydric Soil Present? Yes _____ No X

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

<u>Primary Indicators (minimum of one required; check all that apply)</u>	<u>Secondary Indicators (2 or more required)</u>
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Drainage Patterns (B10)
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Dry-Season Water Table (C2)
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Geomorphic Position (D2)
<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Shallow Aquitard (D3)
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> FAC-Neutral Test (D5)
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Raised Ant Mounds (D6) (LRR A)
<input type="checkbox"/> Surface Soil Cracks (B6)	<input type="checkbox"/> Frost-Heave Hummocks (D7)
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)	
<input type="checkbox"/> Water-Stained Leaves (B9) (except MLRA 1, 2, 4A, and 4B)	
<input type="checkbox"/> Salt Crust (B11)	
<input type="checkbox"/> Aquatic Invertebrates (B13)	
<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	
<input checked="" type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)	
<input type="checkbox"/> Presence of Reduced Iron (C4)	
<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)	
<input type="checkbox"/> Stunted or Stressed Plants (D1) (LRR A)	
<input type="checkbox"/> Other (Explain in Remarks)	

Field Observations:

Surface Water Present? Yes _____ No _____ Depth (inches): _____

Water Table Present? Yes _____ No _____ Depth (inches): _____

Saturation Present? Yes _____ No _____ Depth (inches): _____ (includes capillary fringe)

Wetland Hydrology Present? Yes X No _____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project/Site: Rolling meadows lower terrace City/County: Humboldt Sampling Date: 4-28-2020
 Applicant/Owner: _____ State: CA Sampling Point: P11 (035)
 Investigator(s): CB/JJ Section, Township, Range: _____
 Landform (hillslope, terrace, etc.): terrace Local relief (concave, convex, none): _____ Slope (%): 22
 Subregion (LRR): _____ Lat: 40.31811 Long: -123.79861 Datum: NAD
 Soil Map Unit Name: 663 - Yorknorth Windyrip Complex NWI classification: none
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes _____ No X (If no, explain in Remarks.)
 Are Vegetation N, Soil N, or Hydrology N significantly disturbed? Are "Normal Circumstances" present? Yes X No ★
 Are Vegetation Y, Soil N, or Hydrology N naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes _____	No <u>X</u>	Is the Sampled Area within a Wetland? Yes _____ No <u>X</u>
Hydric Soil Present?	Yes _____	No <u>X</u>	
Wetland Hydrology Present?	Yes <u>X</u>	No _____	
Remarks: <u>★ in historically grazed area, adjacent vegetation grazed but this plot is ungrazed patch FAC Don Record Drought</u>			

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:
1. _____	_____	_____	_____	Number of Dominant Species That Are OBL, FACW, or FAC: <u>1</u> (A)
2. _____	_____	_____	_____	Total Number of Dominant Species Across All Strata: <u>2</u> (B)
3. _____	_____	_____	_____	Percent of Dominant Species That Are OBL, FACW, or FAC: <u>50</u> (A/B)
4. _____	_____	_____	_____	Prevalence Index worksheet: Total % Cover of: _____ Multiply by: _____ OBL species <u>0</u> x 1 = <u>0</u> FACW species <u>0</u> x 2 = _____ FAC species <u>17</u> x 3 = _____ FACU species <u>0</u> x 4 = <u>0</u> UPL species <u>10</u> x 5 = <u>50</u> Column Totals: <u>27</u> (A) <u>50</u> (B) Prevalence Index = B/A = <u>1.9</u>
_____ = Total Cover	_____	_____	_____	
Sapling/Shrub Stratum (Plot size: _____)				Hydrophytic Vegetation Indicators: ___ 1 - Rapid Test for Hydrophytic Vegetation ___ 2 - Dominance Test is >50% <u>X</u> 3 - Prevalence Index is ≤3.0 ¹ ___ 4 - Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) ___ 5 - Wetland Non-Vascular Plants ¹ ___ Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
_____ = Total Cover	_____	_____	_____	
Herb Stratum (Plot size: _____)				
1. <u>Hordeum marium</u>	<u>13</u>	<u>Y</u>	<u>FAC</u>	
2. <u>Festuca perennis</u>	<u>4</u>	<u>Y</u>	<u>FAC</u>	
3. <u>Bromus cecumosis</u>	<u>2</u>			
4. <u>Festuca bromoides</u>	<u><1</u>			
5. <u>Convolvulus arvensis</u>	<u>1</u>			
6. <u>Trifolium subterraneum</u>	<u>7</u>	<u>Y</u>	<u>UPL</u>	
7. <u>Mentha pulegium</u>	<u><1</u>			
8. <u>Geranium dissectum</u>	<u><1</u>			
9. <u>Medicago polymorpha</u>	<u><1</u>			
10. _____	_____	_____	_____	
11. _____	_____	_____	_____	
_____ = Total Cover	<u>28</u>	_____	_____	
Woody Vine Stratum (Plot size: _____)				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
_____ = Total Cover	_____	_____	_____	
% Bare Ground in Herb Stratum <u>72</u>				
Remarks: _____				
Hydrophytic Vegetation Present? Yes _____ No <u>X</u>				

SOIL

Sampling Point: 11

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-3	10YR 3/2	59	10YR 5/8	2	C	PL	silt loam	Angular rocks, including sandstone and other rocks of various colors included
	10YR 3/1	19						
3-13	10YR 3/1	99	10YR 5/8	<1	C	PL		↓
			10YR 5/8	<1	C	M		

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. ²Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

<input type="checkbox"/> Histosol (A1)	<input type="checkbox"/> Sandy Redox (S5)	<input type="checkbox"/> 2 cm Muck (A10)
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Stripped Matrix (S6)	<input type="checkbox"/> Red Parent Material (TF2)
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Loamy Mucky Mineral (F1) (except MLRA 1)	<input type="checkbox"/> Very Shallow Dark Surface (TF12)
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Loamy Gleyed Matrix (F2)	<input type="checkbox"/> Other (Explain in Remarks)
<input type="checkbox"/> Depleted Below Dark Surface (A11)	<input type="checkbox"/> Depleted Matrix (F3)	
<input type="checkbox"/> Thick Dark Surface (A12)	<input type="checkbox"/> Redox Dark Surface (F6)	
<input type="checkbox"/> Sandy Mucky Mineral (S1)	<input type="checkbox"/> Depleted Dark Surface (F7)	
<input type="checkbox"/> Sandy Gleyed Matrix (S4)	<input type="checkbox"/> Redox Depressions (F8)	

Indicators for Problematic Hydric Soils³:

³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes _____ No

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)		Secondary Indicators (2 or more required)
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Water-Stained Leaves (B9) (except MLRA 1, 2, 4A, and 4B)	<input type="checkbox"/> Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Salt Crust (B11)	<input type="checkbox"/> Drainage Patterns (B10)
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Aquatic Invertebrates (B13)	<input type="checkbox"/> Dry-Season Water Table (C2)
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)
<input type="checkbox"/> Sediment Deposits (B2)	<input checked="" type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)	<input type="checkbox"/> Geomorphic Position (D2)
<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Shallow Aquitard (D3)
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)	<input type="checkbox"/> FAC-Neutral Test (D5)
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Stunted or Stressed Plants (D1) (LRR A)	<input type="checkbox"/> Raised Ant Mounds (D6) (LRR A)
<input type="checkbox"/> Surface Soil Cracks (B6)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> Frost-Heave Hummocks (D7)
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)		
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)		

Field Observations:

Surface Water Present? Yes _____ No _____ Depth (inches): _____

Water Table Present? Yes _____ No _____ Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes _____ No _____ Depth (inches): _____

Wetland Hydrology Present? Yes No _____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project/Site: Pollng Meadows City/County: Humboldt Sampling Date: 4/28/2020
 Applicant/Owner: _____ State: CA Sampling Point: P12 (072)
 Investigator(s): Jewel Jackson & CLARE B. Section, Township, Range: T2S R30 S2
 Landform (hillslope, terrace, etc.): terrace Local relief (concave, convex, none): _____ Slope (%): <1
 Subregion (LRR): A Lat: 40.31807 Long: 123.79864 Datum: NAD83
 Soil Map Unit Name: B63 NWI classification: none

Are climatic / hydrologic conditions on the site typical for this time of year? Yes _____ No X (If no, explain in Remarks.)
 Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes X No _____
 Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes _____ No <u>X</u> Hydric Soil Present? Yes _____ No <u>X</u> Wetland Hydrology Present? Yes <u>X</u> No _____	Is the Sampled Area within a Wetland? Yes _____ No <u>X</u>
Remarks: <u>Patch of ungrazed veg in area historically grazed but stable for years</u>	

VEGETATION – Use scientific names of plants.

Stratum	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:
Tree Stratum (Plot size: _____)				Number of Dominant Species That Are OBL, FACW, or FAC: <u>1</u> (A)
1. _____				Total Number of Dominant Species Across All Strata: <u>2</u> (B)
2. _____				Percent of Dominant Species That Are OBL, FACW, or FAC: <u>50</u> (A/B)
3. _____				Prevalence Index worksheet: Total % Cover of: Multiply by: OBL species <u>22</u> x 1 = <u>22</u> FACW species _____ x 2 = _____ FAC species <u>7</u> x 3 = <u>21</u> FACU species <u>1</u> x 4 = <u>4</u> UPL species <u>19</u> x 5 = <u>95</u> Column Totals: <u>49</u> (A) <u>142</u> (B) Prevalence Index = B/A = <u>2.8</u>
4. _____				
_____ = Total Cover				
Sapling/Shrub Stratum (Plot size: _____)				
1. _____				
2. _____				
3. _____				
4. _____				
5. _____				
_____ = Total Cover				
Herb Stratum (Plot size: <u>1m²</u>)				Hydrophytic Vegetation Indicators: ___ 1 - Rapid Test for Hydrophytic Vegetation ___ 2 - Dominance Test is >50% ✓ 3 - Prevalence Index is ≤3.0 ¹ ___ 4 - Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) ___ 5 - Wetland Non-Vascular Plants ¹ ___ Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
1. <u>Mentha pulegium</u>	<u>22</u>	<u>X</u>	<u>OBL</u>	
2. <u>Tritolium subarvudicum</u>	<u>17</u>	<u>X</u>	<u>UPL</u>	
3. <u>Hordeum maximum</u>	<u>7</u>		<u>FAC</u>	
4. <u>Davisia caryota</u>	<u>1</u>		<u>UPL</u>	
5. <u>Abruvolvulus sp.</u>	<u><1</u>		<u>UPL</u>	
6. <u>Plantago lanceolata</u>	<u>1</u>		<u>FACW</u>	
7. <u>geranium dissectum</u>	<u><1</u>		<u>UPL</u>	
8. _____				
9. _____				
10. _____				
11. _____				
_____ = Total Cover	<u>49</u>		<u>24</u>	
Woody Vine Stratum (Plot size: _____)				Hydrophytic Vegetation Present? Yes _____ No <u>X</u>
1. _____				
2. _____				
_____ = Total Cover	<u>9.6</u>			
% Bare Ground in Herb Stratum _____				
Remarks:				

SOIL

Sampling Point: 12/072

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-4	10YR 3/2	93	10YR 5/8	2	C	PL	Clay loam roots	angular rocks, many colors, and
	10YR 3/1	5						chunks of sandstone inclusions
4-18	10YR 3/1	99	10YR 5/8	<1	C	M1		

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. ²Location: PL=Pore Lining, M=Matrix.

<p>Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)</p> <p><input type="checkbox"/> Histosol (A1)</p> <p><input type="checkbox"/> Histic Epipedon (A2)</p> <p><input type="checkbox"/> Black Histic (A3)</p> <p><input type="checkbox"/> Hydrogen Sulfide (A4)</p> <p><input type="checkbox"/> Depleted Below Dark Surface (A11)</p> <p><input type="checkbox"/> Thick Dark Surface (A12)</p> <p><input type="checkbox"/> Sandy Mucky Mineral (S1)</p> <p><input type="checkbox"/> Sandy Gleyed Matrix (S4)</p>	<p><input type="checkbox"/> Sandy Redox (S5)</p> <p><input type="checkbox"/> Stripped Matrix (S6)</p> <p><input type="checkbox"/> Loamy Mucky Mineral (F1) (except MLRA 1)</p> <p><input type="checkbox"/> Loamy Gleyed Matrix (F2)</p> <p><input type="checkbox"/> Depleted Matrix (F3)</p> <p><input type="checkbox"/> Redox Dark Surface (F6)</p> <p><input type="checkbox"/> Depleted Dark Surface (F7)</p> <p><input type="checkbox"/> Redox Depressions (F8)</p>	<p>Indicators for Problematic Hydric Soils³:</p> <p><input type="checkbox"/> 2 cm Muck (A10)</p> <p><input type="checkbox"/> Red Parent Material (TF2)</p> <p><input type="checkbox"/> Very Shallow Dark Surface (TF12)</p> <p><input type="checkbox"/> Other (Explain in Remarks)</p> <p>³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.</p>
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Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes _____ No X

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:	
<p>Primary Indicators (minimum of one required; check all that apply)</p> <p><input type="checkbox"/> Surface Water (A1)</p> <p><input type="checkbox"/> High Water Table (A2)</p> <p><input type="checkbox"/> Saturation (A3)</p> <p><input type="checkbox"/> Water Marks (B1)</p> <p><input type="checkbox"/> Sediment Deposits (B2)</p> <p><input type="checkbox"/> Drift Deposits (B3)</p> <p><input type="checkbox"/> Algal Mat or Crust (B4)</p> <p><input type="checkbox"/> Iron Deposits (B5)</p> <p><input type="checkbox"/> Surface Soil Cracks (B6)</p> <p><input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)</p> <p><input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)</p>	<p>Secondary Indicators (2 or more required)</p> <p><input type="checkbox"/> Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)</p> <p><input type="checkbox"/> Salt Crust (B11)</p> <p><input type="checkbox"/> Aquatic Invertebrates (B13)</p> <p><input checked="" type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)</p> <p><input type="checkbox"/> Presence of Reduced Iron (C4)</p> <p><input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)</p> <p><input type="checkbox"/> Stunted or Stressed Plants (D1) (LRR A)</p> <p><input type="checkbox"/> Other (Explain in Remarks)</p>

Field Observations:

Surface Water Present? Yes _____ No _____ Depth (inches): _____

Water Table Present? Yes _____ No _____ Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes _____ No _____ Depth (inches): _____

Wetland Hydrology Present? Yes X No _____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project/Site: Pulling Meadows City/County: Humboldt Sampling Date: 4/28/2020
 Applicant/Owner: _____ State: CA Sampling Point: P13 (673)
 Investigator(s): Claire Brown; Janel Jackson Section, Township, Range: _____
 Landform (hillslope, terrace, etc.): terrace Local relief (concave, convex, none): none Slope (%): _____
 Subregion (LRR): A Lat: 40.31787 Long: -123.79762 Datum: NAD83
 Soil Map Unit Name: 663 NWI classification: none

Are climatic / hydrologic conditions on the site typical for this time of year? Yes _____ No X (If no, explain in Remarks.)
 Are Vegetation N, Soil N, or Hydrology N significantly disturbed? Are "Normal Circumstances" present? Yes X No ★
 Are Vegetation N, Soil N, or Hydrology N naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes <u>X</u> No _____	Is the Sampled Area within a Wetland? Yes <u>X</u> No _____
Hydric Soil Present?	Yes <u>X</u> No _____	
Wetland Hydrology Present?	Yes <u>X</u> No _____	
Remarks: <u>Plot appears to be outside historic grading footprint & rectly adjacent to the North</u>		

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:	
1. _____	_____	_____	_____	Number of Dominant Species That Are OBL, FACW, or FAC: <u>1</u> (A)	
2. _____	_____	_____	_____	Total Number of Dominant Species Across All Strata: <u>1</u> (B)	
3. _____	_____	_____	_____	Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100</u> (A/B)	
4. _____	_____	_____	_____	Prevalence Index worksheet: Total % Cover of: _____ Multiply by: _____ OBL species _____ x 1 = _____ FACW species _____ x 2 = _____ FAC species _____ x 3 = _____ FACU species _____ x 4 = _____ UPL species _____ x 5 = _____ Column Totals: _____ (A) _____ (B) Prevalence Index = B/A = _____	
= Total Cover					
Sapling/Shrub Stratum (Plot size: _____)					
1. _____	_____	_____	_____		
2. _____	_____	_____	_____		
3. _____	_____	_____	_____		
4. _____	_____	_____	_____	Hydrophytic Vegetation Indicators: ___ 1 - Rapid Test for Hydrophytic Vegetation ✓ 2 - Dominance Test is >50% ___ 3 - Prevalence Index is ≤3.0 ¹ ___ 4 - Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) ___ 5 - Wetland Non-Vascular Plants ¹ ___ Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.	
= Total Cover					
Herb Stratum (Plot size: _____)					
1. <u>Mentha pulegium</u>	<u>57</u>	<u>X</u>	<u>OBL</u>		
2. <u>Viola subterranea</u>	<u>8</u>		<u>UPL</u>		
3. <u>Rumex sp.</u>	<u>1</u>				
4. <u>Festuca bromoides</u>	<u>1</u>				
5. <u>Convolvulus sp.</u>	<u>1</u>				
6. <u>Rumex sp.</u>	<u>1</u>				
7. <u>Dactylis caespitosa</u>	<u>1</u>				
8. <u>Elymus dissectum (?)</u>	<u>1</u>				
9. _____	_____	_____	_____		
10. _____	_____	_____	_____		
11. _____	_____	_____	_____	Hydrophytic Vegetation Present? Yes <u>✓</u> No _____	
<u>68</u> = Total Cover <u>34</u>					
Woody Vine Stratum (Plot size: _____)					
1. _____	_____	_____	_____		
2. _____	_____	_____	_____		
= Total Cover					
% Bare Ground in Herb Stratum _____					
Remarks: _____					

SOIL

Sampling Point: 13

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-4	10YR 3/2	94	10YR 5/8	3	C	PL	clay loam	layers somewhat indistinct
			10YR 4/6	3	C	M		
4-9	10YR 3/2	90	10YR 5/8	2	C	PL		
	10YR 4/1	5	10YR 4/6	3	C	M		
9-12	10YR 3/1		10YR 5/8	1	C	PL		
	10YR 4/2		10YR 4/6	2	C	M		

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. ²Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)		Indicators for Problematic Hydric Soils³:
<input type="checkbox"/> Histosol (A1)	<input type="checkbox"/> Sandy Redox (S5)	<input type="checkbox"/> 2 cm Muck (A10)
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Stripped Matrix (S6)	<input type="checkbox"/> Red Parent Material (TF2)
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Loamy Mucky Mineral (F1) (except MLRA 1)	<input type="checkbox"/> Very Shallow Dark Surface (TF12)
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Loamy Gleyed Matrix (F2)	<input type="checkbox"/> Other (Explain in Remarks)
<input type="checkbox"/> Depleted Below Dark Surface (A11)	<input type="checkbox"/> Depleted Matrix (F3)	
<input type="checkbox"/> Thick Dark Surface (A12)	<input checked="" type="checkbox"/> Redox Dark Surface (F6)	³ Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.
<input type="checkbox"/> Sandy Mucky Mineral (S1)	<input type="checkbox"/> Depleted Dark Surface (F7)	
<input type="checkbox"/> Sandy Gleyed Matrix (S4)	<input type="checkbox"/> Redox Depressions (F8)	

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes No

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:		
<u>Primary Indicators (minimum of one required; check all that apply)</u>		<u>Secondary Indicators (2 or more required)</u>
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Water-Stained Leaves (B9) (except MLRA 1, 2, 4A, and 4B)	<input type="checkbox"/> Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Salt Crust (B11)	<input type="checkbox"/> Drainage Patterns (B10)
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Aquatic Invertebrates (B13)	<input type="checkbox"/> Dry-Season Water Table (C2)
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)
<input type="checkbox"/> Sediment Deposits (B2)	<input checked="" type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)	<input type="checkbox"/> Geomorphic Position (D2)
<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Shallow Aquitard (D3)
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)	<input type="checkbox"/> FAC-Neutral Test (D5)
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Stunted or Stressed Plants (D1) (LRR A)	<input type="checkbox"/> Raised Ant Mounds (D6) (LRR A)
<input type="checkbox"/> Surface Soil Cracks (B6)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> Frost-Heave Hummocks (D7)
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)		
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)		

Field Observations:

Surface Water Present? Yes No Depth (inches): _____

Water Table Present? Yes No Depth (inches): _____

Saturation Present? Yes No Depth (inches): _____ (includes capillary fringe)

Wetland Hydrology Present? Yes No

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project/Site: Lower terrace City/County: Humboldt Sampling Date: 5-18-2020
 Applicant/Owner: Rolling meadows State: CA Sampling Point: 1C
 Investigator(s): Claire Brown Section, Township, Range: _____
 Landform (hillslope, terrace, etc.): terrace Local relief (concave, convex, none): concave Slope (%): 3
 Subregion (LRR): A Lat: 40.31759 Long: -123.79752 Datum: NAD 83
 Soil Map Unit Name: 663 NWI classification: none

Are climatic / hydrologic conditions on the site typical for this time of year? Yes _____ No X (If no, explain in Remarks.)
 Are Vegetation N, Soil N, or Hydrology N significantly disturbed? Are "Normal Circumstances" present? Yes X No _____
 Are Vegetation N, Soil N, or Hydrology N naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes _____ No <u>X</u> Hydric Soil Present? Yes _____ No <u>X</u> Wetland Hydrology Present? Yes _____ No <u>X</u>	Is the Sampled Area within a Wetland? Yes _____ No <u>X</u>
Remarks: <u>see plot 3C</u>	

VEGETATION – Use scientific names of plants.

Stratum	Plot size	Absolute % Cover	Dominant Species?	Indicator Status	
Tree Stratum (Plot size: _____)					
1.					
2.					
3.					
4.					
= Total Cover					
Sapling/Shrub Stratum (Plot size: _____)					
1.					
2.					
3.					
4.					
5.					
= Total Cover					
Herb Stratum (Plot size: <u>1m²</u>)					
1.	<u>Holcus lanatus</u>	<u>13</u>	<u>Y</u>	<u>FAC</u>	
2.	<u>Vicia sativa</u>	<u>21</u>		<u>UPL</u>	
3.	<u>Carex tunicola</u>	<u>3</u>		<u>FACU</u>	
4.	<u>Equisetum laevigatum</u>	<u>1</u>		<u>FACW</u>	
5.	<u>Bromus racemosus</u>	<u>1</u>		<u>UPL</u>	
6.	<u>Plantago lanceolata</u>	<u>2</u>		<u>FACU</u>	
7.	<u>Vicia tetrasperma</u>	<u>2</u>		<u>UPL</u>	
8.	<u>Trifolium subterraneum</u>	<u>8</u>	<u>Y</u>	<u>UPL</u>	
9.	<u>Panicum carolinense</u>	<u>5</u>		<u>FACU</u>	
10.					
11.					
<u>35</u> = Total Cover					
Woody Vine Stratum (Plot size: _____)					
1.					
2.					
= Total Cover					
% Bare Ground in Herb Stratum <u>55 (thatch)</u>					
Remarks:					

Dominance Test worksheet:	
Number of Dominant Species That Are OBL, FACW, or FAC:	<u>1</u> (A)
Total Number of Dominant Species Across All Strata:	<u>2</u> (B)
Percent of Dominant Species That Are OBL, FACW, or FAC:	<u>50</u> (A/B)
Prevalence Index worksheet:	
Total % Cover of:	Multiply by:
OBL species _____	x 1 = _____
FACW species _____	x 2 = _____
FAC species _____	x 3 = _____
FACU species _____	x 4 = _____
UPL species _____	x 5 = _____
Column Totals:	(A) _____ (B) _____
Prevalence Index = B/A = _____	
Hydrophytic Vegetation Indicators:	
___ 1 - Rapid Test for Hydrophytic Vegetation	
___ 2 - Dominance Test is >50%	
___ 3 - Prevalence Index is ≤3.0 ¹	
___ 4 - Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet)	
___ 5 - Wetland Non-Vascular Plants ¹	
___ Problematic Hydrophytic Vegetation ¹ (Explain)	
¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.	
Hydrophytic Vegetation Present? Yes _____ No <u>X</u>	

SOIL

Sampling Point: IC

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (Inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-13	10YR3/2		10YR5/8	1	C	M	clay loam	inclusions of broken angular rock

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. ²Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

<input type="checkbox"/> Histosol (A1)	<input type="checkbox"/> Sandy Redox (S5)	<input type="checkbox"/> 2 cm Muck (A10)
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Stripped Matrix (S6)	<input type="checkbox"/> Red Parent Material (TF2)
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Loamy Mucky Mineral (F1) (except MLRA 1)	<input type="checkbox"/> Very Shallow Dark Surface (TF12)
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Loamy Gleyed Matrix (F2)	<input type="checkbox"/> Other (Explain in Remarks)
<input type="checkbox"/> Depleted Below Dark Surface (A11)	<input type="checkbox"/> Depleted Matrix (F3)	³ Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.
<input type="checkbox"/> Thick Dark Surface (A12)	<input type="checkbox"/> Redox Dark Surface (F6)	
<input type="checkbox"/> Sandy Mucky Mineral (S1)	<input type="checkbox"/> Depleted Dark Surface (F7)	
<input type="checkbox"/> Sandy Gleyed Matrix (S4)	<input type="checkbox"/> Redox Depressions (F8)	

Restrictive Layer (if present):

Type: _____

Depth (Inches): _____

Hydric Soil Present? Yes _____ No X

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

<u>Primary Indicators (minimum of one required; check all that apply)</u>	<u>Secondary Indicators (2 or more required)</u>
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Salt Crust (B11)
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Aquatic Invertebrates (B13)
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)
<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Presence of Reduced Iron (C4)
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)
<input type="checkbox"/> Surface Soil Cracks (B6)	<input type="checkbox"/> Stunted or Stressed Plants (D1) (LRR A)
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Other (Explain in Remarks)
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)	<input type="checkbox"/> Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present? Yes _____ No X Depth (inches): _____

Water Table Present? Yes _____ No X Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes _____ No X Depth (inches): _____

Wetland Hydrology Present? Yes _____ No X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: soil damp but not saturated

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project/Site: lone terrace City/County: Humboldt Sampling Date: 5-18-2020
 Applicant/Owner: rolling meadows State: CA Sampling Point: 2C
 Investigator(s): Claire Brown Section, Township, Range: _____
 Landform (hillslope, terrace, etc.): terrace Local relief (concave, convex, none): concave Slope (%): 3%
 Subregion (LRR): A Lat: 40.31770 Long: -123.79850 Datum: NAD83
 Soil Map Unit Name: 663 NWI classification: none
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes _____ No X (If no, explain in Remarks.)
 Are Vegetation N, Soil N, or Hydrology N significantly disturbed? Are "Normal Circumstances" present? Yes X No _____
 Are Vegetation N, Soil N, or Hydrology N naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes <u>X</u> No _____ Hydric Soil Present? Yes _____ No <u>X</u> Wetland Hydrology Present? Yes _____ No <u>X</u>	Is the Sampled Area within a Wetland? Yes _____ No <u>X</u>
Remarks: <u>see plot 3c</u>	

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
_____ = Total Cover				
Sapling/Shrub Stratum (Plot size: <u>1m²</u>)	Absolute % Cover	Dominant Species?	Indicator Status	
1. <u>Rubus armeniacus</u>	<u>45</u>	<u>Y</u>	<u>FAC</u>	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
_____ = Total Cover				
Herb Stratum (Plot size: <u>1m²</u>)	Absolute % Cover	Dominant Species?	Indicator Status	
1. <u>mentha pulegium</u>	<u>9</u>	<u>Y</u>	<u>OBL</u>	
2. <u>Holcus lanatus</u>	<u>4</u>	_____	<u>FAC</u>	
3. <u>Festuca perennis</u>	<u>1</u>	_____	<u>FAC</u>	
4. <u>Sonchus oleraceus</u>	<u>1</u>	_____	<u>VPL</u>	
5. <u>vicia tetrasperma</u>	<u>6</u>	<u>Y</u>	<u>VPL</u>	
6. <u>Daucus carota</u>	<u>1</u>	_____	<u>FACU</u>	
7. <u>Hypericum perforatum</u>	<u>1</u>	_____	<u>FACU</u>	
8. <u>Geranium dissectum</u>	<u>1</u>	_____	<u>VPL</u>	
9. <u>Bromus racemosus</u>	<u>1</u>	_____	<u>VPL</u>	
10. <u>Medicago polymorpha</u>	<u>1</u>	_____	<u>FACU</u>	
11. <u>Torilis arvensis</u>	<u>1</u>	_____	<u>FAC</u>	
<u>Poa trivialis</u>	<u>1</u>	_____	<u>FAC</u>	
_____ = Total Cover				
Woody Vine Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
_____ = Total Cover				
% Bare Ground in Herb Stratum _____				
Remarks: _____				

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 75 (A/B)

Prevalence Index worksheet:

Total % Cover of: _____ Multiply by: _____

OBL species _____ x 1 = _____

FACW species _____ x 2 = _____

FAC species _____ x 3 = _____

FACU species _____ x 4 = _____

UPL species _____ x 5 = _____

Column Totals: _____ (A) _____ (B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

1 - Rapid Test for Hydrophytic Vegetation _____

X 2 - Dominance Test is >50% _____

3 - Prevalence Index is ≤3.0¹ _____

4 - Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet) _____

5 - Wetland Non-Vascular Plants¹ _____

Problematic Hydrophytic Vegetation¹ (Explain) _____

¹Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes X No _____

SOIL

Sampling Point: 2C

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-17	10YR 3/2	100					Clayloam	some rock inclusions

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. ²Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)			Indicators for Problematic Hydric Soils ³ :		
<input type="checkbox"/> Histosol (A1)	<input type="checkbox"/> Sandy Redox (S5)	<input type="checkbox"/> 2 cm Muck (A10)			
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Stripped Matrix (S6)	<input type="checkbox"/> Red Parent Material (TF2)			
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Loamy Mucky Mineral (F1) (except MLRA 1)	<input type="checkbox"/> Very Shallow Dark Surface (TF12)			
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Loamy Gleyed Matrix (F2)	<input type="checkbox"/> Other (Explain in Remarks)			
<input type="checkbox"/> Depleted Below Dark Surface (A11)	<input type="checkbox"/> Depleted Matrix (F3)				
<input type="checkbox"/> Thick Dark Surface (A12)	<input type="checkbox"/> Redox Dark Surface (F6)	³ Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.			
<input type="checkbox"/> Sandy Mucky Mineral (S1)	<input type="checkbox"/> Depleted Dark Surface (F7)				
<input type="checkbox"/> Sandy Gleyed Matrix (S4)	<input type="checkbox"/> Redox Depressions (F8)				

Restrictive Layer (if present):
 Type: _____
 Depth (inches): _____

Hydric Soil Present? Yes _____ No X

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:	
Primary Indicators (minimum of one required; check all that apply)	Secondary Indicators (2 or more required)
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Water-Stained Leaves (B9) (except MLRA 1, 2, 4A, and 4B)
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Drainage Patterns (B10)
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Dry-Season Water Table (C2)
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)
<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Geomorphic Position (D2)
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Shallow Aquitard (D3)
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> FAC-Neutral Test (D5)
<input type="checkbox"/> Surface Soil Cracks (B6)	<input type="checkbox"/> Raised Ant Mounds (D6) (LRR A)
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Frost-Heave Hummocks (D7)
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)	
<input type="checkbox"/> Salt Crust (B11)	
<input type="checkbox"/> Aquatic Invertebrates (B13)	
<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	
<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)	
<input type="checkbox"/> Presence of Reduced Iron (C4)	
<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)	
<input type="checkbox"/> Stunted or Stressed Plants (D1) (LRR A)	
<input type="checkbox"/> Other (Explain in Remarks)	

Field Observations:

Surface Water Present? Yes _____ No X Depth (inches): _____

Water Table Present? Yes _____ No X Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes _____ No X Depth (inches): _____

Wetland Hydrology Present? Yes _____ No X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: soil damp but not saturated

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project/Site: Lower terrace City/County: Humboldt Sampling Date: 5-18-2020
 Applicant/Owner: Rolling Meadows State: CA Sampling Point: 3C
 Investigator(s): Claire Brown Section, Township, Range: _____
 Landform (hillslope, terrace, etc.): terrace Local relief (concave, convex, none): CONCAVE Slope (%): 4%
 Subregion (LRR): A Lat: 40.31772 Long: -123.79757 Datum: NAD83
 Soil Map Unit Name: 663 NWI classification: none

Are climatic / hydrologic conditions on the site typical for this time of year? Yes _____ No X (If no, explain in Remarks.)
 Are Vegetation N, Soil N, or Hydrology N significantly disturbed? Are "Normal Circumstances" present? Yes X No _____
 Are Vegetation N, Soil N, or Hydrology N naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes <u>X</u> No _____ Hydric Soil Present? Yes _____ No <u>X</u> Wetland Hydrology Present? Yes _____ No <u>X</u>	Is the Sampled Area within a Wetland? Yes _____ No <u>X</u>
Remarks: <u>Heavy rain for 4 days preceding, but record drought up to that point</u>	

VEGETATION – Use scientific names of plants.

Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	
<u>Tree Stratum</u> (Plot size: _____)				Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>3</u> (A) Total Number of Dominant Species Across All Strata: <u>3</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100</u> (A/B)
1. _____				
2. _____				
3. _____				
_____ = Total Cover				Prevalence Index worksheet: Total % Cover of: _____ Multiply by: OBL species _____ x 1 = _____ FACW species _____ x 2 = _____ FAC species _____ x 3 = _____ FACU species _____ x 4 = _____ UPL species _____ x 5 = _____ Column Totals: _____ (A) _____ (B) Prevalence Index = B/A = _____
<u>Sapling/Shrub Stratum</u> (Plot size: <u>1m²</u>)				
1. <u>Rubus armeniacus</u>	<u>23</u>	<u>Y</u>	<u>FAC</u>	
2. _____				
3. _____				
<u>23</u> = Total Cover				
<u>Herb Stratum</u> (Plot size: <u>1m²</u>)				Hydrophytic Vegetation Indicators: ___ 1 - Rapid Test for Hydrophytic Vegetation <u>X</u> 2 - Dominance Test is >50% ___ 3 - Prevalence Index is ≤3.0 ¹ ___ 4 - Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) ___ 5 - Wetland Non-Vascular Plants ¹ ___ Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
1. <u>mentha pulegium</u>	<u>17</u>	<u>Y</u>	<u>OBL</u>	
2. <u>Carex tumicola</u>	<u>3</u>	<u>N</u>	<u>FACU</u>	
3. <u>Davus carota</u>	<u>1</u>	<u>N</u>	<u>FACU</u>	
4. <u>Agrostis capillaris</u>	<u>8</u>	<u>Y</u>	<u>FAC</u>	
5. <u>vicia tetrasperma</u>	<u>1</u>	<u>N</u>	<u>DPL</u>	
6. _____				
7. _____				
8. _____				
9. _____				
10. _____				
11. _____				
<u>28</u> = Total Cover				
<u>Woody Vine Stratum</u> (Plot size: _____)				Hydrophytic Vegetation Present? Yes <u>X</u> No _____
1. _____				
2. _____				
_____ = Total Cover				
% Bare Ground in Herb Stratum <u>50</u>				
Remarks: _____				

SOIL

Sampling Point: 3C

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-17	10YR 3/2	99	10YR 5/8	1	C	M	Clay loam	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. ²Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

<input type="checkbox"/> Histosol (A1)	<input type="checkbox"/> Sandy Redox (S5)	<input type="checkbox"/> 2 cm Muck (A10)
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Stripped Matrix (S6)	<input type="checkbox"/> Red Parent Material (TF2)
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Loamy Mucky Mineral (F1) (except MLRA 1)	<input type="checkbox"/> Very Shallow Dark Surface (TF12)
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Loamy Gleyed Matrix (F2)	<input type="checkbox"/> Other (Explain in Remarks)
<input type="checkbox"/> Depleted Below Dark Surface (A11)	<input type="checkbox"/> Depleted Matrix (F3)	
<input type="checkbox"/> Thick Dark Surface (A12)	<input type="checkbox"/> Redox Dark Surface (F6)	
<input type="checkbox"/> Sandy Mucky Mineral (S1)	<input type="checkbox"/> Depleted Dark Surface (F7)	
<input type="checkbox"/> Sandy Gleyed Matrix (S4)	<input type="checkbox"/> Redox Depressions (F8)	

Indicators for Problematic Hydric Soils³:

³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes _____ No X

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)	Secondary Indicators (2 or more required)
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Salt Crust (B11)
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Aquatic Invertebrates (B13)
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)
<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Presence of Reduced Iron (C4)
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)
<input type="checkbox"/> Surface Soil Cracks (B6)	<input type="checkbox"/> Stunted or Stressed Plants (D1) (LRR A)
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Other (Explain in Remarks)
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)	

Field Observations:

Surface Water Present? Yes _____ No X Depth (inches): _____

Water Table Present? Yes _____ No X Depth (inches): _____

Saturation Present? Yes _____ No X Depth (inches): _____ (includes capillary fringe)

Wetland Hydrology Present? Yes _____ No X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: Soil damp but not saturated

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project/Site: lower terrace City/County: Humboldt Sampling Date: 5-18-70
 Applicant/Owner: Rolling meadows State: CA Sampling Point: 4C
 Investigator(s): Clair Brown Section, Township, Range: _____
 Landform (hillslope, terrace, etc.): _____ Local relief (concave, convex, none): concave Slope (%): 4
 Subregion (LRR): A Lat: 40,31768 Long: -123.79825 Datum: NAD83
 Soil Map Unit Name: 663 NWI classification: none
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes _____ No X (If no, explain in Remarks.)
 Are Vegetation N, Soil N, or Hydrology N significantly disturbed? Are "Normal Circumstances" present? Yes X No _____
 Are Vegetation N, Soil N, or Hydrology N naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes <u>X</u> No _____ Hydric Soil Present? Yes _____ No <u>X</u> Wetland Hydrology Present? Yes _____ No <u>X</u>	Is the Sampled Area within a Wetland? Yes _____ No <u>X</u>
Remarks: <u>see plot 3C</u>	

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	
1. _____				
2. _____				
3. _____				
4. _____				
_____ = Total Cover				
Sapling/Shrub Stratum (Plot size: <u>1m²</u>)	Absolute % Cover	Dominant Species?	Indicator Status	
1. <u>Rubus Armeriacus</u>	<u>20</u>	<u>Y</u>	<u>FAC</u>	
2. _____				
3. _____				
4. _____				
5. _____				
_____ = Total Cover				
Herb Stratum (Plot size: <u>1m²</u>)	Absolute % Cover	Dominant Species?	Indicator Status	
1. <u>Carex baberue</u>	<u>35</u>	<u>Y</u>	<u>FAC</u>	
2. <u>Vicia tetrasperma</u>	<u>1</u>	<u>N</u>	<u>UPL</u>	
3. <u>Holcus lanatus</u>	<u>2</u>	<u>N</u>	<u>FAC</u>	
4. <u>Vicia sativa</u>	<u>1</u>	<u>N</u>	<u>UPL</u>	
5. <u>Carex tumicola</u>	<u>1</u>	<u>N</u>	<u>FACU</u>	
6. _____				
7. _____				
8. _____				
9. _____				
10. _____				
11. _____				
_____ = Total Cover				
Woody Vine Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	
1. _____				
2. _____				
_____ = Total Cover				
% Bare Ground in Herb Stratum _____				
Remarks:				

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species _____	x 1 = _____
FACW species _____	x 2 = _____
FAC species _____	x 3 = _____
FACU species _____	x 4 = _____
UPL species _____	x 5 = _____
Column Totals: _____	(A) _____ (B) _____

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

____ 1 - Rapid Test for Hydrophytic Vegetation

X 2 - Dominance Test is >50%

____ 3 - Prevalence Index is ≤3.0¹

____ 4 - Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)

____ 5 - Wetland Non-Vascular Plants¹

____ Problematic Hydrophytic Vegetation¹ (Explain)

¹Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes X No _____

SOIL

Sampling Point: 4C

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-16	10YR 3/2	99	10YR 5/8	41	C	M	Clay loam	inclusions of angular rock, sandstone etc in profile, same colors as 'redox'
			2.5YR 4/8	1	C	M		

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. ²Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)		Indicators for Problematic Hydric Soils ³ :
<input type="checkbox"/> Histosol (A1)	<input type="checkbox"/> Sandy Redox (S5)	<input type="checkbox"/> 2 cm Muck (A10)
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Stripped Matrix (S6)	<input type="checkbox"/> Red Parent Material (TF2)
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Loamy Mucky Mineral (F1) (except MLRA 1)	<input type="checkbox"/> Very Shallow Dark Surface (TF12)
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Loamy Gleyed Matrix (F2)	<input type="checkbox"/> Other (Explain in Remarks)
<input type="checkbox"/> Depleted Below Dark Surface (A11)	<input type="checkbox"/> Depleted Matrix (F3)	
<input type="checkbox"/> Thick Dark Surface (A12)	<input type="checkbox"/> Redox Dark Surface (F6)	³ Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.
<input type="checkbox"/> Sandy Mucky Mineral (S1)	<input type="checkbox"/> Depleted Dark Surface (F7)	
<input type="checkbox"/> Sandy Gleyed Matrix (S4)	<input type="checkbox"/> Redox Depressions (F8)	

Restrictive Layer (if present):
 Type: _____
 Depth (inches): _____

Hydric Soil Present? Yes _____ No X

Remarks: ★ these features are actually probably attributable to the angular rock inclusions

HYDROLOGY

Wetland Hydrology Indicators:	
Primary Indicators (minimum of one required; check all that apply)	Secondary Indicators (2 or more required)
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Drainage Patterns (B10)
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Dry-Season Water Table (C2)
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)
<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Geomorphic Position (D2)
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Shallow Aquitard (D3)
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> FAC-Neutral Test (D5)
<input type="checkbox"/> Surface Soil Cracks (B6)	<input type="checkbox"/> Raised Ant Mounds (D6) (LRR A)
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Frost-Heave Hummocks (D7)
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)	
<input type="checkbox"/> Water-Stained Leaves (B9) (except MLRA 1, 2, 4A, and 4B)	
<input type="checkbox"/> Salt Crust (B11)	
<input type="checkbox"/> Aquatic Invertebrates (B13)	
<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	
<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)	
<input type="checkbox"/> Presence of Reduced Iron (C4)	
<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)	
<input type="checkbox"/> Stunted or Stressed Plants (D1) (LRR A)	
<input type="checkbox"/> Other (Explain in Remarks)	

Field Observations:

Surface Water Present? Yes _____ No X Depth (inches): _____

Water Table Present? Yes _____ No X Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes _____ No X Depth (inches): _____

Wetland Hydrology Present? Yes _____ No X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: soil damp, not saturated

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project/Site: Lower terrace City/County: Humboldt Sampling Date: 5-18-2020
 Applicant/Owner: Rolling meadows State: CA Sampling Point: 5C
 Investigator(s): Clare Brown Section, Township, Range: _____
 Landform (hillslope, terrace, etc.): terrace Local relief (concave, convex, none): concave Slope (%): 4%
 Subregion (LRR): A Lat: 40.31754 Long: -123.79782 Datum: NAD83
 Soil Map Unit Name: 663 NWI classification: none

Are climatic / hydrologic conditions on the site typical for this time of year? Yes _____ No X (If no, explain in Remarks.)
 Are Vegetation N, Soil N, or Hydrology N significantly disturbed? Are "Normal Circumstances" present? Yes X No _____
 Are Vegetation N, Soil N, or Hydrology N naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes _____ No <u>X</u> Hydric Soil Present? Yes _____ No <u>X</u> Wetland Hydrology Present? Yes _____ No <u>X</u>	Is the Sampled Area within a Wetland? Yes _____ No <u>X</u>
Remarks: <u>see plot 3C</u>	

VEGETATION – Use scientific names of plants.

Stratum	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:
<u>Tree Stratum</u> (Plot size: _____)				Number of Dominant Species That Are OBL, FACW, or FAC: <u>1</u> (A)
1. _____				Total Number of Dominant Species Across All Strata: <u>2</u> (B)
2. _____				Percent of Dominant Species That Are OBL, FACW, or FAC: <u>50</u> (A/B)
3. _____				Prevalence Index worksheet:
4. _____				
<u>Sapling/Shrub Stratum</u> (Plot size: _____)				OBL species _____ x 1 = _____
1. <u>Rubus ursinus</u>	<u>5</u>	<u>Y</u>	<u>FACU</u>	FACW species _____ x 2 = _____
2. <u>Toxicodendron diversilobum</u>	<u>21</u>			FAC species _____ x 3 = _____
3. _____				FACU species _____ x 4 = _____
4. _____				UPL species _____ x 5 = _____
5. _____				Column Totals: _____ (A) _____ (B)
	<u>5</u>		= Total Cover	Prevalence Index = B/A = _____
<u>Herb Stratum</u> (Plot size: _____)				Hydrophytic Vegetation Indicators:
1. <u>Carex barbarae</u>	<u>30</u>	<u>Y</u>	<u>FAC</u>	___ 1 - Rapid Test for Hydrophytic Vegetation
2. <u>Carex tumicola</u>	<u>2</u>	<u>N</u>	<u>FACU</u>	___ 2 - Dominance Test is >50%
3. <u>Vicia sativa</u>	<u>21</u>	<u>N</u>	<u>UPL</u>	___ 3 - Prevalence Index is ≤3.0 ¹
4. _____				___ 4 - Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet)
5. <u>Poa trivialis</u>	<u>21</u>	<u>N</u>	<u>FAC</u>	___ 5 - Wetland Non-Vascular Plants ¹
6. <u>Holcus lanatus</u>	<u>21</u>	<u>N</u>	<u>FAC</u>	___ Problematic Hydrophytic Vegetation ¹ (Explain)
7. _____				¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
8. _____				Hydrophytic Vegetation Present? Yes _____ No <u>X</u>
9. _____				
10. _____				
11. _____				
	<u>32</u>		= Total Cover	
<u>Woody Vine Stratum</u> (Plot size: _____)				
1. _____				
2. _____				
			= Total Cover	
% Bare Ground in Herb Stratum: <u>10</u>				
Remarks: <u>thatchy</u>				

SOIL

Sampling Point: 5C

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (Inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-16	10YR 3/2	100					clayloam	Jumbled inclusions of Angular rock

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. ²Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

<input type="checkbox"/> Histosol (A1)	<input type="checkbox"/> Sandy Redox (S5)	<input type="checkbox"/> 2 cm Muck (A10)
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Stripped Matrix (S6)	<input type="checkbox"/> Red Parent Material (TF2)
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Loamy Mucky Mineral (F1) (except MLRA 1)	<input type="checkbox"/> Very Shallow Dark Surface (TF12)
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Loamy Gleyed Matrix (F2)	<input type="checkbox"/> Other (Explain in Remarks)
<input type="checkbox"/> Depleted Below Dark Surface (A11)	<input type="checkbox"/> Depleted Matrix (F3)	
<input type="checkbox"/> Thick Dark Surface (A12)	<input type="checkbox"/> Redox Dark Surface (F6)	³ Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.
<input type="checkbox"/> Sandy Mucky Mineral (S1)	<input type="checkbox"/> Depleted Dark Surface (F7)	
<input type="checkbox"/> Sandy Gleyed Matrix (S4)	<input type="checkbox"/> Redox Depressions (F8)	

Restrictive Layer (if present):

Type: _____

Depth (Inches): _____

Hydric Soil Present? Yes _____ No

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)		Secondary Indicators (2 or more required)
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Water-Stained Leaves (B9) (except MLRA 1, 2, 4A, and 4B)	<input type="checkbox"/> Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Salt Crust (B11)	<input type="checkbox"/> Drainage Patterns (B10)
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Aquatic Invertebrates (B13)	<input type="checkbox"/> Dry-Season Water Table (C2)
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)	<input type="checkbox"/> Geomorphic Position (D2)
<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Shallow Aquitard (D3)
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)	<input type="checkbox"/> FAC-Neutral Test (D5)
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Stunted or Stressed Plants (D1) (LRR A)	<input type="checkbox"/> Raised Ant Mounds (D6) (LRR A)
<input type="checkbox"/> Surface Soil Cracks (B6)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> Frost-Heave Hummocks (D7)
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)		
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)		

Field Observations:

Surface Water Present? Yes _____ No Depth (Inches): _____

Water Table Present? Yes _____ No Depth (Inches): _____

Saturation Present? Yes _____ No Depth (Inches): _____ (includes capillary fringe)

Wetland Hydrology Present? Yes _____ No

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: soil damp but not saturated

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project/Site: Lower Terrace City/County: Humboldt Sampling Date: 5-18-2020
 Applicant/Owner: Rolling meadows State: CA Sampling Point: 6C
 Investigator(s): Claire Brown Section, Township, Range: _____
 Landform (hillslope, terrace, etc.): hillslope Local relief (concave, convex, none): none Slope (%): 69.0
 Subregion (LRR): A Lat: 40.31845 Long: -123.79792 Datum: NAD83
 Soil Map Unit Name: 663 NWI classification: NONE

Are climatic / hydrologic conditions on the site typical for this time of year? Yes _____ No X (If no, explain in Remarks.)
 Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes X No _____
 Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes <u>X</u> No _____ Hydric Soil Present? Yes _____ No <u>X</u> Wetland Hydrology Present? Yes _____ No <u>X</u>	Is the Sampled Area within a Wetland? Yes _____ No <u>X</u>
Remarks: <u>See plot 3c</u> <div style="text-align: right; font-size: 1.2em;"><u>Plot directly adjacent to class III channel</u></div>	

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:
1. _____	_____	_____	_____	Number of Dominant Species That Are OBL, FACW, or FAC: <u>2</u> (A)
2. _____	_____	_____	_____	Total Number of Dominant Species Across All Strata: <u>2</u> (B)
3. _____	_____	_____	_____	Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100</u> (A/B)
4. _____	_____	_____	_____	Prevalence Index worksheet: Total % Cover of: _____ Multiply by: _____ OBL species _____ x 1 = _____ FACW species _____ x 2 = _____ FAC species _____ x 3 = _____ FACU species _____ x 4 = _____ UPL species _____ x 5 = _____ Column Totals: _____ (A) _____ (B) Prevalence Index = B/A = _____
= Total Cover				
Sapling/Shrub Stratum (Plot size: _____)				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
= Total Cover				
Herb Stratum (Plot size: <u>1m²</u>)				
1. <u>Festuca perennis</u>	<u>7</u>	<u>Y</u>	<u>FAC</u>	
2. <u>Hordeum marinum</u>	<u>6</u>	<u>Y</u>	<u>FAC</u>	
3. <u>Avena barbata</u>	<u><1</u>		<u>VPL</u>	
4. <u>Lysimachia arvensis</u>	<u>1</u>		<u>FAC</u>	
5. <u>Daucus carota</u>	<u>1</u>		<u>FACU</u>	
6. <u>Mentha pulegium</u>	<u>3</u>		<u>OBL</u>	
7. <u>Bromus racemosus</u>	<u><1</u>		<u>UPL</u>	
8. <u>Medicago polymorpha</u>	<u><1</u>		<u>FACU</u>	
9. <u>Taraxacum officinale</u>	<u><1</u>		<u>UPL</u>	
10. <u>Elymus caput-medusae</u>	<u>1</u>		<u>UPL</u>	
11. _____	_____	_____	_____	
<u>20</u> = Total Cover				
Woody Vine Stratum (Plot size: _____)				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
= Total Cover				
% Bare Ground in Herb Stratum _____				
Remarks: _____				
Hydrophytic Vegetation Present? Yes <u>X</u> No _____				

SOIL

Sampling Point: 6C

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-5	10YR 3/2	99	10YR 5/8	1	C	M	Clay loam	
6-12	10YR 3/2	97	10YR 5/8	2	C	M		Rock inclusions,
			10YR 4/6	1	C	PL		sandstone chunks
12-17	layer of large angular rock chunks, presumably from road construction?							

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. ²Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

<input type="checkbox"/> Histosol (A1)	<input type="checkbox"/> Sandy Redox (S5)	<input type="checkbox"/> 2 cm Muck (A10)
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Stripped Matrix (S6)	<input type="checkbox"/> Red Parent Material (TF2)
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Loamy Mucky Mineral (F1) (except MLRA 1)	<input type="checkbox"/> Very Shallow Dark Surface (TF12)
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Loamy Gleyed Matrix (F2)	<input type="checkbox"/> Other (Explain in Remarks)
<input type="checkbox"/> Depleted Below Dark Surface (A11)	<input type="checkbox"/> Depleted Matrix (F3)	
<input type="checkbox"/> Thick Dark Surface (A12)	<input type="checkbox"/> Redox Dark Surface (F6)	³ Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.
<input type="checkbox"/> Sandy Mucky Mineral (S1)	<input type="checkbox"/> Depleted Dark Surface (F7)	
<input type="checkbox"/> Sandy Gleyed Matrix (S4)	<input type="checkbox"/> Redox Depressions (F8)	

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes _____ No

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

<u>Primary Indicators (minimum of one required; check all that apply)</u>	<u>Secondary Indicators (2 or more required)</u>
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Salt Crust (B11)
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Aquatic Invertebrates (B13)
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)
<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Presence of Reduced Iron (C4)
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Stunted or Stressed Plants (D1) (LRR A)
<input type="checkbox"/> Surface Soil Cracks (B6)	<input type="checkbox"/> Other (Explain in Remarks)
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)	

Field Observations:

Surface Water Present? Yes _____ No <input checked="" type="checkbox"/>	Depth (inches): _____	Wetland Hydrology Present? Yes _____ No <input checked="" type="checkbox"/>
Water Table Present? Yes _____ No <input checked="" type="checkbox"/>	Depth (inches): _____	
Saturation Present? Yes _____ No <input checked="" type="checkbox"/>	Depth (inches): _____	
(includes capillary fringe)		

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: Soil damp but not saturated

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project/Site: Rock site City/County: Humboldt Sampling Date: 6-12-2020
 Applicant/Owner: Rolling meadows State: CA Sampling Point: 1R
 Investigator(s): Clair Brown / Jenell Jackson Section, Township, Range: _____
 Landform (hillslope, terrace, etc.): Hillslope Local relief (concave, convex, none): CONCAVE Slope (%): 22
 Subregion (LRR): A Lat: 40.32516 Long: -123.770705 Datum: NAD83
 Soil Map Unit Name: 665 - Yorkknott-witherell complex NWI classification: none
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes _____ No _____ (If no, explain in Remarks.)
 Are Vegetation , Soil , or Hydrology significantly disturbed? Are "Normal Circumstances" present? Yes _____ No
 Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No _____ Hydric Soil Present? Yes <input checked="" type="checkbox"/> No _____ Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No _____	Is the Sampled Area within a Wetland? Yes <input checked="" type="checkbox"/> No _____
Remarks: <u>* Area recently disturbed by roadwork / grading</u>	

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
_____ = Total Cover				
Sapling/Shrub Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
_____ = Total Cover				
Herb Stratum (Plot size: <u>1m²</u>)	Absolute % Cover	Dominant Species?	Indicator Status	
1. <u>Holcus lanatus</u>	<u>25</u>	<input checked="" type="checkbox"/>	<u>FAC</u>	
2. <u>Carduus pycnocephalus</u>	<u>2</u>			
3. <u>Trifolium dubium</u>	<u>40</u>	<input checked="" type="checkbox"/>	<u>FACU</u>	
4. <u>Helminthotheca echioides</u>	<u>14</u>			
5. <u>mentha pulegium</u>	<u>1</u>			
6. <u>Festuca perennis</u>	<u>11</u>			
7. <u>Trifolium subterraneum</u>	<u>10</u>			
8. <u>Lotus corniculatus</u>	<u>4</u>			
9. <u>Cepis capillaris</u>	<u>1</u>			
10. <u>Geacium dissectum</u>	<u>2</u>			
11. <u>lythrum hyssopifolium</u>	<u>2</u>			
<u>110</u> = Total Cover				
Woody Vine Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
_____ = Total Cover				
% Bare Ground in Herb Stratum <u>20</u>				

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 50 (A/B)

Prevalence Index worksheet:

Total % Cover of: _____ Multiply by: _____

OBL species _____ x 1 = _____

FACW species _____ x 2 = _____

FAC species _____ x 3 = _____

FACU species _____ x 4 = _____

UPL species _____ x 5 = _____

Column Totals: _____ (A) _____ (B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

1 - Rapid Test for Hydrophytic Vegetation

2 - Dominance Test is >50%

3 - Prevalence Index is ≤3.0¹

4 - Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)

5 - Wetland Non-Vascular Plants¹

Problematic Hydrophytic Vegetation¹ (Explain)

¹Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No _____	Remarks: <u>Area very disturbed by roadwork / grading</u>
--	---

SOIL

Sampling Point: 1A

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (cm) (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type	Loc ²		
0-10	N 2.5/	1					Clay	
10-19	N 2.5/	100						
19-32	N 3/1	90	10 YR 5/6	10	C	M		fine, prominent iron
32-50	10YR 3/1	90	7.5YR 5/6	10	C	M		very fine, prominent iron

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. ²Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

Indicators for Problematic Hydric Soils³:

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Sandy Mucky Mineral (S1)
- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Loamy Mucky Mineral (F1) (except MLRA 1)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)

- 2 cm Muck (A10)
- Red Parent Material (TF2)
- Very Shallow Dark Surface (TF12)
- Other (Explain in Remarks)

³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____
Depth (inches): _____

Hydric Soil Present? Yes No

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

Secondary Indicators (2 or more required)

- | | | |
|--|---|--|
| <input type="checkbox"/> Surface Water (A1) | <input type="checkbox"/> Water-Stained Leaves (B9) (except MLRA 1, 2, 4A, and 4B) | <input type="checkbox"/> Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B) |
| <input type="checkbox"/> High Water Table (A2) | <input type="checkbox"/> Salt Crust (B11) | <input type="checkbox"/> Drainage Patterns (B10) |
| <input type="checkbox"/> Saturation (A3) | <input type="checkbox"/> Aquatic Invertebrates (B13) | <input type="checkbox"/> Dry-Season Water Table (C2) |
| <input type="checkbox"/> Water Marks (B1) | <input type="checkbox"/> Hydrogen Sulfide Odor (C1) | <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) |
| <input type="checkbox"/> Sediment Deposits (B2) | <input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3) | <input checked="" type="checkbox"/> Geomorphic Position (D2) |
| <input type="checkbox"/> Drift Deposits (B3) | <input type="checkbox"/> Presence of Reduced Iron (C4) | <input type="checkbox"/> Shallow Aquitard (D3) |
| <input type="checkbox"/> Algal Mat or Crust (B4) | <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) | <input type="checkbox"/> FAC-Neutral Test (D5) |
| <input type="checkbox"/> Iron Deposits (B5) | <input type="checkbox"/> Stunted or Stressed Plants (D1) (LRR A) | <input type="checkbox"/> Raised Ant Mounds (D6) (LRR A) |
| <input type="checkbox"/> Surface Soil Cracks (B6) | <input checked="" type="checkbox"/> Other (Explain in Remarks) | <input type="checkbox"/> Frost-Heave Hummocks (D7) |
| <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) | | |
| <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8) | | |

Field Observations:

Surface Water Present? Yes No Depth (inches): _____
 Water Table Present? Yes No Depth (inches): _____
 Saturation Present? (includes capillary fringe) Yes No Depth (inches): _____

Wetland Hydrology Present? Yes No

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: X other: Soils observed to be saturated to surface on May 18th 2020

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project/Site: Rock site City/County: _____ Sampling Date: 6-12-2020
 Applicant/Owner: Rolling Meadows State: CA Sampling Point: plot 2 R
 Investigator(s): Claire Brown / Janel Jackson Section, Township, Range: _____
 Landform (hillslope, terrace, etc.): hillslope Local relief (concave, convex, none): concave Slope (%): 22
 Subregion (LRR): A Lat: 40.32511 Long: -123.77079 Datum: NAD83
 Soil Map Unit Name: 665 NWI classification: none
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)
 Are Vegetation Y, Soil Y, or Hydrology Y significantly disturbed? Are "Normal Circumstances" present? Yes _____ No X
 Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes <u>X</u> No _____ Hydric Soil Present? Yes <u>X</u> No _____ Wetland Hydrology Present? Yes <u>X</u> No _____	Is the Sampled Area within a Wetland? Yes <u>X</u> No _____
Remarks: <u>Area significantly disturbed by grading / road work - soil disturbed shallowly in some areas, deeper in others</u>	

VEGETATION – Use scientific names of plants.

Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	
<u>Tree Stratum</u> (Plot size: _____)				Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>2</u> (A) Total Number of Dominant Species Across All Strata: <u>4</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>50</u> (A/B)
1. _____				
2. _____				
3. _____				
4. _____				
_____ = Total Cover				Prevalence Index worksheet: Total % Cover of: _____ Multiply by: OBL species _____ x 1 = _____ FACW species _____ x 2 = _____ FAC species _____ x 3 = _____ FACU species _____ x 4 = _____ UPL species _____ x 5 = _____ Column Totals: _____ (A) _____ (B) Prevalence Index = B/A = _____
<u>Sapling/Shrub Stratum</u> (Plot size: _____)				
1. _____				
2. _____				
3. _____				
_____ = Total Cover				
<u>Herb Stratum</u> (Plot size: <u>1m²</u>)				Hydrophytic Vegetation Indicators: ___ 1 - Rapid Test for Hydrophytic Vegetation ___ 2 - Dominance Test is >50% ___ 3 - Prevalence Index is ≤3.0 ¹ ___ 4 - Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) ___ 5 - Wetland Non-Vascular Plants ¹ <u>X</u> Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
1. <u>Festuca perennis</u>	<u>25</u>	<u>Y</u>	<u>FAC</u>	
2. <u>Holcus lanatus</u>	<u>25</u>	<u>Y</u>	<u>FAC</u>	
3. <u>Linum bianne</u>	<u>3</u>			
4. <u>trifolium dubium</u>	<u>30</u>	<u>Y</u>	<u>FACU</u>	
5. <u>Helmithotheca echiodes</u>	<u>7</u>			
6. <u>lythrum hyssopifolia</u>	<u>6</u>		<u>OBL</u>	
7. <u>Sonchus asper</u>	<u>1</u>		<u>FACU</u>	
8. <u>Bomus racemosus</u>	<u>2</u>		<u>UPL</u>	
9. <u>Festuca Bromoides</u>	<u>1</u>		<u>FAC</u>	
10. <u>Hordeum marinum</u>	<u>2</u>		<u>FAC</u>	
11. <u>trifolium subterraneum</u>	<u>30</u>	<u>Y</u>	<u>UPL(N)</u>	
<u>132</u> = Total Cover				
<u>Woody Vine Stratum</u> (Plot size: _____)				Hydrophytic Vegetation Present? Yes <u>X</u> No _____
1. _____				
2. _____				
_____ = Total Cover				
% Bare Ground in Herb Stratum <u>10</u>				
Remarks: <u>vegetation super disturbed, recently due to roadwork</u>				

SOIL

Sampling Point: 2R

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-16	N 2.5/1	98	7.5YR 4/6	1	C	M	Clay	very fine Iron concentrations
			10YR 4/6	1	C	M	Clay	small pebbles also present
16-22	2.5Y 2.5/1		7.5YR 4/6	10	C	M	↓	very fine Iron concentrations
			10YR 4/6	5	C	M/P		
22-36	2.5Y 4/1	60	2.5Y 5/2	20	C	M		
			10YR 4/6	20	C	M		
36-50	5Y 5/1	90	N 5/1	5	D	M	↓	fine
			10YR 5/6	5	C	M		

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. ²Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

<input type="checkbox"/> Histosol (A1)	<input type="checkbox"/> Sandy Redox (S5)	<input type="checkbox"/> 2 cm Muck (A10)
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Stripped Matrix (S6)	<input type="checkbox"/> Red Parent Material (TF2)
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Loamy Mucky Mineral (F1) (except MLRA 1)	<input type="checkbox"/> Very Shallow Dark Surface (TF12)
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Loamy Gleyed Matrix (F2)	<input type="checkbox"/> Other (Explain in Remarks)
<input checked="" type="checkbox"/> Depleted Below Dark Surface (A11)	<input checked="" type="checkbox"/> Depleted Matrix (F3)	
<input checked="" type="checkbox"/> Thick Dark Surface (A12)	<input checked="" type="checkbox"/> Redox Dark Surface (F6)	³ Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.
<input type="checkbox"/> Sandy Mucky Mineral (S1)	<input type="checkbox"/> Depleted Dark Surface (F7)	
<input type="checkbox"/> Sandy Gleyed Matrix (S4)	<input type="checkbox"/> Redox Depressions (F8)	

Restrictive Layer (if present):
 Type: _____
 Depth (inches): _____

Hydric Soil Present? Yes No

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

<u>Primary Indicators (minimum of one required; check all that apply)</u>		<u>Secondary Indicators (2 or more required)</u>
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Water-Stained Leaves (B9) (except MLRA 1, 2, 4A, and 4B)	<input type="checkbox"/> Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Salt Crust (B11)	<input type="checkbox"/> Drainage Patterns (B10)
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Aquatic Invertebrates (B13)	<input type="checkbox"/> Dry-Season Water Table (C2)
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)	<input checked="" type="checkbox"/> Geomorphic Position (D2)
<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Shallow Aquitard (D3)
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)	<input type="checkbox"/> FAC-Neutral Test (D5)
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Stunted or Stressed Plants (D1) (LRR A)	<input type="checkbox"/> Raised Ant Mounds (D6) (LRR A)
<input type="checkbox"/> Surface Soil Cracks (B6)	<input checked="" type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> Frost-Heave Hummocks (D7)
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)		
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)		

Field Observations:

Surface Water Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Depth (inches): _____	Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
Water Table Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Depth (inches): _____	
Saturation Present? (includes capillary fringe) Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Depth (inches): _____	

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: Soils observed to be saturated to surface on May 18th, 2020, with standing water 1 inch deep

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project/Site: Rock site City/County: Humboldt Sampling Date: 06-12-2020
 Applicant/Owner: Rolling meadows State: CA Sampling Point: plot 3R
 Investigator(s): Clair Brown / Jerrell Jackson Section, Township, Range: _____
 Landform (hillslope, terrace, etc.): Hillslope Local relief (concave, convex, none): CONCAVE Slope (%): 43
 Subregion (LRR): A Lat: 40.3250 Long: -123.7707 Datum: NAD 83
 Soil Map Unit Name: 665 NWI classification: none

Are climatic / hydrologic conditions on the site typical for this time of year? Yes No _____ (If no, explain in Remarks.)
 Are Vegetation , Soil , or Hydrology significantly disturbed? Are "Normal Circumstances" present? Yes _____ No
 Are Vegetation , Soil , or Hydrology naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No _____ Hydric Soil Present? Yes <input checked="" type="checkbox"/> No _____ Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No _____	Is the Sampled Area within a Wetland? Yes <input checked="" type="checkbox"/> No _____
Remarks: <u>Area significantly disturbed by road work/grading</u>	

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	
1. _____				
2. _____				
3. _____				
4. _____				
_____ = Total Cover				
Sapling/Shrub Stratum (Plot size: _____)				
1. _____				
2. _____				
3. _____				
4. _____				
5. _____				
_____ = Total Cover				
Herb Stratum (Plot size: <u>1m²</u>)				
1. <u>Trifolium dubium</u>	<u>50</u>	<u>Y</u>	<u>FACU</u>	
2. <u>Holcus lanatus</u>	<u>15</u>			
3. <u>Helminthothena scirpoides</u>	<u>4</u>			
4. <u>Vicia tetasperma</u>	<u>4</u>			
5. <u>Festuca perennis</u>	<u>18</u>	<u>Y</u>	<u>PAC</u>	
6. <u>Linum biennale</u>	<u>2</u>			
7. <u>Carduus pycnocephalus</u>	<u>2</u>			
8. _____				
9. _____				
10. _____				
11. _____				
<u>92</u> = Total Cover				
Woody Vine Stratum (Plot size: _____)				
1. _____				
2. _____				
_____ = Total Cover				
% Bare Ground in Herb Stratum <u>10</u>				
Remarks: <u>Vegetation highly disturbed, very recently</u>				

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 50 (A/B)

Prevalence Index worksheet:

Total % Cover of: _____ Multiply by: _____

OBL species _____ x 1 = _____

FACW species _____ x 2 = _____

FAC species _____ x 3 = _____

FACU species _____ x 4 = _____

UPL species _____ x 5 = _____

Column Totals: _____ (A) _____ (B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

1 - Rapid Test for Hydrophytic Vegetation

2 - Dominance Test is >50%

3 - Prevalence Index is ≤3.0¹

4 - Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)

5 - Wetland Non-Vascular Plants¹

Problematic Hydrophytic Vegetation¹ (Explain)

¹Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes No _____

SOIL

Sampling Point: 3R

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-18	N 2.5/	99	7.5YR 5/6	1	C	M	Clay	very fine, prominent Iron carbonate
18-32	10YR 2/1	90	10YR 6/4	7	C	M	clay	"
			4.5YR 5/6	3	C	M	clay	"
32-50	10YR 2/1		10YR 4/1	5	D	M		Faint, fine, Iron depletion
			7.5YR 5/8	3	C	M	clay	
			10YR 5/6	4	C	M	clay	very fine

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. ²Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

<input type="checkbox"/> Histosol (A1)	<input type="checkbox"/> Sandy Redox (S5)	<input type="checkbox"/> 2 cm Muck (A10)
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Stripped Matrix (S6)	<input type="checkbox"/> Red Parent Material (TF2)
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Loamy Mucky Mineral (F1) (except MLRA 1)	<input type="checkbox"/> Very Shallow Dark Surface (TF12)
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Loamy Gleyed Matrix (F2)	<input type="checkbox"/> Other (Explain in Remarks)
<input type="checkbox"/> Depleted Below Dark Surface (A11)	<input type="checkbox"/> Depleted Matrix (F3)	
<input type="checkbox"/> Thick Dark Surface (A12)	<input checked="" type="checkbox"/> Redox Dark Surface (F6)	³ Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.
<input type="checkbox"/> Sandy Mucky Mineral (S1)	<input type="checkbox"/> Depleted Dark Surface (F7)	
<input type="checkbox"/> Sandy Gleyed Matrix (S4)	<input type="checkbox"/> Redox Depressions (F8)	

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes No

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)	Secondary Indicators (2 or more required)
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Salt Crust (B11)
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Aquatic Invertebrates (B13)
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)
<input type="checkbox"/> Drift Deposits (B3)	<input checked="" type="checkbox"/> Geomorphic Position (D2)
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Presence of Reduced Iron (C4)
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)
<input type="checkbox"/> Surface Soil Cracks (B6)	<input type="checkbox"/> Stunted or Stressed Plants (D1) (LRR A)
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input checked="" type="checkbox"/> Other (Explain in Remarks)
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)	<input type="checkbox"/> Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)
	<input type="checkbox"/> Drainage Patterns (B10)
	<input type="checkbox"/> Dry-Season Water Table (C2)
	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)
	<input type="checkbox"/> Shallow Aquitard (D3)
	<input type="checkbox"/> FAC-Neutral Test (D5)
	<input type="checkbox"/> Raised Ant Mounds (D6) (LRR A)
	<input type="checkbox"/> Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present? Yes No Depth (inches): _____

Water Table Present? Yes No Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes No Depth (inches): _____

Wetland Hydrology Present? Yes No

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: X other: soil observed to be saturated to surface on prior site visit - May 18th, 2020

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project/Site: Rock site City/County: _____ Sampling Date: 6-16-2020
 Applicant/Owner: Rolling meadows State: _____ Sampling Point: Plot 4R
 Investigator(s): Clair Brown / Jerril Jackson Section, Township, Range: _____
 Landform (hillslope, terrace, etc.): _____ Local relief (concave, convex, none): CONCAVE Slope (%): 2
 Subregion (LRR): A Lat: 40.32508 Long: 123.77087 Datum: _____
 Soil Map Unit Name: 665 NWI classification: _____
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)
 Are Vegetation N, Soil N, or Hydrology N significantly disturbed? Are "Normal Circumstances" present? Yes X No _____
 Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes _____ No <u>X</u> Hydric Soil Present? Yes _____ No <u>X</u> Wetland Hydrology Present? Yes _____ No <u>X</u>	Is the Sampled Area within a Wetland? Yes _____ No <u>X</u>
Remarks: _____	

VEGETATION – Use scientific names of plants.

Stratum	Absolute % Cover	Dominant Species?	Indicator Status	
<u>Tree Stratum</u> (Plot size: _____)				
1. _____				
2. _____				
3. _____				
4. _____				
_____ = Total Cover				
<u>Sapling/Shrub Stratum</u> (Plot size: _____)				
1. _____				
2. _____				
3. _____				
4. _____				
5. _____				
_____ = Total Cover				
<u>Herb Stratum</u> (Plot size: _____)				
1. <u>Centaurea solstitialis</u>	<u>20</u>	<u>Y</u>	<u>UPL</u>	
2. <u>Limon biale</u>	<u>3</u>			
3. <u>Bromus racemosus</u>	<u>5</u>			
4. <u>Bromus diandrus</u>	<u>8</u>	<u>Y</u>	<u>UPL</u>	
5. <u>Achyras americana c.f.</u>	<u>5</u>			
6. <u>Taraxacum officinale</u>	<u>1</u>			
7. <u>Daucus carota</u>	<u>2</u>			
8. <u>Vicia sp.</u>	<u>1</u>			
9. <u>Glebanium sp.</u>	<u>1</u>			
10. <u>Brodiaea sp.</u>	<u>21</u>			
11. <u>Riza maxima</u>	<u>21</u>			
<u>46</u> = Total Cover				
<u>Woody Vine Stratum</u> (Plot size: _____)				
1. _____				
2. _____				
_____ = Total Cover				
% Bare Ground in Herb Stratum <u>52</u>				
Remarks: _____				

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: _____ (A)

Total Number of Dominant Species Across All Strata: _____ (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: _____ (A/B)

Prevalence Index worksheet:

Total % Cover of: _____ Multiply by:

OBL species _____ x 1 = _____

FACW species _____ x 2 = _____

FAC species _____ x 3 = _____

FACU species _____ x 4 = _____

UPL species _____ x 5 = _____

Column Totals: _____ (A) _____ (B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0¹

___ 4 - Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)

___ 5 - Wetland Non-Vascular Plants¹

___ Problematic Hydrophytic Vegetation¹ (Explain)

¹Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes _____ No X

SOIL

Sampling Point: 6-12-2020

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-4	10YR 3/2	99	10YR 4/3	21	C	M	clay	Very fine, on pebble faces
4-10	10YR 3/1	99	10YR 2/6	21	C	M		very fine
10-18	2.5Y 3/2	94	10YR 3/2	5	C	M		very fine
			10YR 6/6	21	C	M		
			7.5YR 5/6	1	C	M		

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. ²Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

Indicators for Problematic Hydric Soils³:

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Sandy Mucky Mineral (S1)
- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Loamy Mucky Mineral (F1) (except MLRA 1)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)

- 2 cm Muck (A10)
- Red Parent Material (TF2)
- Very Shallow Dark Surface (TF12)
- Other (Explain in Remarks)

³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____
Depth (inches): _____

Hydric Soil Present? Yes _____ No

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

Secondary Indicators (2 or more required)

- | | | |
|--|---|--|
| <input type="checkbox"/> Surface Water (A1) | <input type="checkbox"/> Water-Stained Leaves (B9) (except MLRA 1, 2, 4A, and 4B) | <input type="checkbox"/> Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B) |
| <input type="checkbox"/> High Water Table (A2) | <input type="checkbox"/> Salt Crust (B11) | <input type="checkbox"/> Drainage Patterns (B10) |
| <input type="checkbox"/> Saturation (A3) | <input type="checkbox"/> Aquatic Invertebrates (B13) | <input type="checkbox"/> Dry-Season Water Table (C2) |
| <input type="checkbox"/> Water Marks (B1) | <input type="checkbox"/> Hydrogen Sulfide Odor (C1) | <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) |
| <input type="checkbox"/> Sediment Deposits (B2) | <input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3) | <input type="checkbox"/> Geomorphic Position (D2) |
| <input type="checkbox"/> Drift Deposits (B3) | <input type="checkbox"/> Presence of Reduced Iron (C4) | <input type="checkbox"/> Shallow Aquitard (D3) |
| <input type="checkbox"/> Algal Mat or Crust (B4) | <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) | <input type="checkbox"/> FAC-Neutral Test (D5) |
| <input type="checkbox"/> Iron Deposits (B5) | <input type="checkbox"/> Stunted or Stressed Plants (D1) (LRR A) | <input type="checkbox"/> Raised Ant Mounds (D6) (LRR A) |
| <input type="checkbox"/> Surface Soil Cracks (B6) | <input type="checkbox"/> Other (Explain in Remarks) | <input type="checkbox"/> Frost-Heave Hummocks (D7) |
| <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) | | |
| <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8) | | |

Field Observations:

Surface Water Present? Yes _____ No Depth (inches): _____
 Water Table Present? Yes _____ No Depth (inches): _____
 Saturation Present? (includes capillary fringe) Yes _____ No Depth (inches): _____

Wetland Hydrology Present? Yes _____ No

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project/Site: Rock site City/County: _____ Sampling Date: 6-16-2020
 Applicant/Owner: Rolling meadows State: CA Sampling Point: Plot 5R
 Investigator(s): Claire Brown Section, Township, Range: _____
 Landform (hillslope, terrace, etc.): hillslope Local relief (concave, convex, none): concave Slope (%): 5
 Subregion (LRR): A Lat: 40.32516 Long: -123.77028 Datum: NAD83
 Soil Map Unit Name: 665 NWI classification: none
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes No _____ (If no, explain in Remarks.)
 Are Vegetation , Soil , or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes No _____
 Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No _____ Hydric Soil Present? Yes <input checked="" type="checkbox"/> No _____ Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No _____	Is the Sampled Area within a Wetland? Yes <input checked="" type="checkbox"/> No _____
Remarks: <u>Area has evidence of recent ground vegetation disturbance</u>	

VEGETATION – Use scientific names of plants.

Stratum	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:
<u>Tree Stratum</u> (Plot size: _____)				Number of Dominant Species That Are OBL, FACW, or FAC: <u>1</u> (A)
1. _____				Total Number of Dominant Species Across All Strata: <u>1</u> (B)
2. _____				Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100</u> (A/B)
3. _____				Prevalence Index worksheet:
4. _____				
_____ = Total Cover				OBL species <u>0</u> x 1 = <u>0</u>
<u>Sapling/Shrub Stratum</u> (Plot size: _____)				FACW species <u>0</u> x 2 = <u>0</u>
1. _____				FAC species _____ x 3 = _____
2. _____				FACU species _____ x 4 = _____
3. _____				UPL species _____ x 5 = _____
4. _____				Column Totals: _____ (A) _____ (B)
5. _____				Prevalence Index = B/A = _____
_____ = Total Cover				Hydrophytic Vegetation Indicators:
<u>Herb Stratum</u> (Plot size: <u>1m²</u>)				1 - Rapid Test for Hydrophytic Vegetation
1. <u>Holcus lanatus</u>	<u>60</u>	<u>Y</u>	<u>FAC</u>	<input checked="" type="checkbox"/> 2 - Dominance Test is >50%
2. <u>Taraxacum officinale</u>	<u>6</u>		<u>VPL(M)</u>	3 - Prevalence Index is ≤3.0 ¹
3. <u>Bromus racemosus</u>	<u>8</u>		<u>VPL</u>	4 - Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet)
4. <u>Carduus pycnocephalus</u>	<u>2</u>		<u>VPL(M)</u>	5 - Wetland Non-Vascular Plants ¹
5. <u>Vicia tetra speciosa</u>	<u>1</u>		<u>VPL(M)</u>	Problematic Hydrophytic Vegetation ¹ (Explain)
6. <u>Geranium dissectum</u>	<u>5</u>		<u>VPL</u>	¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
7. <u>Lactuca saligna</u>	<u>21</u>		<u>FACU</u>	
8. <u>Poa trivialis</u>	<u>4</u>		<u>FAC</u>	
9. <u>Geranium molle</u>	<u>1</u>		<u>VPL</u>	
10. <u>Carex tunicata</u>	<u>6</u>		<u>FACU</u>	
11. _____				
<u>92</u> = Total Cover				Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No _____
<u>Woody Vine Stratum</u> (Plot size: _____)				
1. _____				
2. _____				
_____ = Total Cover				
% Bare Ground in Herb Stratum <u>15</u>				
Remarks: _____				

SOIL

Sampling Point: 5R

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (cm)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-15	10YR 2/1	100					Clay	
15-25	N2.5/	98	7.5YR 5/6	2	C	M		Fine, Iron concentrations, prominent - also pebbles with thin coating of same color
25-50	N2.5/		7.5YR 5/6	1	C	M		

fine, iron concentrations, prominent

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. ²Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)		Indicators for Problematic Hydric Soils ³ :	
<input type="checkbox"/> Histosol (A1)	<input type="checkbox"/> Sandy Redox (S5)	<input type="checkbox"/> 2 cm Muck (A10)	
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Stripped Matrix (S6)	<input type="checkbox"/> Red Parent Material (TF2)	
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Loamy Mucky Mineral (F1) (except MLRA 1)	<input type="checkbox"/> Very Shallow Dark Surface (TF12)	
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Loamy Gleyed Matrix (F2)	<input type="checkbox"/> Other (Explain in Remarks)	
<input type="checkbox"/> Depleted Below Dark Surface (A11)	<input type="checkbox"/> Depleted Matrix (F3)		
<input type="checkbox"/> Thick Dark Surface (A12)	<input checked="" type="checkbox"/> Redox Dark Surface (F6)		³ Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.
<input type="checkbox"/> Sandy Mucky Mineral (S1)	<input type="checkbox"/> Depleted Dark Surface (F7)		
<input type="checkbox"/> Sandy Gleyed Matrix (S4)	<input type="checkbox"/> Redox Depressions (F8)		

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes No

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)	Secondary Indicators (2 or more required)
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Drainage Patterns (B10)
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Dry-Season Water Table (C2)
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)
<input type="checkbox"/> Drift Deposits (B3)	<input checked="" type="checkbox"/> Geomorphic Position (D2)
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Shallow Aquitard (D3)
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> FAC-Neutral Test (D5)
<input type="checkbox"/> Surface Soil Cracks (B6)	<input type="checkbox"/> Raised Ant Mounds (D6) (LRR A)
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Frost-Heave Hummocks (D7)
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)	
<input checked="" type="checkbox"/> Other (Explain in Remarks)	

Field Observations:

Surface Water Present? Yes No Depth (inches): _____

Water Table Present? Yes No Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes No Depth (inches): _____

Wetland Hydrology Present? Yes No

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: Soil moist - other soil was observed to be saturated to surface during a site visit on May 18th, 2020

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project/Site: Rock site City/County: _____ Sampling Date: 6-16-2020
 Applicant/Owner: Rolling meadows State: CA Sampling Point: 6R
 Investigator(s): Clare Brown Section, Township, Range: _____
 Landform (hillslope, terrace, etc.): hillslope Local relief (concave, convex, none): none Slope (%): 4
 Subregion (LRR): A Lat: 40.32511 Long: -123.77035 Datum: _____
 Soil Map Unit Name: 665 NWI classification: none

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)
 Are Vegetation N, Soil N, or Hydrology N significantly disturbed? Are "Normal Circumstances" present? Yes X No _____
 Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes _____ No <u>X</u> Hydric Soil Present? Yes _____ No <u>X</u> Wetland Hydrology Present? Yes _____ No <u>X</u>	Is the Sampled Area within a Wetland? Yes _____ No <u>X</u>
Remarks:	

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	
1. _____				
2. _____				
3. _____				
4. _____				
_____ = Total Cover				
Sapling/Shrub Stratum (Plot size: _____)				
1. _____				
2. _____				
3. _____				
4. _____				
5. _____				
_____ = Total Cover				
Herb Stratum (Plot size: <u>1m²</u>)				
1. <u>Holcus lanatus</u>	<u>6</u>	<u>Y</u>	<u>FAC</u>	
2. <u>Helminthotheca echioides</u>	<u>3</u>	<u>Y</u>	<u>FAC</u>	
3. <u>Festuca perennis</u>	<u>3</u>	<u>Y</u>	<u>FAC</u>	
4. <u>Trifolium dubium</u>	<u>3</u>	<u>Y</u>	<u>FACU</u>	
5. <u>Taraxacum officinale</u>	<u>1</u>			
6. <u>Linum catharticum</u>	<u>2</u>			
7. <u>Cirsium vulgare</u>	<u>1</u>			
8. <u>Bromus sp</u>	<u>1</u>			
9. <u>Lysimachia arvensis</u>	<u>1</u>			
10. <u>Avena barbata</u>	<u>1</u>			
11. <u>Hordeum marinum</u>	<u>3</u>	<u>Y</u>	<u>FAC</u>	
<u>25</u> = Total Cover				
Woody Vine Stratum (Plot size: _____)				
1. _____				
2. _____				
_____ = Total Cover				
% Bare Ground in Herb Stratum <u>77</u>	_____ = Total Cover			
Remarks:				

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 4 (A)

Total Number of Dominant Species Across All Strata: 5 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 80 (A/B)

Prevalence Index worksheet:

Total % Cover of: _____ Multiply by:

OBL species _____ x 1 = _____

FACW species _____ x 2 = _____

FAC species _____ x 3 = _____

FACU species _____ x 4 = _____

UPL species _____ x 5 = _____

Column Totals: _____ (A) _____ (B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

____ 1 - Rapid Test for Hydrophytic Vegetation

X 2 - Dominance Test is >50%

____ 3 - Prevalence Index is ≤3.0¹

____ 4 - Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)

____ 5 - Wetland Non-Vascular Plants¹

____ Problematic Hydrophytic Vegetation¹ (Explain)

¹Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes X No _____

SOIL

Sampling Point: 6R

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-4	10YR3/2	99	10YR 7/6	1	C	M	Clay	very fine
4-12	10YR 2/1	99	10YR 8/4	1	C	M		very fine
12-18	3N/	98	10YR 8/6 5YR 5/8	2 1	C	M M/PL	Clay	very fine

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. ²Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

Indicators for Problematic Hydric Soils³:

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Sandy Mucky Mineral (S1)
- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Loamy Mucky Mineral (F1) (except MLRA 1)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)

- 2 cm Muck (A10)
- Red Parent Material (TF2)
- Very Shallow Dark Surface (TF12)
- Other (Explain in Remarks)

³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____
Depth (inches): _____

Hydric Soil Present? Yes _____ No X

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

Secondary Indicators (2 or more required)

- Surface Water (A1)
- High Water Table (A2)
- Saturation (A3)
- Water Marks (B1)
- Sediment Deposits (B2)
- Drift Deposits (B3)
- Algal Mat or Crust (B4)
- Iron Deposits (B5)
- Surface Soil Cracks (B6)
- Inundation Visible on Aerial Imagery (B7)
- Sparsely Vegetated Concave Surface (B8)
- Water-Stained Leaves (B9) (except MLRA 1, 2, 4A, and 4B)
- Salt Crust (B11)
- Aquatic Invertebrates (B13)
- Hydrogen Sulfide Odor (C1)
- Oxidized Rhizospheres along Living Roots (C3)
- Presence of Reduced Iron (C4)
- Recent Iron Reduction in Tilled Soils (C6)
- Stunted or Stressed Plants (D1) (LRR A)
- Other (Explain in Remarks)

- Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)
- Drainage Patterns (B10)
- Dry-Season Water Table (C2)
- Saturation Visible on Aerial Imagery (C9)
- Geomorphic Position (D2)
- Shallow Aquitard (D3)
- FAC-Neutral Test (D5)
- Raised Ant Mounds (D6) (LRR A)
- Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present? Yes _____ No X Depth (inches): _____
 Water Table Present? Yes _____ No X Depth (inches): _____
 Saturation Present? Yes _____ No X Depth (inches): _____
 (includes capillary fringe)

Wetland Hydrology Present? Yes _____ No X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Appendix N

Limited Literature Review and Working Protocol, Western Bumble Bee
(*Bombus occidentalis*); NRM, Sept 2020

Limited Literature Review and Working Protocol for the Western Bumble Bee (*Bombus occidentalis*)
Status: CA State Candidate Endangered

There is currently no adopted protocol for determining presence-absence of the western bumble bee.

The current occupancy of Humboldt County by the western bumble bee is unclear. The trend for all of California and the Pacific Northwest indicates that the coastal areas and lowland areas dominated by agricultural crops and intensive grazing are unpopulated or experiencing declines, with the interior and higher elevation regions (montane meadows) still hosting viable populations (Xerces Society, 2018).

In Humboldt County, most vetted occurrences are historical (1950s-1970s). The most current vetted (CNDDDB) reports of Western bumble bee in Humboldt County come from 2013 and 2015 in the Grouse Mountain Quad near Spike Buck Mountain (-123.67803, 40.76655)

There are three additional current, but still unvetted, accounts across Humboldt County that come from bumblebeewatch.org. One unvetted account (2019) occurs in the Wildwood Quadrangle, south of the town of Wildwood (-123.05998, 40.38876). Another unvetted account (2019) occurs in the Hayfork Quadrangle, north of the town of Hayfork (-123.18064, 40.57557). Lastly, there was a report from 2020 in the Sister Rocks Quadrangle, south of Crescent City (-124.13879, 41.70161).

There are additional occurrences for Humboldt County available via the CNDDDB 'Quickview' Tool; however, these, while dated, do not have readily accessible locational data and are therefore not include here.

The lack of vetted reports from Humboldt County since the historic records may not indicate a true absence of the western bumble bee, but, a lack of recent data collection attempts/effort. In a 2020 publication, *Western bumble bee: declines in the continental United States and range-wide information Gaps* (Ecosphere, June 2020, Volume 11(6)), author Tabitha Graves from the U.S. Geological Survey, Northern Rocky Mountain Science Center, and colleagues describe the percent of recent sampling (2011-2018) of the western bumble bee's historic range as only 3.0% while expanding that to include historical data (from 1965-2018) encompasses 41.0% of the bees historic range.

In order to provide suitable impact mitigations for projects undergoing environmental review, a determination of presence or absence will be necessary in areas of Humboldt County where the western bumble bee may be reasonably expected to occur.

This document first outlines existing bumble bee protocols/methods for habitat and presence/absence surveys. Following the summary of protocols, this document synthesizes the available protocol examples into a temporary/interim protocol to be applied to Humboldt County projects undergoing environmental review (CEQA) until such a time as CDFW formally adopts a western bumble bee survey protocol or otherwise provides direction regarding preferred methods of determining western bumble bee presence and procedures (buffers of nests, timing of work, etc.) at a given project location.

Review of existing practices/protocols (not exhaustive)

1. The Xerces Society (Ward, K., D., et al, 2014) has a “Streamlined Bee Monitoring Protocol for Assessing Pollinator Habitat.” This is a transect based survey that attempts to capture habitat success based on a positive correlation with native bee abundance. This protocol provides guidelines regarding ambient air temperature and general day and seasonal timelines for bee activity:

In California, you can survey bees anytime between May and July.

Ambient temps should be greater than 60 degrees (F) and wind should be less than 8mph.

https://xerces.org/sites/default/files/2018-05/14-021_01_XercesSoc_Streamlined-Bee-Monitoring-Protocol_web.pdf

This protocol may be helpful in assessing sites for foraging options, but as bumble bees are generalist foragers, it may be more helpful to assume that any collection of floral resources constitute potential foraging habitat for bees.

2. Local pollinator expert Dr. Michael Mesler (personal communication with NRM, 2020) suggested to look for nest-seeking queens early in the season (queens that are flying around looking for suitable holes for nests). This behavior is very obvious and queens are large, easy to spot. The presence of searchers isn’t ironclad evidence for future colonies, but it’s highly suggestive as bees are highly philopatric and would indicate a need for nest surveys before any ground disturbance begins. On the other hand, a lack of queens present would suggest the bumble bee is not using the habitat and nest surveys would not be required.

This recommendation did not include specific protocols, but implied that free surveys (no transect) of the area during the early emergence of the queens from overwintering sites would allow for detection. As the date of emergence is not well documented and is weather dependent, multiple early season searches might be required.

3. Additional research (O’Conner, 2017) supports the conclusion that the presence of nest-seeking queens in an area is directly, positively, associated with the presence of nests in the area later in the year. This survey utilized the methodology presented by Lye et al.(2009) in which a surveyor walked a set number of transects of 100m at a slow and constant pace. The transects were visited weekly for seven weeks. Lye et al (2009) found that nest seeking queens were found more often along field margins, while foraging bees were more often found in grasslands with higher floral resources.

O’Conner et al., 2017:

<http://sro.sussex.ac.uk/id/eprint/68235/3/Spring%20queens%20predict%20nest%20sites%202014%20revised%2030%20March.pdf>

Lye et al., 2009:

<http://citeseerx.ist.psu.edu/viewdoc/download?doi=10.1.1.420.4383&rep=rep1&type=pdf>

These studies would indicate support for bumble bee queen surveys as indicated by Dr. Mesler.

4. A protocol for locating bumble bee nests is provided in Osborne et al., *Quantifying And Comparing Bumblebee Nest Densities in Gardens and Countryside Habitats* (2008). Here, surveyors choose a 6x6 meter square or a 2x10 meter strip and observe for 20 minutes. This survey was designed to capture

preferred habitats for nesting. The surveys were performed in late June and early July; the timing was chosen to “ensure nests were likely to have grown large enough for their forager traffic to be noticed, but before nests were likely to die off or succumb to predation or disease, which tends to happen in late July and August.” The results indicate that bumble bee queens prefer linear habitats (woodland edge, fence lines, etc) in non-residential, ‘countryside’ areas.

<https://besjournals.onlinelibrary.wiley.com/doi/full/10.1111/j.1365-2664.2007.01359.x>

This article also indicates that surveying for nest-seeking queens may or may not indicate a successful nesting location, but does constitute a method for detecting presence of bees in the area.

5. O’Connor et al. (2012) looked at the effectiveness of dogs vs. humans in finding bumble bee nests. This research found humans conducting “fixed searches” during the flight season found a high proportion of nests, while “free searches” found nests more quickly but found less of the overall nests in a given area. A “fixed search” consisted of observing a 6x6 meter area for 20 minutes (see Osborne et al (2008)). A “free search” consisted of a person moved around in a woodland habitat at their own pace in any direction they chose.

This type of ‘fixed search’ may be useful for finding all colonies in an impact area if bees are present in the area. However, this survey method is extremely time consuming for larger projects. As mentioned above, the western bumble bee has large colonies with as many as 1,685 workers (Xerces, 2018), the 20 minute observation time might be modified (decreased).

6. In 2015, a multi-agency effort (Forest Service and BLM; *2015 SW Oregon Integrated Western Bumble Bee Survey Project*) surveyed public lands in SW Oregon (over the month of July) to establish current range - presence or absence of the western bumble bee utilizing historic reports. While the authors acknowledge some variation of site specific goals, this survey protocol is summarized as follows:

The project protocol was for all sites to have at least two hours of survey effort in suitable habitat at or near the historic location unless WBB were detected during the first hour of survey.

Two hours of surveying the area’s optimal habitat (only one hour was necessary if the western bumble bee was observed during the first hour) during the flight season was considered adequate to determine presence/absence of the western bumble bee in a designated location. <https://www.fs.fed.us/r6/sfpnw/issssp/documents4/inv-rpt-iihy-bombus-occidentalis-sw-oregon-2015.pdf>

While the areas surveyed in this study were specifically targeting known historic populations of western bumble bees, it could be argued that these areas, like all areas in the west, once had viable populations of western bumble bee and this survey method would therefore be suitable for any area in the bee’s historic range.

7. The US Fish and Wildlife Survey Protocol for the Rusty Patched Bumble Bee (Feb 2018) provides a variety of protocols that depend on location of the survey that provide presence absence data. The location is generally defined as one of three categories: low potential (could be present, but unlikely), high potential (very likely to be present), and unoccupied (consecutive years of neg results indicate that these areas are no longer occupied by the bee). These zones are based on historical records and recent survey results and not explicitly on habitat.

Survey efforts for High Potential Zones require “four equally spaced sampling periods” during the flight season. Each effort consisting of one (1) person-hour per three acres of the highest quality habitat in the survey area.

For areas where there is little evidence that the bumble bee is present, at least one (1) survey effort for one (1) hour per three (3) acres of the highest quality habitat is required.

All surveys should “Surveys should take place when temperatures are above 60°F (15.5°C) and not during wet conditions (e.g., foggy, raining, or drizzling). Wait at least 1 hour after rain subsides before conducting a survey. Sunny days with low wind speeds (less than 8 mph) are optimal. Partially cloudy days or overcast conditions are permissible if you can still see your shadow” (p.7).

<https://www.fws.gov/midwest/endangered/insects/rpbb/pdf/SurveyProtocolsRPBB28Feb2018.pdf>

This is the only officially (Fed or State) adopted bumble bee survey that I found to this point. In CA, the ability to analyze/divide zones based on survey data is not yet an option, but the determination for choosing the zones can be generally adapted based on habitat type and condition. That it, aligning with other pollinator protocols (ie: Quino checkerspot butterfly – see #8 below), areas without floral resources are not surveyed.

8. The survey protocol for the Quino checkerspot butterfly (USFW, 2002) is designed to provide “credible ‘presence-absence methodology” for butterfly pollinators. Here, the protocol identifies a site assessment as an important step and clarifies “excluded areas” based on site characteristics: in closed canopy forests or small forest openings, in areas surrounded by development, or in active agricultural areas without appropriate floral resources.

This pollinator protocol also explicitly defines inappropriate weather conditions for surveys: fog, drizzle, or rain; sustained winds greater than 15 miles (24 kilometers) per hour measured 4-6 feet (1.2-1.8 meters) above ground level; temperature in the shade at ground level less than 60/ F (15.5/ C) on a clear, sunny day; or less than 70/ F (21/ C) on an overcast or cloudy day.

The protocol dictates five (5) evenly spaced surveys during fair weather that consist of walking (approximately 10-15 acres per hour) with periodic observations by the surveyor.

https://www.fws.gov/ventura/docs/species/protocols/qcbf/qchkrspbfly_survprotocols.pdf

9. The Pacific Northwest Bumble Bee Atlas Project provides descriptions of ‘point surveys’ to determine presence or absence of bees in an area. The protocol for these surveys includes two (2) 45-min surveys during the flight season that cover approximately one (1) hectare (2.5 acres). These surveys are designed to target optimal flowering habitat and include capture and release of bees.
<https://www.pnwbumblebeeatlas.org/point-surveys.html>

10. A University of Minnesota protocol for determining presence/absence of bees also suggests three surveys during the flight season that consist of watching an optimal/best habitat for a short duration of time and then moving to another optimal habitat area.

https://apps.extension.umn.edu/environment/citizen-science/bee-atlas/bumblebees/docs/bumblebee_manual_2018.pdf

11. This USDA survey guide for the pacific northwest suggests that bumblebee “surveys are to be conducted for a total of 1.5 collector hours in a ~100 m diameter plot.” The plot should be in the best/most optimal habitat available in the area. Furthermore, this guide recommends bee surveys occur in July/August when workers, fall queens, and males may be encountered.
<https://www.ars.usda.gov/ARSUserFiles/20800500/2015MonitoringBumbleBeesInThePacificNorthwest.pdf>

Interim/working protocol for determining presence-absence of western bumble bee in project area

Based on the common themes from the list of protocols immediately available (not exhaustive), and considering that these surveys will be designed to allow project proponents and environmental planners to evaluate and mitigate for potential impacts to the western bumble bee, NRM proposes the following:

If a project is **LIKELY** to continue to provide nesting/foraging habitat for the western bumble bee and where “likely” means that the project is near (9-quad area) a recently documented occurrence (2011-present), or where the project is in the historic range of the western bumble bee and has available floral resources:

1. The project must determine presence/absence.

This can be achieved with three (3) nest seeking queen surveys **or** three (3) flight season surveys

- Nest-seeking queen surveys will target suspected preferred nesting areas (linear features with emphasis on forest transition zones). These surveys will be evenly spaced (approx. every two weeks) over the span of two months (Feb/March or March/April) depending on the expected emergence of the bee at the project area (weather dependent – queens are active after top layer of soil is consistently warm). The surveys will take place during warm sunny days over 70°F (21°C) without fog/rain or wind over 15mph. Surveyors will spend approximately one person hour per every three (3) acres surveyed. Searches will be conducted by a qualified biologist and use photography as means of positive identification of *Bombus* species unless a permit for handling bees is secured.
- Flight season surveys will target the optimal habitat in the project area and consist of a minimum of one (1) person hour per 3 acres of optimal habitat. Habitat that does not offer floral resources will not be surveyed. These three (3) surveys will be ‘free searches.’ They will be evenly spaced (one week apart) in the month of July (June/Aug depending on site conditions/season). The surveys will take place during warm sunny days over 70°F (21°C) without fog/rain or wind over 15mph. Searches will be conducted by a qualified biologist and use photography as means of positive identification of *Bombus* species unless a permit for handling bees is secured.

2. If present, the project will conduct nest searches in the impacted (earth disturbance) area.
 - These will be conducted during the flight season using a modified version of the transect methodology presented by Osborne, J. et al. (2008). Qualified surveyors will utilize compass and pacing to walk a grid of the impact area (the impact area is a buffered area beyond the specific project footprint). In general, surveyors will spend 5 minutes for every 6m x 6m area. The surveys will take place during warm sunny days over 70°F (21°C) without fog/rain or wind over 15mph. Any nests that are found will be flagged and mapped and surveyor will consult with CDFW to determine appropriate action/nest buffer areas.

If a project is **UNLIKELY** to provide nesting/foraging habitat for the western bumble bee and where “unlikely” means that the project doesn’t have, or has limited floral resources, is in a lowland area characterized by intensive agriculture or animal grazing, and is not near (9-quad area) a recent verified occurrence:

1. The project must determine presence/absence.

This can be achieved with one (1) nest seeking queen surveys **or** one (1) flight season surveys

- The nest-seeking queen survey will target suspected preferred nesting areas (linear features with emphasis on forest transition zones). The survey will occur in early spring depending on the expected emergence of the bee at the project area (weather dependent). The surveys will take place during warm sunny days over 70°F (21°C) without fog/rain or wind over 15mph. Surveyor(s) will spend approximately one person hour per every three (3) acres surveyed. The search will be conducted by a qualified biologist and use photography as means of positive identification of *Bombus* species unless a permit for handling bees is secured.
 - A flight season survey will target the optimal habitat (flowering) in the project area and consist of a minimum of one (1) person hour per 3 acres of optimal habitat. Habitat that does not offer floral resources will not be surveyed. The survey will be a ‘free search,’ conducted in the month of July (June/Aug depending on site conditions/season). The survey will take place during warm sunny days over 70°F (21°C) without fog/rain or wind over 15mph. The search will be conducted by a qualified biologist and use photography as means of positive identification of *Bombus* species unless a permit for handling bees is secured.
2. If present, the project will conduct nest searches in the impacted (earth disturbance) area.
 - These will be conducted during the flight season using a modified version of the transect methodology presented by Osborne, J. et al. (2008). Qualified surveyors will utilize compass and pacing to walk a grid of the

impact area (the impact area is a buffered area beyond the specific project footprint). The survey will take place during warm sunny days over 70°F (21°C) without fog/rain or wind over 15mph. In general, surveyors will spend 5 minutes for every 6m x 6m area. Any nests that are found will be flagged and mapped and surveyor will consult with CDFW to determine appropriate action/nest buffer areas.