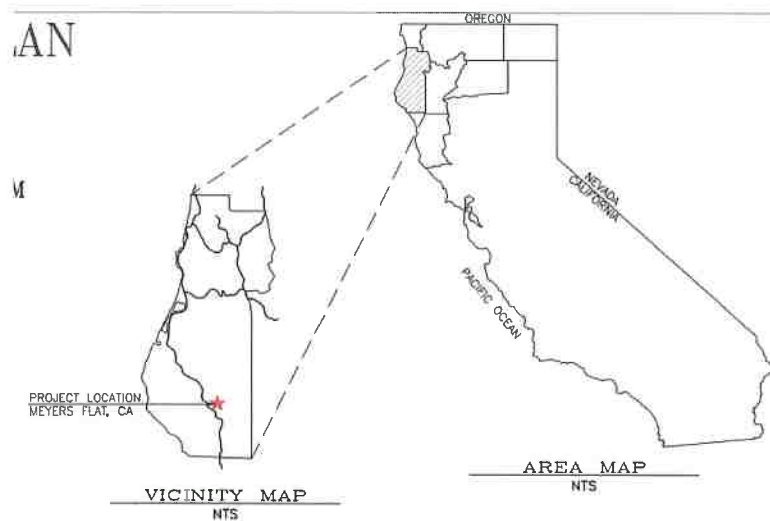


Trinity Valley Consulting Engineers

Biological Resource Assessment

DIB Management

Humboldt County APN # 211-341-073



Iris Koski, MS
11-22-2018



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i. Abbreviations Defined:

AC: Activity Center

ACE: Areas of Conservation Emphasis

AMM's: Avoidance and Mitigation Measures

BRA: Biological Resource Assessment

BAA: Biological Assessment Area

CALFIRE: California Department of Forestry and Fire Prevention

CCLUO: Commercial Cannabis Land Use Ordinance

CDFA: California Department of Food and Agriculture

CDFW: California Department of Fish and Wildlife

CEQA: California Environmental Quality Act

CESA: California Endangered Species Act

CH: Critical Habitat

CNDDDB: California Natural Diversity Database

CNPS: California Native Plant Society

CWA: Clean Water Act

CWHR: California Wildlife Habitat Relationship

DPS: Distinct Population Segment

EC: Erosion Control

EPM: Environmental Protection Measure

ESU: Evolutionarily Significant Unit

FESA: Federal Endangered Species Act

IUCN: International Union for the Conservation of Nature

LLR: Land Resource Region

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MBTA: Migratory Bird Treaty Act

NHD: National Hydrology Dataset

NRCS: Natural Resources Conservation Service

NSO: Northern Spotted Owl

NSP: Nonpoint Source Pollution

RPF: Registered Professional Forester

RRR: Retirement, Remediation, Relocation

SMA: Streamside Management Area

SSC: Species of Special Concern

THP: Timber Harvest Plan

TMDL: Total maximum daily load

TPZ: Timberland Production Zone

USACE: US Army Corps of Engineers

USGS: United States Geological Survey

VM: Vegetation Management

WLPZ: Watercourse and Lake Protection Zone

WOTUS: Waters of the United States

WRPP: Water Resource Protection Plan

WSS: Web Soil Survey

I. INTRODUCTION

This document is a Biological Resource Assessment (BRA) associated with the state and county cannabis cultivation application for the property of Jared Sandifer, located at 10924 Dyerville Loop Road in Myers Flat, northwestern California. The Biological Assessment Area (BAA) is Humboldt County APN # 211-341-073, an 11.06 acre parcel, zoned U (Unclassified) under the Humboldt County General Plan. The California Department of Fish and Wildlife (CDFW) and California Department of Food and Agriculture (CDFA) require that each cannabis cultivation applicant conduct full (BRA) that analyzes the potential impacts of this operation upon biological resources.

Land use conversions from timberland and ranches to cannabis production areas have been linked to a variety of significant ecological threats. These widespread conversions have resulted in increased sediment delivery into waterways, significant stream and spring diversions in already-depleted river systems, forest fragmentation, and various forms of pollution that are harmful to natural and human communities.

The purpose of this BRA is to inventory the biological resources present or potentially present onsite, assess the potential impacts, and offer mitigation strategies to prevent detrimental impacts to sensitive species and habitats. It is anticipated that it will be used by any concerned agencies or departments for the purposes of forming a biological opinion regarding the cannabis permit application.

The Applicant seeks a two-acre cannabis cultivation license. One acre of cannabis cultivation will be utilized by the Applicant, and the remaining one acre will be utilized by a candidate for RRR (Retirement, Remediation and Relocation). CEQA (California Environmental Quality Act) designates Humboldt County as the lead agency guiding project implementation, in cooperation with jurisdictional authority from other agencies. This document is written pursuant to the Humboldt County Commercial Cannabis Land Use Ordinance (CCLUO) Version 2.0 Ordinance Number 2599, released in summer of 2018.

The Sandifer BAA is in a biologically productive area that supports numerous special status wildlife, plants and habitats. A suite of species in the

immediate area have been identified via field visits and available databases and documentation with the potential to occur within the BAA or in its range of impact. Potential threats to these species or their habitats resultant of any phase of this cannabis cultivation project are evaluated. Each ecological threat is assigned a corresponding EPM (Environmental Protection Measure). An EPM is intended to mitigate activities which may result in deleterious environmental impacts.

The Sandifer property will require modifications to its infrastructure to comply with standards set forth by CDFW, County of Humboldt Building and Planning Department, County of Humboldt Department of Environmental Health, and State and North Coast Regional Water Quality Control Boards (RWQCB).

Grading will be required for the purpose of constructing a rainwater catchment impoundment structure, which will result in a maximum disturbance of 0.7 acres. Although temporary, the ground-disturbing nature of grading activities may have effects upon the immediate BAA as well as downstream waterways, particularly in respects to potential sediment delivery into Waters of the State and US. Ground disturbance also has the potential to increase the colonization of invasive species onsite.

2. REGIONAL SETTING AND BIOLOGICAL ASSESSMENT AREA

2.1 Regional setting

The BAA is located on the Dyerville Loop Road, which follows Mail Ridge above Myers Flat, California. It is located within a small agricultural neighborhood situated above the Eel River known as Elk Prairie. The area has a Mediterranean climate, with cool, wet winters and hot, dry summers. It receives an average of 56 inches of rain annually, with a rainy season generally lasting from October to March. There is almost no significant rainfall during the summer months. The area experiences significant coastal fog and temperature buffering associated with coastal areas at times, but also undergoes periods of prolonged heat and drought.

The Eel River has federal Wild and Scenic designation and is the third largest river in California, with a total drainage of more than 9,500 square kilometers. Due to its steep gradient, seismic location near the Mendocino Triple Junction, and highly fractured and weathered parent material, the Eel is among the top ten most sediment-laden rivers in the world (Powers et al. 2015). Loss of slope stability due to clearing of forests and construction of roads has greatly exacerbated this naturally high sediment load in the Eel watershed.

2.2 Land use history

The Dyerville Loop has been used extensively by humans for millennia. The area was a well-used hunting and gathering route and living site for native Americans, such as the Weott tribe, who utilized a complex trail network throughout these mountains and ridgelines that that connected villages and facilitated access to game, fish, and plant resources. The adjacent Eel River was the principal food source for indigenous tribes, with its abundant runs of Chinook, steelhead, and Coho, as well as sturgeon and lamprey.

Arriving European settlers continued the use of these existing indigenous travel corridors. During the mid to late 1800's, the Dyerville Loop road was a well-used stagecoach route. The adjacent Eel River was utilized for shipping goods via boat, primarily lumber logged from the abundant redwood forests in the area. The vast amount of logging necessitated an equally vast network of roads. Road and bridge construction in the drainages of the Eel proliferated, contributing to erosion and landslides on a massive scale.

Timber extraction and other land conversion activities in the Eel and its tributaries have cumulatively contributed to the nonpoint source sediment (NPS) load. Some impacts of increased NPS include detrimental effects on salmonids, decreasing stability of soils and slopes, infiltrated domestic and agricultural water supplies, as well as increases in flooding and property damage. The Eel was listed under the Clean Water Act (CWA) Section 303 by the NCRWQCB and the US

Environmental Protection Agency (EPA) as a “sediment-impaired water body” (Weppner et al. 2008).

Anthropogenic activities resulting in NPS throughout the Eel watershed have had particularly severe impacts upon historically strong anadromous fish populations (Pacific Watershed Associates 2012). Historic and current sources of watershed sedimentation are road construction, timber harvest, development, agriculture, mining, and, more recently, cannabis farming. These sediments make conditions inhospitable for anadromous fish by altering the biota of the food chain, clogging their gills, filling in interstitial spaces in their spawning gravel, and inhibiting their feeding efficiency (NOAA 2004).

2.3 Current Conditions

The BAA is zoned U (Unclassified); the dominant landcover types on the parcel are annual grassland, viticulture (with 4.2 acres of grapes currently in production), and cannabis (10,000 square feet of greenhouse production).

The property has a residence as well as a few outbuildings and other infrastructure associated with vineyard operations. The vineyard and cannabis are irrigated with water from a well, which is transferred via well pump to five 2,500-gallon storage tanks.

2.4 Physical site characteristics

The Sandifer property has a gently sloping Southwesterly aspect, with slopes ranging from 5-20%. Two class III (ephemeral) watercourses flow through the property near the eastern and western property lines. The water onsite originates from a combination of perennial groundwater and rain (Water Resources Control Board 2018).

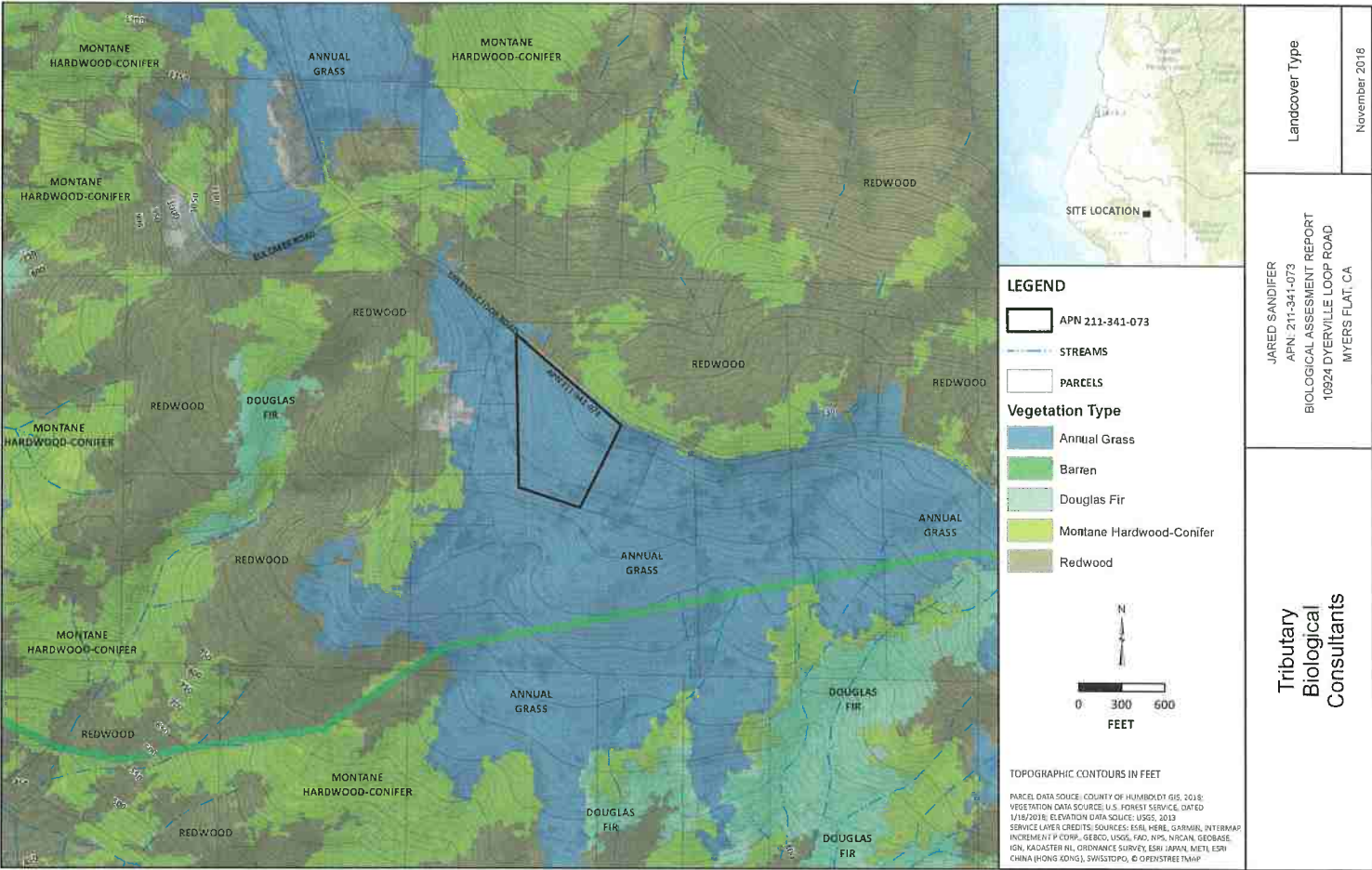
The western portion of the property contains a swale in which originate the headwaters of a class III watercourse. Downslope of the Sandifer property on a

neighboring parcel, the watercourse expands, forming a wet area (seep) that supports hydrophytic vegetation. This seep area is several hundred meters from the Sandifer property line.

2.5 Biological site characteristics

The BAA is comprised primarily of annual grassland (AGS), with a co-dominance of both native and non-native grasses. There are some small remnant stands of mature Douglas fir and oak savanna on the property, but the majority has been converted to agriculture for many decades. Large tracts of heavily forested timberland are visible on surrounding ridgetops; the majority of these are in TPZ (timberland production zone) ownerships.

Figure 1. Natural communities of the BAA and vicinity.



3. PROJECT IMPACTS AND MITIGATION MEASURES

3.1 Environmental Protection Measures

There may be various potential impacts upon sensitive species and habitats associated with this proposed cannabis cultivation operation. For each potential impact identified within the scope of this project, a corresponding environmental protection measure (EPM) is supplied that is designed to mitigate these impacts. These EPM's are derived from mitigation measures specified in the CCLUO and by other jurisdictional agencies. The full list of mitigation measures and corresponding EPM's created for this analysis are listed in Table 1. A thorough assessment of the impacts of this proposed cannabis operation upon biological and water resources is required. CDFW is the lead agency to ensure that species protected under the California Endangered Species Act (CESA) set forth by Section 21000 of CEQA. Aquatic protection requirements are set forth by NCRWQB Order number R1-2015-0023 for Tier 2 qualifications. A suite of species with special status at state or federal levels and with some likelihood to occur onsite according to the CNDDDB, CWHR, and CNPS data must be given additional consideration. These special species and the ways in which this project could impact them are identified and discussed.

For each potential impact identified within the scope of this project, a corresponding environmental protection measure (EPM) is supplied that is designed to mitigate these impacts. The full list of EPM's created for this project analysis are listed in Table 1.

Table 1. Environmental Protection Measures and Mitigation Descriptions.

| CCLUO | EPM | Mitigation Description |
|------------------|------------|---|
| 3.4-1f | BIO-1 | Construction activities that require vegetation removal will be planned to occur outside of bird nesting season (1 March- 15 August). |
| 3.4-1f | BIO-2 | If construction activities occur during raptor and migratory bird nesting season (1 February-31 August) a qualified biologist will conduct a pre-construction survey in areas of planned disturbance (vegetation removal, trenching, directional drilling, road construction). Bird nests will be given a 100-foot buffer and raptor nests will be given a 500-foot buffer. |
| 3.4-1e | BIO-3 | Impacts to Northern spotted owl (NSO) will be assessed. If NSO activity centers are found in the site or within auditory or visual disturbance range, 2 year of USFS protocol-level surveys will be conducted. Nests within 1.3 miles of development activities will be documented and potential risk of disturbance will be evaluated. Removal of old-growth habitat will be prohibited. |
| 3.4-1g | BIO-2 | Impacts to marbled murrelets will be assessed. If murrelets are found to be present within 0.25 miles, a protective buffer will be established around active nests. No project activity may occur within the buffer area until the breeding season ends (6 August). |
| 3.4-1g 3.4-1j | BIO-4 | A biologist will conduct surveys for denning mammals any appropriate habitat before vegetation removal or site development. Any dens or roosts found will be protected by a 400-foot buffer. |
| 3.4-1k | BIO-9 | Pre-construction bat survey. |
| 3.4-1c | BIO-5 | A biologist will conduct surveys for amphibians or Western pond turtles in any SMA's within 200 feet of proposed development or disturbance. If special status amphibians/turtles are found, development will be moved to no less than 400 feet from the SMA. |
| 3.4-1h | BIO-6 | Ambient light and noise pollution shall be minimized. Structures that emit light shall be blocked to prevent light escapement in hours of natural darkness. Noise will not exceed 50 decibels at the property line or will not be greater than ambient noise. Generators will not supply greater than 20% of the cultivation site's overall energy demands. |
| 3.4-3a | BIO-7 | Rare plants surveys will be conducted throughout the BAA, with particular emphasis on areas that will be disturbed or influenced by construction or cultivation. |

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| 3.4-4 | BIO-8 | Storage ponds and tanks as well as standing water on the property will be searched for signs of invasive American bullfrogs. |
| 3.4-4 | SMA-1 | All site development will occur with setbacks set forth by the SMA buffer. This buffer will be established based upon habitat sensitivity, slope, and potential impacts. |
| 3.4-4 | SMA-2 | All activities near the SMA will minimize erosion, sedimentation, runoff, and other pollution. BMP's described in NCRWCB's Order R1-2015-0023 shall be followed to prevent impacts to SMA and to sensitive aquatic species. |
| 3.4-4 | SMA-3 | In-channel construction and modification will be limited to minimum level required to support restoration success. Maximum vegetation will be preserved to retain bank stability and canopy cover. |
| 3.4-4 | SMA-4 | In-channel work will be restricted to the dry season (15 June-15 October). |
| 3.4-4 | BMP-1 | Spoil sites will be set back 100 feet from the SMA to reduce runoff into watercourses or wetlands. If precipitation is expected, spoils will be appropriately covered. |
| 3.4-4 | BMP-2 | Silt fencing and fiber rolls will be installed along riparian banks and around construction zones to prevent sediment from infiltrating into watercourse. |
| 3.4-4 | WEED-1 | Project personnel and contractors will be trained noxious and invasive weed identification to avoid spread of weeds from site to site. All gravel, fill, and other materials will be derived from certified weed-free sources. |
| 3.4-4 | CHEM-1 | No chemical pollutants in the form of pesticides or herbicides, or fertilizers shall be permitted to run off to measurable levels. Only products meeting full approval of CDFA testing standards will be used. |
| 3.8-5 | FLOW-1 | Cultivators will forbear from diversions of Surface Water for Irrigation during periods of low or reduced stream flows, in accordance with requirements of the State Water Resources Control Board. |

3.2 Construction Mitigation

A million-gallon rainwater catchment impoundment is proposed that will contribute towards offsetting the irrigation for the 2-acre cultivation site (which is estimated to use between 217,000 and 517,000 gallons annually). Pursuant to CDFW Lake and Streambed Alteration Agreement (LSAA) 1602, the proposed rainwater catchment impoundment will adhere to criteria set forth within the LSAA document and will occur greater than 150 feet from any Streamside Management Area (SMA). All engineering plans have been be contracted with a licensed engineer and geologist. The impoundment will have a rock-armored spillway connected to a bioswale planted with native riparian vegetation. This design will both reduce potential sediment transport into downstream waterways as well as provide habitat for native fauna and increase biodiversity onsite.

Ground disturbance and vegetation removal using heavy equipment will be necessary to construct the rainwater catchment feature. The total disturbance area will be 0.7 acres, with a volume of 8,258 cubic yards of earthwork. The construction of the impoundment has the potential to increase sediment transport into the Eel River watershed in the short term (Weaver et al. 2015). Therefore, best management practices (BMP's) will be applied that will minimize these impacts. These BMP's will reduce sedimentation into watercourses, protect sensitive species and habitats, and prevent the spread of invasive species. The NCRWQCB's recommended BMP's for reducing erosion and sedimentation are included in **Appendix 5**.

Beyond BMP application, the following EPM's from Table 1 will guide the design and construction of the impoundment. The amount of grading, fill removal, and vegetation removal will be limited to the minimum amount necessary to support remediation efforts (SMA-3). Complete descriptions of avoidance and minimization measures (AMM's) set forth by NCRWQCB is included in **Appendix 6**.

Construction will occur during the dry season from August 15 to October 15 (SMA-4). Construction will occur after the end of nesting bird season (BIO-1). All areas under construction will be thoroughly surveyed for amphibians (BIO-5). A

monitor will be present for those areas where water is actively flowing or if the channel is wetted. The disturbed areas will be thoroughly surveyed for rare or special status plants (BIO-7). For all areas under construction in the SMA, BMP's shall be applied to each site. Spoils piles will be set back 100 feet from the SMA (BMP-1) and erosion control measures such as silt fencing and fiber rolls will prevent runoff into the SMA. Contractors conducting the restoration will be trained on invasive species identification and will take care not to spread them between work sites (WEED-1).

After construction is complete, the impoundment will be managed for wildlife and invasive species. Surveys for the American Bullfrog will be conducted to ensure that they are not occupying the impounded diversion area and competing with native amphibian population (BIO-8). The pond will be drained annually to prevent it from harboring overwintering bullfrogs and their larvae. An amphibian survey will determine presence of species of special concern (SSC) (BIO-5). As required by the LSA Agreement, the pond will be fenced to prevent wildlife from becoming entrapped. The pond will forbear from surface and groundwater diversions and will only be filled by storing rainwater.

Pursuant to Section 55.4.10 (j) of the Humboldt County Commercial Cannabis Land Use Ordinance (CCLUO), with mitigation incorporated, the impacts of construction upon the watershed will be less than significant.

4. METHODS

4.1 Field Observations

Field observations were gathered on the Sandifer property over during several site visits. These visits were conducted by professional biologists, geologists, and engineers. Habitat data were gathered by a qualified biologist with more than ten years of experience surveying for various taxa in this region. Visits were timed to capture maximal biodiversity onsite in respects to bird migration and

nesting, amphibian abundance, and inflorescence for vegetation. Slopes were assessed using a Suunto PM-5/360 PC Clinometer.

Wildlife habitat suitability was assessed onsite. All bird species observed aurally or visually were recorded. Trees, standing dead snags, and grassland areas throughout the property were scanned for signs of nests or nest construction. The area was searched for signs of mammal activity, denning and roosting. Standing water was sampled with a dip net for amphibians and egg masses. Watercourses were searched for amphibians.

4.2 Agency Consult

CDFW, the California State and North Coast Regional Water Boards, and the County of Humboldt were consulted throughout the process of this Biological Assessment.

4.3 Database and Document Review

Potential biological resources and species of special concern within the project area were analyzed using available databases and documentation. The California Natural Diversity Database (CNDDB) was queried for all occurrences of special status species within the nine-quad area of the BAA. The BIOS Rarefind function was used to map exact distances and locations of species of with likelihood to occur in the BAA. Species listed as Threatened or Endangered under either the federal (FESA) or California (CESA) endangered species act were included. The Spotted Owl Data Viewer was used to find exact locations of nearest spotted owl Activity Centers (AC's) and Critical Habitat (CH). Plant species of special concern were assigned threat levels using the California Native Plant Society (CNPS) ranking system.

Based upon these vegetation and site characteristics, the California Wildlife Habitat Relationship (CWHR) and CalVeg spatial data provide an assemblage of corresponding animal species that these habitat types generally support. **Figure 1** depicts CWHR habitat types on the property. Those species that are likely or

potentially found on the BAA and have special status at either state or federal levels, or are otherwise of concern locally, are discussed in detail in Section 6.

NatureServe was queried to obtain the G rank (global conservation status) and S rank (subnational status) of each species. Further information on G and S ranking system is in **Appendix 3**. Habitat was classified using the CWHR system. Hydrology was assessed using the United States Geological Survey (USGS) National Hydrology Dataset (NHD). Soils were classified using the Munsell soil color chart in the field, and cross referenced with the Web Soil Survey (WSS) available via the Natural Resource Conservation Service (NRCS). Any available documentation available about the property such as timber harvest plans and other surveyor and landowner reports, were considered for this biological assessment.

5. SURVEYS REQUIRED FOR SPECIAL STATUS WILDLIFE, PLANTS AND HABITATS

A suite of animal and plant species and habitats with special status that have some likelihood to occur on or near the Sandifer property according to the CNDDDB, CWHR, and CNPS data must be given additional consideration. These special species and the ways in which this project could impact them are identified and discussed. Surveys for sensitive species that may be required based upon their likelihood of occurrence and potential impacts in the BAA are described in **Table 2**. **Appendix 4** discusses the CNPS special status plant ranking system. **Appendix 7** displays a map of special status wildlife occurrences in the vicinity of the Sandifer property derived from CNDDDB.

When conducting CEQA analysis, CESA requires state agencies to consult CDFW to ensure that actions of the lead agency do not harm state-listed species or their habitats. Any projects with potential to jeopardize these species or habitats must be analyzed and a determination must be made by CDFW. In addition to species listed as threatened or endangered at state or federal levels, CDFW has developed a list of "Species of Special Concern" (SSC) that includes species whose populations, reproduction, or habitat may be declining.

Table 2 below provides the biological surveys that are likely relevant to this parcel based upon habitat types, observed stand structure, and species occurrences in the CNDDB.

Table 2. Biological Surveys required in Humboldt County CCLUO.

| CCLUO Section Number | Survey Type | Method | Timing | EPM |
|-------------------------------------|-----------------------------|---|---|-----------------|
| 3.4-1a | Biological Reconnaissance | Using available databases such as CNDDB, CNPS and IPAC, a master list of species of concern for scoping of the BAA will be generated. | Any time of year, prior to biological surveys. | N/A |
| 3.4 1b | Special-status amphibian | Search all impacted areas within 200 feet of SMA or identified wet areas for special-status amphibians. | Year round; within 7 days of construction or vegetation removal. | BIO-5, SMA-2 |
| 3.4 1c | Western pond turtle | A biologist will search all impacted areas within 200 feet of SMA or areas with standing water for Western pond turtles. | Year round; within 7 days of construction or vegetation removal. | BIO-5 |
| 3.4 1d | Nesting raptor | A 500-foot buffer around construction area will be searched for signs of raptor nesting or roosting. | 1 March-15 August, within 7 days of construction. | BIO-2 |
| 3.4 1e | Northern spotted owl | If NSO activity centers are within 0.7 miles of the BAA, two years of protocol-level surveys (USFWS 2012) will be conducted by a qualified biologist. | Two consecutive years; six visits total, spaced at least 1 week apart (1 March-31 July). 3 surveys must occur before 30 June. | BIO-3 |
| 3.4 1f | Special-status nesting bird | Areas scheduled for construction or vegetation removal will be | 1 March-31 August, no more than two | BIO-2 |

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| | | thoroughly searched for active nests. | weeks prior to disturbance. | |
| 3.4 1g | Marbled murrelet habitat suitability | Habitat structure will be assessed by a qualified murrelet biologist for appropriate stand structure and size. If appropriate habitat is identified, area within 0.25 miles will be searched for nests. | 15 April- 5 August | BIO-2 |
| 3.4 1k | Fisher and Humboldt marten | Survey methods involve the use of bait combined with detection devices such as track plates and game cameras. | Can be conducted any time of year. | BIO-4 |
| 3.4 1l | Denning/roosting bat | Areas with planned construction or vegetation removal will be searched for signs of roosting bats. Acoustic and Radar detection are often required to identify bats to species level. | Can be conducted any time of year. Can be | BIO-4 |
| 3.4-3a | Vole | Typical survey methods use baited traps in suitable vole habitat. | Can be conducted any time of year. | BIO-4 |
| 3.4-4 | Special-status plant | Impacted areas of the parcel will be searched for species of concern. If found, buffers will be placed around their populations. | Two surveys in a season; peak inflorescence. | BIO-7 |
| 3.4-5 | Sensitive natural communities, riparian habitat, wetland vegetation | Sensitive natural communities and riparian or wetland habitats should be delineated and mapped using GPS and available spatial data. | Can be conducted any time of year. | SMA-1 |
| 3.4-6b | Waters of the United States | Any potential WOTUS will be assessed by a qualified wetland delineator. If found to be WOTUS, appropriate SMA buffers will be applied. Can occur any time of year. | Can be conducted any time of year. | SMA-1 |
| N/A | Retention of Fisher and Humboldt Marten habitat features | Habitat features that could support fisher and marten will be identified and a 100-foot buffer applied around them for retention. | Can be conducted any time of year. | BIO-4 |
| N/A | Invasive Species-American Bullfrog | Storage ponds and tanks will be surveyed by listening for the bullfrog's characteristic call as well as by searching with lights. | Between 1 May- 31 July; after dark. | BIO-8 |

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| N/A | Invasive Species-Plants | Areas of the BAA with notable populations of invasive plants will be flagged and mapped. | Two surveys in a season; peak inflorescence (late spring-early summer). | WEED-1 |
|-----|-------------------------|--|---|--------|

5.1 Biological Reconnaissance

Biological Reconnaissance has been ongoing for the Sandifer property over the past several months. Using the databases described in the methods section above, available information from CNDDDB, IPAC, CNPS were queried. Agencies were consulted about any other information that would be relevant to the site.

5.2 Special Status Amphibians

Fully Protected amphibians and reptiles are described in Section 5050 of CESA. A juvenile yellow-legged frog, (*Rana boylei*) was found on an initial site visit in April 2017. The BAA will be surveyed regularly for the presence of special status amphibians with the potential to occur onsite (BIO-5). All work occurring within 200 feet of water bodies, SMA's and stream crossings will include a biological monitor and will employ the use of amphibian exclusion fencing where appropriate. Any amphibians found during construction will be moved out of harms way if necessary, and a report documenting all individuals found will be submitted to CDFW.

Table 3. Special status amphibians

| Scientific Name | Common Name | FESA | CESA | CDFW | NatureServe |
|--------------------------------|-----------------------------|------|----------------------|------|-------------|
| <i>Rana aurora</i> | northern red-legged frog | None | None | SSC | G4 S3 |
| <i>Rana boylei</i> | foothill yellow-legged frog | None | Candidate Threatened | SSC | G3 S3 |
| <i>Rhyacotriton variegatus</i> | southern torrent salamander | None | None | SSC | G3G4 S2S3 |

Northern red-legged frog (*Rana aurora*)

Family: Ranidae

Special Status: US Forest Service Sensitive; CDFW Species Special Concern; NatureServe Ranks: N3N4, S2?

Habitat/Life History Requirements: The Northern red-legged frog occupies wetlands, marshes, streams, and ponds throughout the coast ranges of Northern California below 1200 meters (Zeiner et al. 1998). The frog requires standing water for development of eggs and tends to occupy shoreline areas that provide vegetation and cover. The species is primarily aquatic, but can also inhabit wet forested areas further from water, and may be found on roads during periods of rain as it moves away from rising streams (Zeiner et al.)

Potential Impacts/Mitigation: Permanent streams, ponds, and wet areas on the parcel and in the surrounding area are habitat for the Northern red-legged frog. The project will avoid impacts to potential amphibian habitat. No sites shall be located within the applicable SMA buffer distance (BIO-5). The project shall follow BMPs for cannabis cultivators outlined by the NCRWQB that minimize erosion, runoff, sedimentation, and other pollution (SMA-2). Indirect impacts to native amphibians by using water storage ponds that provide potential American bullfrog habitat will be mitigated by surveying for sensitive amphibians, and by removing any American bullfrogs (BIO-8). The potential impact with mitigation incorporated is less than significant.

Foothill yellow-legged frog (*Rana boylei*)

Special Status: State Candidate for listing as Threatened; CDFW Species of Special Concern; NatureServe Ranks: G3, S3

Family: Ranidae

Habitat/Life-history Requirements: The foothill yellow legged frog inhabits permanent, broad rivers and streams, both fish-bearing and non-fish bearing, in many habitats, including valley-foothill hardwood, valley-foothill hardwood-conifer, valley-foothill riparian, ponderosa pine, mixed conifer, coastal scrub, mixed chaparral, and wet meadows (Zeiner et al. 1988). Habitat modification, as well as invasive American bullfrog and introduced fish species contribute to the reduction of foothill yellow legged frog populations (Zeiner et al.)

Potential Impact/Mitigation: The project will avoid impacts to potential wetland habitat. The project will avoid impacts to potential amphibian habitat. No sites shall be located within the applicable SMA buffer distance (BIO-5). The project shall follow BMPs for cannabis cultivators outlined by the NCRWQB that minimize erosion, runoff, sedimentation, and other pollution (SMA-2).

Southern torrent salamander (*Rhyacotriton variegatus*)

Family: Rhyacotritonidae

Special Status: CDFW Species of Special Concern; NatureServe Ranks: G3G4, S2S3

Habitat/Life-history Requirements: The southern torrent salamander primarily occupies cold, shaded permanent streams and seeps in redwood, Douglas fir, mixed conifer, montane riparian and montane hardwood-conifer habitats in Sonoma, Mendocino, Humboldt and Lake Counties (Zeiner et al. 1988). The newt requires rapid, permanent streams with rocky substrate for breeding and larval development (Zeiner et al.)

Potential Impact/Mitigation: The species requires permanent, non fish-bearing, rocky steams that are not found within the BAA. The project will avoid impacts to potential amphibian habitat. No sites shall be located within the applicable SMA buffer distance (BIO-5). The project shall follow BMPs for cannabis cultivators outlined by the NCRWQB that minimize erosion, runoff, sedimentation, and other pollution (SMA-2). The potential impact with mitigation incorporated is less than significant.

5.3 American bullfrog

Amphibian species are particularly susceptible to predation and competition by the non-native American bullfrog (*Lithobates Catesbeianus*), which preys upon native amphibians and fish. A nocturnal bullfrog survey by a qualified biologist is required, which includes both listening for calls and searching for eyeshine and movement with lights. If found onsite, they will be managed by de-watering water bodies or by directly culling (BIO-8).

5.4 Western pond turtle

There is potential habitat for the Western pond turtle (*Emys marmorata*) in the BAA. A qualified biologist will perform pre-construction surveys for all water bodies, wet areas, or within 200 feet of SMA's within 24 hours of construction (BIO-5). If turtles are found, exclusion fencing will be installed and a biologist will be onsite to ensure that they are relocated out of harm's way.

Table 4. Western Pond Turtle

| Scientific Name | Common Name | FESA | CESA | Global Ranks | Likelihood to Occur |
|-----------------------|---------------------|------|------|--------------|-------------------------------|
| <i>Emys marmorata</i> | Western pond turtle | None | None | G3G4 S3 | High. Appropriate habitat. |

5.5 Nesting Raptor

All raptors (birds of prey) are protected under state and federal regulations. The Bald and Golden Eagle Protection Act prohibits the take of any eagles in the state. Fully protected birds of prey are described in CESA Section 3511.

Any nests or cavities will be monitored for activity and if found a 500-foot buffer will be placed around each nest tree. If any construction is planned during nesting bird season, the area will be surveyed for raptor activity and nesting within one week of construction (BIO-2). Any tree removal planned will occur outside of nesting season (1 September- 31 January). Wildlife snags in the BAA with potential to support raptors for nesting or roosting will be retained.

Table 5. Special status nesting raptors.

| Scientific Name | Common Name | FESA | CESA | CDFW | NatureServe |
|---------------------------------|---------------|----------|------------|------------|-------------|
| <i>Accipiter cooperii</i> | Cooper's hawk | None | None | WL | G5 S4 |
| <i>Aquila chrysaetos</i> | golden eagle | None | None | FP ; WL | G5 S3 |
| <i>Haliaeetus leucocephalus</i> | bald eagle | Delisted | Endangered | FP | G5 S3 |
| <i>Pandion haliaetus</i> | osprey | None | None | SSC | G5 S4 |

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|--------------------------------|---------------------------|----------|----------|----|-----------|
| <i>Falco peregrinus anatum</i> | American peregrine falcon | Delisted | Delisted | FP | G4T4 S3S4 |
|--------------------------------|---------------------------|----------|----------|----|-----------|

5.6 Northern Spotted Owl

Tree removal or disturbance in areas that are suitable nesting, roosting or foraging habitat for NSO will require protocol-level surveys. No tree removal is planned. Consultation with CDFW will be necessary if active spotted owl territories are identified within a 1.3- mile buffer of the project site. **Appendix 2** maps all spotted owl locations in the vicinity of the Sandifer property and **Appendix 3** shows records of NSO locations as generated from the CNDDB spotted owl viewer.

Table 6. Northern spotted owl

| Scientific Name | Common Name | FESA | CESA | Global Ranks |
|-----------------------------------|----------------------|------------|------------|--------------|
| <i>Strix occidentalis caurina</i> | Northern spotted owl | Threatened | Threatened | G3T3 S2S3 |

5.7 Special Status Nesting Birds

The Federal Migratory Bird Treaty Act (MBTA) prohibits the killing, possessing, or trading of migratory birds except in accordance with regulations prescribed by the Secretary of Interior. Of these fully protected bird species, Section 3503 prohibits the killing of birds or destruction of nests. Snags utilized by raptors, woodpeckers, and other birds are found throughout the property. Any nests or cavities will be monitored for activity and if found active no construction activity will occur within 200 feet during nesting bird season (BIO-2).

Vegetation removal and ground disturbance that occur within Nesting bird season (1 February- 31 August) will require a biological survey within two weeks of planned disturbance. If active nests are found, they will be given a minimum of 100 feet of buffer, until nest fledges or is no longer active.

Table 7. Special status nesting birds.

| Scientific Name | Common Name | FESA | CESA | CDFW | NatureServe |
|--------------------------|-------------------------------------|------|------|------|-------------|
| Yellow-breasted chat | <i>Icteria virens</i> | None | None | SSC | G5 S3 |
| Flammulated owl | <i>Psilosops flammeolus</i> | None | None | SSC | G4 S2S4 |
| Little willow flycatcher | <i>Empidonax traillii brewsteri</i> | None | None | SSC | G5T3T4 |

Yellow-breasted chat (*Icteria virens*)

Special Status: California Species of Concern; NatureServe Ranks G5S3

Family: Parulidae

Habitat/Life History Requirements: The yellow-breasted chat is the largest warbler, and an uncommon migrant and resident in coastal California (Zeiner et al.) The warblers are generally associated with shrubby, riparian habitats, where they are dependent upon thick, variable cover (Hunter et al. 2005). Yellow-breasted chat populations have declined significantly in past decades, possibly due to reduction in riparian habitat (Zeiner et al.)

Potential Impacts: The BAA does not contain riparian habitat required by the yellow-breasted chat. The immediate area of impact will be intensively surveyed for signs of nesting birds prior to operations (BIO-1), and if found, appropriate buffers will be applied (BIO-2).

Flammulated Owl: (*Psiloscops flammeolus*)

Family: Strigidae

Special Status: CDFW Special Animals List; NatureServe Ranks: G4,S2S4

Habitat/Life History Requirements: The flammulated owl is a common summer inhabitant in California's mountains, feeding primarily upon insects (Zeiner et al. 1988). They nest in cavities in trees larger than 12 inches diameter, and favor edges and smaller forest openings for foraging. The owl is predated upon by larger owls and other raptors.

Potential Impacts/Mitigation: The area impacted by the project could provide potential habitat for the flammulated owl. The raptor is protected under the Migratory Bird Treaty Act (MBTA). A low-intensity walking survey of the parcel will scan for signs of raptors (BIO-1). The immediate area of impact will be intensively surveyed for signs of nesting birds prior to operations (BIO-2), and impacts will be avoided.

Little willow flycatcher (*Empidonax traillii brewsteri*)

Special Status: California Endangered, Protected under Migratory Bird Treaty Act; NatureServe Ranks: G5T3T4, S1S2

Family: Tyrannidae

Habitat/Life-history Requirements: The little willow flycatcher is a rare to locally uncommon summer resident that breeds in the Cascades and the Sierra Nevada (Craig and Williams 1998). The little willow flycatcher breeds in wet meadows and montane riparian habitats at 2,000-8,000 feet elevation (Craig and Williams 1998). The riparian songbird requires dense willow thickets for nesting and roosting (Bombay et al. 2003, Zeiner et al.) Destruction of riparian vegetation, modification of hydrology, and nest parasitism by brown headed cowbirds are the main threats to this species (Bombay et al.)

Potential Impact: No willow thickets or other likely habitat occur at the cultivation sites. The project is not expected to impact the little willow flycatcher.

5.8 Pacific Fisher and Humboldt Marten Habitat

The BAA does not currently have suitable forest structure and composition to support Pacific fisher and Humboldt marten. While unlikely, it is possible that one of these animals could use the BAA as a corridor for movement. If signs of fisher or marten are found on the BAA a buffer will be established around denning areas in consultation with CDFW.

Table 8. Pacific fisher and Humboldt Marten.

| Scientific Name | Common Name | FESA | CESA | Global Ranks | Likelihood to Occur |
|-------------------------------------|------------------------|---------------------|----------------------|--------------|------------------------------------|
| <i>Martes caurina humboldtensis</i> | Humboldt marten | None | Endangered | G5T1 S1 | Moderate. Some suitable habitat. |
| <i>Pekania pennant</i> | Fisher- West coast DPS | Proposed threatened | Candidate threatened | G5T2T3Q S2S3 | High. Sufficient suitable habitat. |

5.9 Special status bats

A qualified biologist will survey for roosting sites for special-status bats. If potential roosting sites are observed, a full survey protocol for bats will be implemented. If found to be roosting, a mitigation program will be established in consultation with CDFW, which will include establishing a buffer around maternity colonies, and reducing noise and ground disturbance on the property.

Table 9. Special status bats.

| Scientific Name | Common Name | FESA | CESA | CDFW | NatureServe |
|---------------------------|-------------------|------|------|------|-------------|
| <i>Antrozous pallidus</i> | pallid bat | None | None | SSC | G5 S3 |
| <i>Myotis evotis</i> | long-eared myotis | None | None | - | G5 S3 |

5.10 White-footed Vole

Vole habitat features such as old growth habitat, wetland vegetation and riparian habitat will be retained. Before vegetation removal, a qualified biologist will conduct a vole nest search of the trees in the project area. If vole nests are found, they will be given a buffer of a minimum of 100 feet, and project location may be adjusted if it will result in vole disturbances.

Table 10. White-footed vole

| Scientific Name | Common Name | FESA | CESA | Global Ranks | Likelihood to Occur |
|-----------------|-------------|------|------|--------------|---------------------|
| | | | | | |

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|--------------------------|-------------------|------|------|------------|---|
| <i>Arborimus albipes</i> | White-footed vole | None | None | G3G4 S2 | High. Sufficient suitable habitat. |
|--------------------------|-------------------|------|------|------------|---|

White-footed vole (*Arborimus albipes*)

Special Status: Muridae

Habitat/Life-history Requirements: There are few known records of the white-footed vole, which in California is only found in Humboldt and del Norte counties. They are thought to be highly correlated with red alder stands, the leaves of which make up 40% of the vole's diet (Zeiner et al., CDFW Wildlife research 2017). The vole is found near small streams with riparian vegetation and dens in vegetation under logs, stumps, and rocks (Zeiner et al). The vole is likely predated by snakes, weasels, and raptors.

Potential Impacts: The area would not be considered potential habitat for the vole.

5.11 Other mammals of special concern

Table 11.

| Scientific Name | Common Name | FESA | CESA | CDFW | NatureServe |
|---------------------------|--------------------------|------|------|------|-------------|
| <i>Erethizon dorsatum</i> | North American porcupine | None | None | SSC | G3G4 S2 |
| <i>Arborimus pomo</i> | Sonoma tree vole | None | None | SSC | G3 S3 |

Sonoma tree vole (*Arborimus pomo*)

Family: Muridae

Special Status: CDFW Species of Special Concern, NatureServe Ranks: G3, S3

Habitat/Life-history Requirements: The Sonoma tree vole occurs along the North Coast in in old-growth and other forests, mainly Douglas-fir, redwood, and montane hardwood- conifer habitats (Zeiner et al. 1988). The small rodent

specializes in feeding on Douglas-fir and grand fir needles, and typically constructs nests in Douglas-fir trees (Zeiner et al.)

Potential Impact/Mitigation: The parcel is annual grassland and lacks habitat for the Sonoma tree vole.

North American porcupine (*Erethizon dorsatum*)

Family: Erethizontidae

Special Status: CDFW Special Animals List (2017); NatureServe Ranks: G5, S3

Habitat/Life-history Requirements: The American porcupine is most commonly found in montane conifer, Douglas-fir, alpine dwarf-shrub, and wet meadow habitats (Zeiner et al. 1988). The herbivore feeds on a wide variety of aquatic and terrestrial herbs, shrubs, fruits, leaves, and buds in the summer (Zeiner et al.) During the winter, the porcupine diet includes evergreen leaves, twigs, bark, and cambium of trees, particularly conifers (Zeiner et al).

Potential Impact/Mitigation: Although widely distributed throughout North America and occurring in many habitats, the North American porcupine is considered vulnerable in California. The area should be considered potential habitat for the large rodent. The project will incorporate measures to reduce noise and light disturbance to wildlife (BIO-4), and it is not expected to significantly impact the North American porcupine.

5.12 Fish

Anadromous fish are not found in the BAA. The BAA is situated over a mile from the Eel River and has no watercourses that could support anadromous fish. Anadromous fish populations could be influenced by cumulative impacts occurring in the upland watershed, and thus are included in this document as potentially impacted species although they are not found within the BAA. Fully protected fish species are protected under CDFW Code 5515.

Table 12. Special status fish

| Scientific Name | Common Name | FESA | CESA | Global Ranks |
|-----------------|-------------|------|------|--------------|
| | | | | |

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|-------------------------------------|--|------------|------------|--------------|
| <i>Entosphenus tridentatus</i> | Pacific lamprey | None | None | G4 S4 |
| <i>Oncorhynchus clarkii clarkii</i> | Coast cutthroat trout | None | None | G5 S3 |
| <i>Oncorhynchus kisutch</i> | Coho salmon- southern Oregon/northern California ESU | Threatened | Threatened | G4T2Q S2? |
| <i>Oncorhynchus mykiss irideus</i> | Steelhead- Klamath mountains DPS | None | None | G5T3Q S2 |
| <i>Oncorhynchus mykiss irideus</i> | Steelhead- northern California DPS | Threatened | None | G5T2T3Q S2S3 |
| <i>Oncorhynchus mykiss irideus</i> | Summer-run steelhead trout | None | None | G5T4Q S2 |
| <i>Oncorhynchus tshawytscha</i> | Chinook salmon- California coastal ESU | Threatened | None | G5 S1 |
| <i>Oncorhynchus tshawytscha</i> | Chinook Salmon- upper Klamath and Trinity Rivers ESU | None | None | G5 S1S2 |

6 SPECIAL STATUS PLANTS AND SENSITIVE COMMUNITIES

6.1 Special Status Plants

A plant survey was conducted on the Sandifer property during June of 2018 during peak inflorescence. No rare plants were identified. Below are the special status plants found in the nine-quad area, potentially occurring on the BAA. California Native Plant Society (CNPS) and Global Threat rankings are provided below in Table 11.

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Table 13. Special status plants.

| Scientific name | Common Name | CNPS Rank | G/S Rank |
|---|----------------------------|-----------|-----------|
| <i>Usnea longissima</i> | Methuselah's beard lichen | 4.2 | G4/S4 |
| <i>Allium hoffmii</i> | Beegum onion | 4.3 | G4 |
| <i>Sanicula tracyi</i> | Tracy's sanicle | 4.2 | G4/S4 |
| <i>Aniocarpus scabridus</i> | Scabrid alpine tarplant | 1B.3 | G4 |
| <i>Arnica spathulata</i> | Klamath arnica | 4.3 | G3? |
| <i>Erigeron biolettii</i> | Streamside daisy | 3 | G3?S3? |
| <i>Erigeron robustior</i> | Robust daisy | 4.3 | G3/S3 |
| <i>Hemizonia congesta</i> ssp. <i>Tracyi</i> | Tracy's tarplant | 4.3 | G5 |
| <i>Packera bolanderi</i> var. <i>bonanderi</i> | Seacoast ragwort | 2b.2 | G4T4/S2S3 |
| <i>Tracyina rostrata</i> | Beaked tracyina | 1B.2 | G1G2 |
| <i>Howellia aquatis</i> | Water howellia | 2b.2 | G3 |
| <i>Oval-leaved viburnum</i> | Viburnum ellipticum | 2B.3 | G1G2 |
| <i>Sabulina decumbens</i> | the Lassics sandwort | 1B.2 | G1G2 |
| <i>Sedu laxum</i> ssp. <i>Flavidum</i> | Pale yellow stonecrop | 4.3 | G5T4Q/S4 |
| <i>Carex arcta</i> | Northern clustered sedge | 2B.2 | G5 |
| <i>Carex praticola</i> | Northern meadow sedge | 2b.2 | G5/S2 |
| <i>Carex scabriuscula</i> | Siskiyou sedge | 4.3 | G3G4 |
| <i>Arctostaphylos hispidula</i> | Howell's manzanita | 4.2 | N/A |
| <i>Astragalus agnicidus</i> | Humboldt County milk-vetch | 1B.1 | G2 |
| <i>Astragalus rattanii</i> var. <i>rattanii</i> | Rattan's milk-vetch | 4.3 | G4T4/S4 |
| <i>Lathyrus glandulosus</i> | Sticky pea | 4.3 | G3/S3 |
| <i>Lupinus constancei</i> | The Lassics Lupine | 1B.1 | G1G2 |
| <i>Lycopus uniflorus</i> | Northern bugleweed | 4.3 | G5 |
| <i>Erythronium oregonum</i> | Giant fawn lily | 2b.2 | G4G5/S2 |
| <i>Erythronium revolutum</i> | Coast fawn lily | 2b.2 | G4G5/S3 |
| <i>Fritillaria glauca</i> | Siskiyou fritillary | 4.2 | G3G4 |
| <i>Fritillaria purdyi</i> | Purdy's fritillary | 4.3 | G4 |
| <i>Lilium rubescens</i> | Redwood lily | 4.2 | G3/S3 |
| <i>Sidalcea malachroides</i> | Maple-leaved checkerbloom | 4.2 | G3/S3 |
| <i>Sidalcea malviflora</i> ssp. <i>Patula</i> | Siskiyou checkerbloom | 1b.2 | G5T2/S2 |
| <i>Pityopus californicus</i> | California pinefoot | 4.2 | G4G5/S4 |
| <i>Montia howelii</i> | Howell's montia | 2b.2 | G3G4/S2 |

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|---|----------------------------|------|--------|
| <i>Epilobium septentrionale</i> | Humboldt county fuschia | 4.3 | G4/S4 |
| <i>Listera cordata</i> | Heart-leaved twayblade | 4.2 | G5/S4 |
| <i>Pipera candida</i> | White-flowered rein orchid | 1b.2 | G3/S3 |
| <i>Kopsiopsis hookeri</i> | Small groundcone | 2B.3 | N/A |
| <i>Collomia trayci</i> | Tracy's collomia | 4.3 | G4/S4 |
| <i>Bristly leptosiphon</i> | Leptosiphon acicularis | 4.3 | G4?S4? |
| <i>Broad-leaved leptosiphon</i> | Leptosiphon latisectus | 4.3 | G4S4 |
| <i>Frangula purshian ssp. Ultramafica</i> | Caribou coffeeberry | 1B.2 | G55253 |
| <i>Mitellastra caulescens</i> | Leafy-stemmed mitrewort | 4.2 | G5/S4 |

6.2 Sensitive natural communities, riparian habitat, and wetland vegetation

The Sandifer property contains habitats that are high in wildlife habitat value. Thus, any plans for development must be sure to understand these communities and to mitigate all potential impacts to them. Below are some of the natural communities on the parcel.

The property has a very small portion of oak savanna, which is protected under the California Oak Woodlands Protection Act (AB 2162). Any remaining oak trees will be retained.

The parcel contains some class III watercourses and a few seasonally wet areas, which provide high biodiversity and valuable wildlife habitat. Thus, any development plans must avoid these areas to the extent possible and must mitigate in instances where they are impacted.

7 POLLUTION IMPACTS AND MITIGATIONS

Over time, a cannabis cultivation site such as the one proposed by DIB management may have many impacts within the BAA and beyond the parcel boundaries on the surrounding ecosystem. Three documented forms of pollution originating from cannabis cultivation operations upon surrounding ecosystems are

described in this section. These are noise pollution, light pollution, and chemical pollution in the form of pesticides, herbicides, and fertilizers.

7.1 Noise Pollution

One common concern commonly raised regarding cannabis operations in rural areas is that they frequently noise far beyond ambient levels, which can affect the quality of life for both humans and animals within hearing distance. Excessive noise is known to effect animals in a variety of ways, such as acoustic communication, nesting and breeding disruption, and elevation of stress levels (Francis et al. 2009). Noise disturbance from heavy equipment and generators associated with some cannabis cultivation sites has the potential to incur such effects. Some wildlife, such as the Northern spotted owl (NSO) and bats, are known to be particularly susceptible to ambient noise beyond baseline levels.

There are multiple documented spotted owl activity centers in the vicinity of the Sandifer BAA. HUM 0761 is 0.7 miles away, and HUM 0774 is 1.3 miles away (**Appendix 3**). In order to reduce impacts upon spotted owls in the area, all activities that elevate noise beyond 50 decibels from the edge of habitat will be restricted during the NSO breeding period (CCLUO 55.4.12.6; BIO-3). For all construction activities that occur which may temporarily raise ambient noise above levels tolerable to wildlife, precautions will be taken to avoid impacts (BIO-6). This site has a fully grid-tied electrical source, meaning that generators are not used on a regular basis. Potential noise disturbances resulting from this operation will occur on an acute basis and will be less than significant in relation to existing ambient conditions.

7.2 Light Pollution

Mixed Light cannabis cultivation operations employ supplemental lighting to extend the growing period for vegetative plants. The effects of light pollution upon wildlife populations are known to be significant. Artificial lighting presents a range of potential effects including disruption in movement, foraging, interspecific behavior, reproduction and rearing of young (Gaston et al. 2012). Some nocturnal animals such as NSO, bats, and some amphibians may be particularly susceptible

to these effects. To mitigate potential effects upon sensitive wildlife species (BIO-6), supplemental light will not be used between sunset and sunrise, and if it is it will be blocked from radiating out from the viewshed of the BAA pursuant to Humboldt County CCLUO 55.4.1.4.

7.3 Chemical Pollution

California's Cannabis farms have been shown to have significant impacts upon wildlife resulting from their use of pesticides, herbicides, and chemical fertilizers.

Foothill yellow-legged frogs (*Rana boylei*), a candidate for listing under CESA, are known to be susceptible to chemical pollution during all developmental stages. This amphibian species may be present on the Sandifer property, due to its adjacency to the Eel River, which is a known stronghold for this species. The watercourses and impoundments on the BAA are habitat for amphibians, which are particularly sensitive to toxins or foreign substances in the environment and are also considered to be indicator species of ecosystem health (Pollet and Young 2000).

Necropsies of deceased wild animals found throughout the mountains of northern California demonstrate elevated levels of pesticides such as carbofuran, a neurotoxin that bioaccumulates up the food chain and achieves lethal levels in mesocarnivores in particular. For example, of 58 fisher carcasses tested in a northern California sample, 80% had rodenticides in their systems (Smith 2017). Organophosphates used for various phases of cultivation can be detected in water sources far from the nearest farm, indicating their ability to disperse throughout the watershed.

To mitigate these potential toxins and pollutants from entering the food chain or watershed, only approved substances may be used on the cannabis cultivation site. These must be compliant with the County Agricultural Commissioner's Office, Humboldt County Department of Environmental Health, and the California Department of Pesticide Regulation.

The Sandifer BAA must employ avoidance and mitigation measures that reduce chemical pollution or runoff into the Eel River watershed (CHEM-1). Such measures would include using only amendments and products approved by CDFA,

irrigating via drip system, and using weed-free mulch to reduce runoff into sensitive areas such as SMA's.

8 CUMULATIVE IMPACTS AND CONCLUSIONS

The cumulative effects of cannabis cultivation are known to be significant in the Eel River Watershed. Cumulative Impacts are defined as “two or more individual effects which, when considered together, are considerable” and that account for “the incremental impact of the project when added to other closely related past, present, and reasonably foreseeable probable future projects” (CEQA Section 15355). Three of the most detrimental cumulative impacts of cannabis cultivation in the Eel watershed are increased sedimentation, water diversions, and forest clearing. At a landscape scale, these cumulative impacts incur tremendous effects on the ecosystem.

8.1 Sedimentation into watercourses

The State Water Control Board measures several categories of water quality across California. The North Coast (Region 1) ranks as the most-impaired in the state in key areas such as sediment and temperature (Water Resources Control Board 2018). There are many mechanisms of delivery of sediment into watersheds. Cannabis farms most commonly cause excessive sedimentation via unpermitted road construction and site development on slopes greater than 30% (Water Resources Control Board).

The Sandifer BAA will only use existing, permitted roads, and has chosen a low-gradient area for its cultivation site. All areas that are disturbed will be re-planted with erosion control vegetation (SMA-1, SMA-2, SMA-3). BMP's will be used to prevent further sediment loss (BMP-1, BMP-2).

8.2 Water diversions

Many cannabis cultivation sites rely upon undocumented and unpermitted diversions from Waters of the State. These diversions imperil organisms such as salmonids and amphibians that depend upon viable flow regimes. Some of the special-status species affected by reduced flows include Coho and Chinook salmon, steelhead and cutthroat trout, southern torrent salamander, red-legged frog (Water Resources Control Board).

Humboldt County developed a list of planning watersheds (pub. May 2018) that are particularly impacted by diversions thought to originate from cannabis cultivation; the Eel River is among these impacted watersheds. The Sandifer impoundment and irrigation will adhere to diversion and impoundment requirements (e.g. SWRCB WQ 2017-0023-DWQ) mandated by state and regional water boards as well as CDFW. They will forbear from diversions of Surface Water for irrigation during periods of low or reduced stream flows, in accordance with requirements of the State Water Resources Control Board (FLOW-1). Water for cultivation may be stored during wet periods without significant effects upon water quality and rates of flow.

8.3 Forest clearing

Forest clearing associated with cannabis farming has significant landscape-scale effects that are only beginning to be understood. A recent study found that deforestation associated with cannabis farming creates landscape patchiness by forming gaps from the forest interior outward, reducing the core areas of contiguous forest (Wang et al. 2017). The gap-creating tendency of many cannabis operations has significant implications for species which rely upon remote forest interiors particularly for reproduction and nesting/denning, such as NSO, northern goshawk and Pacific fisher.

These increased edge effects also facilitate the spread of invasive species, which colonize recently deforested and take advantage of loss of native plant cover and increased access to light. The miles of fencing that often accompany cannabis farms for the purposes of security and wildlife exclusion (and that is also required for permitted cultivation sites) can have significant effects upon wildlife movement on the landscape. This fencing, when not used properly, can entrap wildlife within gardens or can block their movement corridors and their access to critical habitats. With hundreds of individual cannabis farms dispersed throughout the watershed, the effects at the landscape scale are variable, difficult to measure, but clearly significant.

The Sandifer cultivation site will clear no forest for its planned expansion to two acres. The area planned for cultivation is either annual grassland or vineyard, resulting in no net loss in forest cover.

8.4 Conclusions

The Sandifer BAA, while situated in a biodiverse landscape that supports numerous special status species, is an ideal candidate for a cultivation license under Humboldt County CCLUO. It has very little forest cover, moderate slopes, and will be irrigated with primarily stored water, forbearing from withdrawal from streams and springs. It relies upon grid-tied electricity, meaning that it will not produce excessive noise from generators and pumps. Furthermore, the proposed 2-acre cultivation area will result in no net loss of wildlife habitat, as the parcel is already either agriculture or annual grassland formerly utilized as animal pasture.

While the construction proposal for the 1-million gallon impoundment has the potential to acutely impact the sediment load being transported into the Eel River in the short term, all impacts will be mitigated. The storage pond will result in reduced water withdrawal from the watershed, avoidance and mitigation measures will minimize transportable sediment, and therefore there is a mitigated negative declaration for this project.

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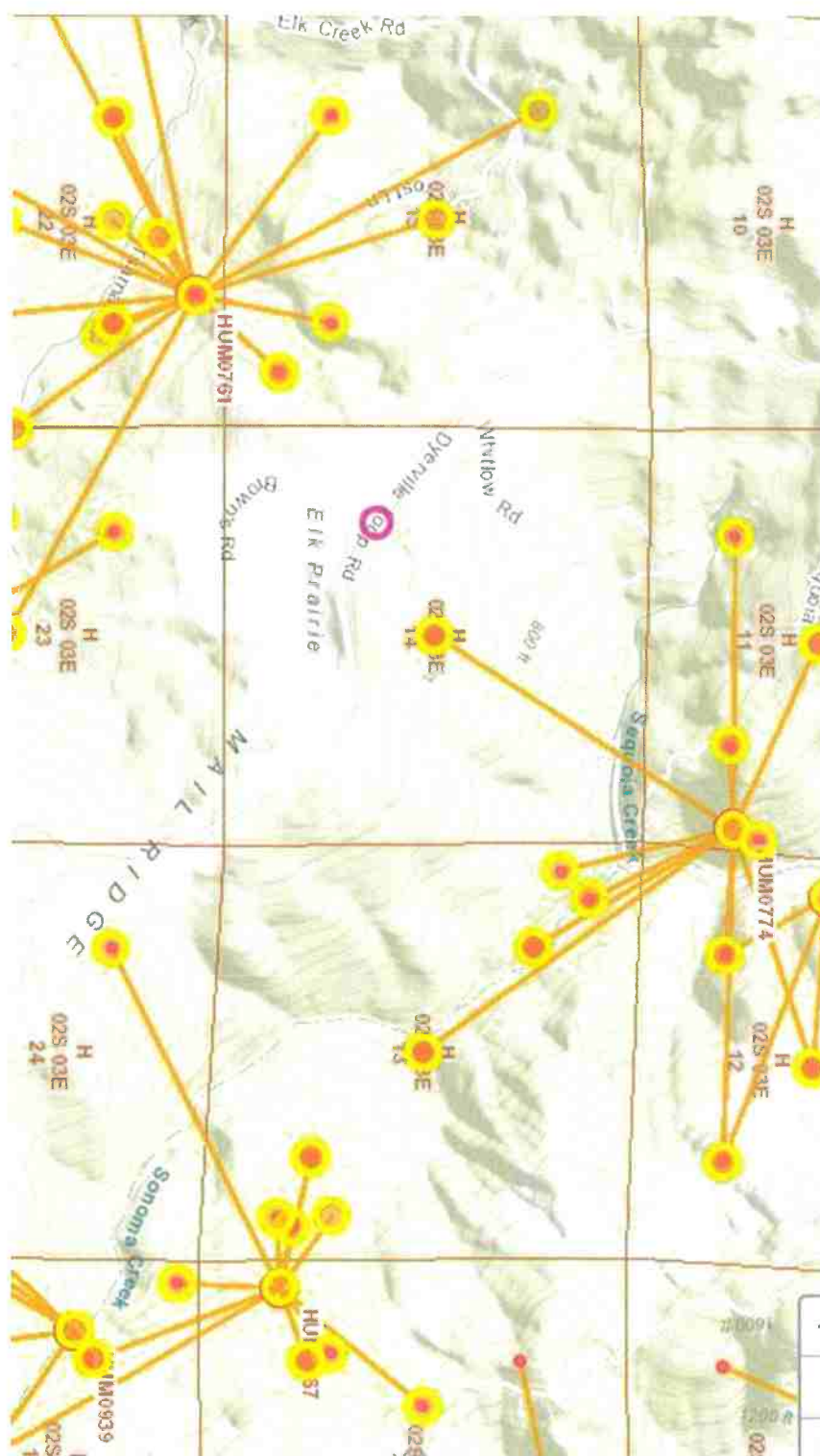
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APPENDIX 1. SPOTTED OWL LOCTIONS IN VICINITY OF SANDIFER PARCEL



BIOLOGICAL RESOURCE ASSESSMENT
DIB MANGEMENT

APPENDIX 2. CNDDDB SPOTTED OWL REPORT

Data Version Date:
10/29/2018

Report Generation Date:
11/19/2018

Report #2 - Observations Reported
List of observations reported by site.



Meridian, Township, Range, Section (MTRS) searched:

H_02S_03E Sections(09,10,11,12,13,14,15,16,21,22,23,24);

NOTES:

Spotted Owl Locations
10924 Deyerville Loop Road
Meyers Flat

| Type | Date | Time | #Adults | Age/Sex | Pair | Nest | #Young | Latitude DD NAD83 | Longitude DD NAD83 | MTRS | Coordinate Source |
|---|------------|------|---------|---------|------|------|--------|----------------------|-----------------------|-----------------|--------------------------|
| Masterowl: HUM0523 Subspecies: NORTHERN | | | | | | | | | | | |
| POS | 1990 | | 1 | UU | | | | 40.323308 | -123.786945 | H 02S 03E 01 | Half-section centroid |
| POS | 1990-08-30 | | 2 | UMUF | Y | | | 40.319648 | -123.787349 | H 02S 03E 01 | Section centroid |
| POS | 1990-08-30 | | 2 | UMUU | | | | 40.334229 | -123.786719 | H 01S 03E 36 | Section centroid |
| POS | 1990-09-05 | | 2 | UMUF | Y | | | 40.319648 | -123.787349 | H 02S 03E 01 | Section centroid |
| POS | 1990-09-05 | | 2 | UMUU | | | | 40.334229 | -123.786719 | H 01S 03E 36 | Section centroid |
| POS | 1990-09-11 | | 2 | UMUF | Y | | | 40.319648 | -123.787349 | H 02S 03E 01 | Section centroid |
| POS | 1991-07-01 | 9999 | 1 | UU | | | | 40.306179 | -123.769953 | H 02S 04E 07 | Section centroid |
| POS | 1991-07-01 | 9999 | 1 | UU | | | | 40.306019 | -123.788344 | H 02S 03E 12 | Section centroid |
| POS | 1991-07-01 | 9999 | 1 | UU | | | | 40.319988 | -123.768827 | H 02S 04E 06 | Section centroid |
| POS | 1991-07-01 | | 1 | UU | | | | 40.319648 | -123.787349 | H 02S 03E 01 | Section centroid |
| POS | 1992-06-09 | 0022 | 1 | UM | | | | 40.323359 | -123.775410 | H 02S 04E 06 | Contributor |
| POS | 1992-06-24 | 2258 | 1 | UM | | | | 40.318304 | -123.776882 | H 02S 04E 06 | Contributor |
| NEG | 1994-03-24 | 1803 | 0 | | | | | 40.334229 | -123.786719 | H 01S 03E 36 | Section centroid |
| POS | 1995 | | 2 | UMUF | Y | N | | 40.335293 | -123.782610 | H 01S 03E 36 | Activity center |
| NEG | 1997-03-12 | 2040 | 0 | | | | | 40.319648 | -123.787349 | H 02S 03E 01 | Section centroid |
| NEG | 1997-03-13 | 0720 | 0 | | | | | 40.334227 | -123.768224 | H 01S 04E 31 | Section centroid |

| <i>Type</i> | <i>Date</i> | <i>Time</i> | <i>#Adults</i> | <i>Age/Sex</i> | <i>Pair</i> | <i>Nest</i> | <i>#Young</i> | <i>Latitude DD NAD83</i> | <i>Longitude DD NAD83</i> | <i>MTRS</i> | <i>Coordinate Source</i> |
|-------------|-------------|-------------|----------------|----------------|-------------|-------------|---------------|------------------------------|-------------------------------|-----------------|------------------------------|
| NEG | 1997-05-15 | 0004 | 0 | | | | | 40.319648 | -123.787349 | H 02S 03E 01 | Section centroid |
| POS | 1997-05-28 | 2236 | 1 | UM | | | | 40.319648 | -123.787349 | H 02S 03E 01 | Section centroid |
| NEG | 1997-06-10 | 2340 | 0 | | | | | 40.319648 | -123.787349 | H 02S 03E 01 | Section centroid |
| POS | 1997-07-03 | 2232 | 1 | UM | | | | 40.319648 | -123.787349 | H 02S 03E 01 | Section centroid |
| NEG | 1997-07-10 | 2047 | 0 | | | | | 40.334229 | -123.786719 | H 01S 03E 36 | Section centroid |
| NEG | 1998-03-25 | 2143 | 0 | | | | | 40.319648 | -123.787349 | H 02S 03E 01 | Section centroid |
| NEG | 1998-05-29 | 2301 | 0 | | | | | 40.319648 | -123.787349 | H 02S 03E 01 | Section centroid |
| POS | 1998-05-30 | 2057 | 1 | UF | | | | 40.337873 | -123.782122 | H 01S 03E 36 | Quarter-section centroid |
| AC | 1998-06-01 | 0747 | 1 | UF | | | | 40.335293 | -123.782610 | H 01S 03E 36 | Contributor |
| NEG | 1998-06-06 | 0215 | 0 | | | | | 40.319648 | -123.787349 | H 02S 03E 01 | Section centroid |
| POS | 1999-04-22 | 2337 | 1 | UU | | | | 40.323483 | -123.773022 | H 02S 04E 06 | Quarter-section centroid |
| NEG | 1999-05-04 | 2050 | 0 | | | | | 40.319648 | -123.787349 | H 02S 03E 01 | Section centroid |
| POS | 1999-06-02 | 0120 | 1 | UM | | | | 40.319648 | -123.787349 | H 02S 03E 01 | Section centroid |
| POS | 1999-06-07 | 2154 | 1 | UM | | | | 40.316182 | -123.782943 | H 02S 03E 01 | Quarter-section centroid |
| NEG | 1999-06-23 | 0108 | 0 | | | | | 40.319648 | -123.787349 | H 02S 03E 01 | Section centroid |
| NEG | 1999-06-28 | 0040 | 0 | | | | | 40.319648 | -123.787349 | H 02S 03E 01 | Section centroid |
| POS | 2000-06-27 | 0109 | 1 | UU | | | | 40.323231 | -123.791593 | H 02S 03E 01 | Quarter-section centroid |

| Type | Date | Time | #Adults | Age/Sex | Pair | Nest | #Young | Latitude DD NAD83 | Longitude DD NAD83 | MTRS | Coordinate Source |
|---|------------|---------------|---------|---------|------|------|--------|----------------------|-----------------------|-----------------|-----------------------------|
| POS | 2000-07-11 | 2200 | 1 | UM | | | | 40.315776 | -123.792259 | H 02S 03E 01 | Quarter-section centroid |
| Masterowl: HUM0567 Subspecies: NORTHERN | | | | | | | | | | | |
| POS | 1991 | | 2 | UMUF | Y | | 2 | 40.289124 | -123.775371 | H 02S 04E 18 | Contributor |
| POS | 1992-04-18 | | 2 | UMUF | Y | | | 40.292384 | -123.772938 | H 02S 04E 18 | Contributor |
| POS | 1992-04-18 | | 2 | UMUF | Y | | | 40.287824 | -123.781121 | H 02S 03E 13 | Contributor |
| POS | 1994-06-09 | | 1 | UF | | | | 40.280856 | -123.775030 | H 02S 04E 19 | Quarter-section centroid |
| POS | 1995 | | 2 | UMUF | Y | Y | | 40.283788 | -123.778486 | H 02S 04E 19 | Contributor |
| POS | 2000 | | 2 | UMUF | Y | | | 40.288478 | -123.784293 | H 02S 03E 13 | Quarter-section centroid |
| NEG | 2001 | | 0 | | | | | 40.288478 | -123.784293 | H 02S 03E 13 | Quarter-section centroid |
| NEG | 2002 | | 0 | | | | | 40.288478 | -123.784293 | H 02S 03E 13 | Quarter-section centroid |
| NEG | 2003 | | 0 | | | | | 40.289199 | -123.781560 | H 02S 03E 13 | Contributor |
| NEG | 2003-04-06 | 2048 | 0 | | | | | 40.288316 | -123.774986 | H 02S 04E 18 | Quarter-section centroid |
| NEG | 2003-04-10 | 0830- 1120 | 0 | | | | | 40.288478 | -123.784293 | H 02S 03E 13 | Quarter-section centroid |
| NEG | 2003-05-13 | 0915- 1138 | 0 | | | | | 40.288478 | -123.784293 | H 02S 03E 13 | Quarter-section centroid |
| NEG | 2003-05-22 | 2300 | 0 | | | | | 40.288316 | -123.774986 | H 02S 04E 18 | Quarter-section centroid |
| NEG | 2003-06-06 | 0700- 1130 | 0 | | | | | 40.288478 | -123.784293 | H 02S 03E 13 | Quarter-section centroid |
| NEG | 2004-04-11 | 2111 | 0 | | | | | 40.277147 | -123.770517 | H 02S 04E 19 | Section centroid |

| Type | Date | Time | #Adults | Age/Sex | Pair | Nest | #Young | Latitude DD NAD83 | Longitude DD NAD83 | MTRS | Coordinate Source |
|---|------------|------|---------|---------|------|------|--------|----------------------|-----------------------|-----------------|-----------------------------|
| AC | 2004-04-24 | 0605 | 2 | UMUF | Y | | | 40.287393 | -123.778293 | H 02S 04E 18 | Contributor |
| NEG | 2004-04-27 | 0046 | 0 | | | | | 40.277147 | -123.770517 | H 02S 04E 19 | Section centroid |
| NEG | 2004-06-14 | 0112 | 0 | | | | | 40.277147 | -123.770517 | H 02S 04E 19 | Section centroid |
| NEG | 2004-07-19 | 2114 | 0 | | | | | 40.277147 | -123.770517 | H 02S 04E 19 | Section centroid |
| NEG | 2004-08-04 | 2319 | 0 | | | | | 40.277147 | -123.770517 | H 02S 04E 19 | Section centroid |
| POS | 2005 | | 1 | UM | | | | 40.287299 | -123.781538 | H 02S 03E 13 | Contributor |
| NEG | 2005-04-21 | 0010 | 0 | | | | | 40.277147 | -123.770517 | H 02S 04E 19 | Section centroid |
| NEG | 2005-05-10 | 2121 | 0 | | | | | 40.277147 | -123.770517 | H 02S 04E 19 | Section centroid |
| NEG | 2005-05-31 | 2332 | 0 | | | | | 40.277147 | -123.770517 | H 02S 04E 19 | Section centroid |
| POS | 2006-04-07 | 2215 | 1 | UU | | | | 40.288316 | -123.774986 | H 02S 04E 18 | Quarter-section centroid |
| NEG | 2006-04-08 | 0930 | 0 | | | | | 40.288316 | -123.774986 | H 02S 04E 18 | Quarter-section centroid |
| NEG | 2006-05-11 | 2255 | 0 | | | | | 40.288316 | -123.774986 | H 02S 04E 18 | Quarter-section centroid |
| POS | 2007-03-10 | 1845 | 1 | UU | | | | 40.288478 | -123.784293 | H 02S 03E 13 | Quarter-section centroid |
| POS | 2007-03-11 | 0649 | 1 | UF | | | | 40.288316 | -123.774986 | H 02S 04E 18 | Quarter-section centroid |
| POS | 2007-04-27 | 2045 | 1 | UM | | | | 40.281458 | -123.793811 | H 02S 03E 24 | Quarter-section centroid |
| Masterowl: HUM0761 Subspecies: NORTHERN | | | | | | | | | | | |
| POS | 1994-03-21 | 2138 | 1 | UM | | | | 40.281520 | -123.841218 | H 02S 03E 21 | Quarter-section centroid |

| <i>Type</i> | <i>Date</i> | <i>Time</i> | <i>#Adults</i> | <i>Age/Sex</i> | <i>Pair</i> | <i>Nest</i> | <i>#Young</i> | <i>Latitude DD NAD83</i> | <i>Longitude DD NAD83</i> | <i>MTRS</i> | <i>Coordinate Source</i> |
|-------------|-------------|-------------|----------------|----------------|-------------|-------------|---------------|------------------------------|-------------------------------|-----------------|------------------------------|
| NEG | 1994-03-22 | | 0 | | | | | 40.281520 | -123.841218 | H 02S 03E 21 | Quarter-section centroid |
| NEG | 1994-03-23 | | 0 | | | | | 40.281520 | -123.841218 | H 02S 03E 21 | Quarter-section centroid |
| NEG | 1994-04-10 | | 0 | | | | | 40.281520 | -123.841218 | H 02S 03E 21 | Quarter-section centroid |
| NEG | 1994-04-10 | | 0 | | | | | 40.281496 | -123.827078 | H 02S 03E 22 | Half-section centroid |
| POS | 1994-04-21 | | 1 | UM | | | | 40.281520 | -123.841218 | H 02S 03E 21 | Quarter-section centroid |
| NEG | 1994-04-22 | | 0 | | | | | 40.277511 | -123.841204 | H 02S 03E 21 | Half-section centroid |
| NEG | 1994-04-23 | | 0 | | | | | 40.277511 | -123.841204 | H 02S 03E 21 | Half-section centroid |
| NEG | 1995 | | 0 | | | | | 40.281520 | -123.841218 | H 02S 03E 21 | Quarter-section centroid |
| POS | 1995-06-15 | 1200 | 1 | UU | | Y | 1 | 40.287329 | -123.820173 | H 02S 03E 15 | Contributor |
| POS | 1995-06-30 | 1200 | 2 | AMAF | Y | Y | 1 | 40.287329 | -123.820173 | H 02S 03E 15 | Contributor |
| POS | 1995-07-21 | | 1 | UM | | | | 40.289133 | -123.822407 | H 02S 03E 15 | Quarter-section centroid |
| NEG | 1996 | | 0 | | | | | 40.281520 | -123.841218 | H 02S 03E 21 | Quarter-section centroid |
| NEG | 1997 | | 0 | | | | | 40.281520 | -123.841218 | H 02S 03E 21 | Quarter-section centroid |
| POS | 1997-05-15 | 1854 | 2 | AMAF | Y | | | 40.289128 | -123.831924 | H 02S 03E 15 | Quarter-section centroid |
| POS | 1998-04-19 | 1953 | 2 | UMUF | Y | | | 40.281502 | -123.822361 | H 02S 03E 22 | Quarter-section centroid |
| POS | 1998-04-20 | 1826 | 2 | UMUF | Y | Y | | 40.284376 | -123.823667 | H 02S 03E 22 | Contributor |
| NEG | 1998-05-08 | 2103 | 0 | | | | | 40.277549 | -123.827089 | H 02S 03E 22 | Section centroid |

| <i>Type</i> | <i>Date</i> | <i>Time</i> | <i>#Adults</i> | <i>Age/Sex</i> | <i>Pair</i> | <i>Nest</i> | <i>#Young</i> | <i>Latitude DD NAD83</i> | <i>Longitude DD NAD83</i> | <i>MTRS</i> | <i>Coordinate Source</i> |
|-------------|-------------|-------------|----------------|----------------|-------------|-------------|---------------|------------------------------|-------------------------------|-----------------|------------------------------|
| NEG | 1998-05-16 | 2141 | 0 | | | | | 40.277549 | -123.827089 | H 02S 03E 22 | Section centroid |
| NEG | 1998-06-22 | 2120 | 0 | | | | | 40.277549 | -123.827089 | H 02S 03E 22 | Section centroid |
| NEG | 1998-06-30 | 2112 | 0 | | | | | 40.277549 | -123.827089 | H 02S 03E 22 | Section centroid |
| NEG | 1998-08-12 | 2058 | 0 | | | | | 40.277549 | -123.827089 | H 02S 03E 22 | Section centroid |
| NEG | 1999 | | 0 | | | | | 40.296415 | -123.832155 | H 02S 03E 15 | Quarter-section centroid |
| NEG | 1999-04-07 | 1023 | 0 | | | | | 40.277549 | -123.827089 | H 02S 03E 22 | Section centroid |
| POS | 1999-04-23 | 0008 | 2 | UMUF | Y | | | 40.281502 | -123.822361 | H 02S 03E 22 | Quarter-section centroid |
| NEG | 1999-04-25 | 0537 | 0 | | | | | 40.277549 | -123.827089 | H 02S 03E 22 | Section centroid |
| NEG | 1999-04-25 | 0147 | 0 | | | | | 40.277549 | -123.827089 | H 02S 03E 22 | Section centroid |
| NEG | 1999-05-01 | 0133 | 0 | | | | | 40.277549 | -123.827089 | H 02S 03E 22 | Section centroid |
| POS | 1999-05-10 | 2357 | 1 | UM | | | | 40.281489 | -123.831795 | H 02S 03E 22 | Quarter-section centroid |
| POS | 1999-05-12 | 1640 | 2 | UMUF | Y | N | 0 | 40.281502 | -123.822361 | H 02S 03E 22 | Quarter-section centroid |
| NEG | 1999-05-15 | 0821 | 0 | | | | | 40.277549 | -123.827089 | H 02S 03E 22 | Section centroid |
| NEG | 1999-05-22 | 0851 | 0 | | | | | 40.277549 | -123.827089 | H 02S 03E 22 | Section centroid |
| POS | 1999-06-01 | 0212 | 2 | UMUF | Y | | | 40.281502 | -123.822361 | H 02S 03E 22 | Quarter-section centroid |
| POS | 1999-06-01 | 1905 | 2 | UMUF | Y | N | 0 | 40.281502 | -123.822361 | H 02S 03E 22 | Quarter-section centroid |
| NEG | 1999-06-01 | 0957 | 0 | | | | | 40.277549 | -123.827089 | H 02S 03E 22 | Section centroid |

| <i>Type</i> | <i>Date</i> | <i>Time</i> | <i>#Adults</i> | <i>Age/Sex</i> | <i>Pair</i> | <i>Nest</i> | <i>#Young</i> | <i>Latitude DD NAD83</i> | <i>Longitude DD NAD83</i> | <i>MTRS</i> | <i>Coordinate Source</i> |
|-------------|-------------|-------------|----------------|----------------|-------------|-------------|---------------|------------------------------|-------------------------------|-----------------|------------------------------|
| NEG | 1999-06-11 | 0052 | 0 | | | | | 40.281489 | -123.831795 | H 02S 03E 22 | Quarter-section centroid |
| POS | 1999-06-17 | 2213 | 1 | UU | | | | 40.281489 | -123.831795 | H 02S 03E 22 | Quarter-section centroid |
| NEG | 1999-06-23 | 2121 | 0 | | | | | 40.277809 | -123.808166 | H 02S 03E 23 | Section centroid |
| NEG | 1999-06-29 | 0219 | 0 | | | | | 40.277809 | -123.808166 | H 02S 03E 23 | Section centroid |
| NEG | 1999-07-07 | 0009 | 0 | | | | | 40.277809 | -123.808166 | H 02S 03E 23 | Section centroid |
| NEG | 1999-07-13 | 2110 | 0 | | | | | 40.277809 | -123.808166 | H 02S 03E 23 | Section centroid |
| NEG | 1999-07-29 | 2341 | 0 | | | | | 40.281489 | -123.831795 | H 02S 03E 22 | Quarter-section centroid |
| NEG | 1999-08-04 | 2203 | 0 | | | | | 40.281489 | -123.831795 | H 02S 03E 22 | Quarter-section centroid |
| NEG | 1999-08-11 | 2022 | 0 | | | | | 40.281489 | -123.831795 | H 02S 03E 22 | Quarter-section centroid |
| AC | 2000 | | 2 | UMUF | Y | Y | | 40.284376 | -123.823667 | H 02S 03E 22 | Contributor |
| NEG | 2000-03-15 | 2103 | 0 | | | | | 40.292855 | -123.827193 | H 02S 03E 15 | Section centroid |
| POS | 2000-03-15 | 1348 | 2 | UMUF | Y | | | 40.281502 | -123.822361 | H 02S 03E 22 | Quarter-section centroid |
| POS | 2000-04-06 | 1602 | 2 | UMUF | Y | | | 40.281502 | -123.822361 | H 02S 03E 22 | Quarter-section centroid |
| NEG | 2000-04-12 | 2253 | 0 | | | | | 40.292855 | -123.827193 | H 02S 03E 15 | Section centroid |
| NEG | 2000-04-12 | 2201 | 0 | | | | | 40.277549 | -123.827089 | H 02S 03E 22 | Section centroid |
| POS | 2000-05-11 | 0758 | 1 | UM | | | | 40.281502 | -123.822361 | H 02S 03E 22 | Quarter-section centroid |
| NEG | 2003-03-18 | 1830 | 0 | | | | | 40.273525 | -123.831721 | H 02S 03E 22 | Quarter-section centroid |

| Type | Date | Time | #Adults | Age/Sex | Pair | Nest | #Young | Latitude DD NAD83 | Longitude DD NAD83 | MTRS | Coordinate Source |
|---|------------|------|---------|---------|------|------|--------|----------------------|-----------------------|-----------------|-----------------------------|
| NEG | 2003-05-13 | 2140 | 0 | | | | | 40.273525 | -123.831721 | H 02S 03E 22 | Quarter-section centroid |
| POS | 2003-08-21 | 1959 | 2 | UMUF | Y | | | 40.273692 | -123.822290 | H 02S 03E 22 | Quarter-section centroid |
| NEG | 2004-03-18 | 1825 | 0 | | | | | 40.273525 | -123.831721 | H 02S 03E 22 | Quarter-section centroid |
| NEG | 2004-06-17 | 2045 | 0 | | | | | 40.273525 | -123.831721 | H 02S 03E 22 | Quarter-section centroid |
| NEG | 2004-08-09 | 2005 | 0 | | | | | 40.273525 | -123.831721 | H 02S 03E 22 | Quarter-section centroid |
| NEG | 2005-03-25 | 0142 | 0 | | | | | 40.273525 | -123.831721 | H 02S 03E 22 | Quarter-section centroid |
| NEG | 2005-04-21 | 0835 | 0 | | | | | 40.273525 | -123.831721 | H 02S 03E 22 | Quarter-section centroid |
| NEG | 2005-04-26 | 2142 | 0 | | | | | 40.273525 | -123.831721 | H 02S 03E 22 | Quarter-section centroid |
| NEG | 2005-05-01 | 0845 | 0 | | | | | 40.273525 | -123.831721 | H 02S 03E 22 | Quarter-section centroid |
| NEG | 2005-05-19 | 2145 | 0 | | | | | 40.273525 | -123.831721 | H 02S 03E 22 | Quarter-section centroid |
| NEG | 2005-06-24 | 2011 | 0 | | | | | 40.273525 | -123.831721 | H 02S 03E 22 | Quarter-section centroid |
| NEG | 2006 | 2400 | 0 | | | | | 40.283075 | -123.826270 | H 02S 03E 22 | Contributor |
| NEG | 2007 | 2400 | 0 | | | | | 40.278033 | -123.817567 | H 02S 03E 23 | Contributor |
| NEG | 2007 | 2400 | 0 | | | | | 40.283075 | -123.826270 | H 02S 03E 22 | Contributor |
| NEG | 2007 | 2400 | 0 | | | | | 40.281045 | -123.821831 | H 02S 03E 22 | Contributor |
| Masterowl: HUM0774 Subspecies: NORTHERN | | | | | | | | | | | |
| POS | 1993-06-16 | | 1 | UU | | | | 40.303115 | -123.803102 | H 02S 03E 11 | Quarter-section centroid |

| <i>Type</i> | <i>Date</i> | <i>Time</i> | <i>#Adults</i> | <i>Age/Sex</i> | <i>Pair</i> | <i>Nest</i> | <i>#Young</i> | <i>Latitude DD NAD83</i> | <i>Longitude DD NAD83</i> | <i>MTRS</i> | <i>Coordinate Source</i> |
|-------------|-------------|-------------|----------------|----------------|-------------|-------------|---------------|------------------------------|-------------------------------|-----------------|------------------------------|
| POS | 1993-06-22 | | 1 | UU | | | | 40.303319 | -123.812659 | H 02S 03E 11 | Quarter-section centroid |
| POS | 1994-05-11 | | 1 | UU | | | | 40.296251 | -123.793878 | H 02S 03E 13 | Quarter-section centroid |
| POS | 1995-05-04 | 2400 | 1 | UM | | | | 40.296251 | -123.793878 | H 02S 03E 13 | Quarter-section centroid |
| NEG | 1995-05-05 | 1200 | 0 | | | | | 40.296251 | -123.793878 | H 02S 03E 13 | Quarter-section centroid |
| POS | 1995-07-21 | 1825 | 1 | UM | | | | 40.296251 | -123.793878 | H 02S 03E 13 | Quarter-section centroid |
| POS | 1995-07-22 | | 1 | UM | | | | 40.296251 | -123.793878 | H 02S 03E 13 | Quarter-section centroid |
| POS | 1996-04-22 | | 1 | UM | | | | 40.303115 | -123.803102 | H 02S 03E 11 | Quarter-section centroid |
| POS | 1996-05-24 | | 1 | UM | | | | 40.298173 | -123.796066 | H 02S 03E 13 | Contributor |
| POS | 1996-05-30 | | 1 | AM | | | | 40.296251 | -123.793878 | H 02S 03E 13 | Quarter-section centroid |
| POS | 1997-05-16 | | 2 | AMAF | Y | | | 40.298173 | -123.796066 | H 02S 03E 13 | Contributor |
| POS | 1998-05-01 | | 2 | UMUF | Y | | | 40.297173 | -123.797348 | H 02S 03E 13 | Contributor |
| NEG | 1998-05-08 | 0711 | 0 | | | | | 40.292383 | -123.789056 | H 02S 03E 13 | Section centroid |
| NEG | 1998-06-17 | 0757 | 0 | | | | | 40.292383 | -123.789056 | H 02S 03E 13 | Section centroid |
| NEG | 1999-04-22 | 2012 | 0 | | | | | 40.306019 | -123.788344 | H 02S 03E 12 | Section centroid |
| NEG | 1999-04-23 | 2326 | 0 | | | | | 40.306019 | -123.788344 | H 02S 03E 12 | Section centroid |
| POS | 1999-04-23 | 2235 | 1 | UM | | | | 40.296251 | -123.793878 | H 02S 03E 13 | Quarter-section centroid |
| NEG | 1999-04-26 | 0740 | 0 | | | | | 40.292383 | -123.789056 | H 02S 03E 13 | Section centroid |

| <i>Type</i> | <i>Date</i> | <i>Time</i> | <i>#Adults</i> | <i>Age/Sex</i> | <i>Pair</i> | <i>Nest</i> | <i>#Young</i> | <i>Latitude DD NAD83</i> | <i>Longitude DD NAD83</i> | <i>MTRS</i> | <i>Coordinate Source</i> |
|-------------|-------------|-------------|----------------|----------------|-------------|-------------|---------------|------------------------------|-------------------------------|-----------------|------------------------------|
| NEG | 1999-05-12 | 0045 | 0 | | | | | 40.296251 | -123.793878 | H 02S 03E 13 | Quarter-section centroid |
| NEG | 1999-05-18 | 1508 | 0 | | | | | 40.292383 | -123.789056 | H 02S 03E 13 | Section centroid |
| NEG | 1999-05-28 | 2306 | 0 | | | | | 40.296251 | -123.793878 | H 02S 03E 13 | Quarter-section centroid |
| NEG | 1999-05-29 | 0033 | 0 | | | | | 40.306019 | -123.788344 | H 02S 03E 12 | Section centroid |
| NEG | 1999-06-03 | 2154 | 0 | | | | | 40.296251 | -123.793878 | H 02S 03E 13 | Quarter-section centroid |
| NEG | 1999-06-03 | 2048 | 0 | | | | | 40.306019 | -123.788344 | H 02S 03E 12 | Section centroid |
| NEG | 1999-06-07 | 1744 | 0 | | | | | 40.292383 | -123.789056 | H 02S 03E 13 | Section centroid |
| POS | 1999-06-11 | 0003 | 1 | UU | | | | 40.296251 | -123.793878 | H 02S 03E 13 | Quarter-section centroid |
| NEG | 1999-06-14 | 1023 | 0 | | | | | 40.296251 | -123.793878 | H 02S 03E 13 | Quarter-section centroid |
| POS | 1999-06-17 | 2144 | 1 | UU | | | | 40.302947 | -123.793545 | H 02S 03E 12 | Quarter-section centroid |
| NEG | 1999-06-18 | 0649 | 0 | | | | | 40.292383 | -123.789056 | H 02S 03E 13 | Section centroid |
| NEG | 1999-06-23 | 2056 | 0 | | | | | 40.306019 | -123.788344 | H 02S 03E 12 | Section centroid |
| NEG | 1999-06-29 | 0130 | 0 | | | | | 40.306019 | -123.788344 | H 02S 03E 12 | Section centroid |
| NEG | 1999-07-14 | 1706 | 0 | | | | | 40.292383 | -123.789056 | H 02S 03E 13 | Section centroid |
| POS | 1999-07-27 | 2000 | 2 | UMUF | Y | | | 40.292383 | -123.789056 | H 02S 03E 13 | Section centroid |
| NEG | 1999-07-28 | 1906 | 0 | | | | | 40.292383 | -123.789056 | H 02S 03E 13 | Section centroid |
| NEG | 1999-08-19 | 1641 | 0 | | | | | 40.292383 | -123.789056 | H 02S 03E 13 | Section centroid |

| <i>Type</i> | <i>Date</i> | <i>Time</i> | <i>#Adults</i> | <i>Age/Sex</i> | <i>Pair</i> | <i>Nest</i> | <i>#Young</i> | <i>Latitude DD NAD83</i> | <i>Longitude DD NAD83</i> | <i>MTRS</i> | <i>Coordinate Source</i> |
|-------------|-------------|-------------|----------------|----------------|-------------|-------------|---------------|------------------------------|-------------------------------|-----------------|------------------------------|
| NEG | 1999-08-19 | 1930 | 0 | | | | | 40.292383 | -123.789056 | H 02S 03E 13 | Section centroid |
| NEG | 2000-03-30 | 2319 | 0 | | | | | 40.306019 | -123.788344 | H 02S 03E 12 | Section centroid |
| NEG | 2000-04-10 | 2024 | 0 | | | | | 40.306019 | -123.788344 | H 02S 03E 12 | Section centroid |
| NEG | 2000-05-09 | 0053 | 0 | | | | | 40.306019 | -123.788344 | H 02S 03E 12 | Section centroid |
| POS | 2000-05-11 | 0937 | 2 | AMAF | Y | | | 40.302858 | -123.784095 | H 02S 03E 12 | Quarter-section centroid |
| NEG | 2000-05-16 | 0030 | 0 | | | | | 40.306019 | -123.788344 | H 02S 03E 12 | Section centroid |
| NEG | 2000-05-24 | 0014 | 0 | | | | | 40.306019 | -123.788344 | H 02S 03E 12 | Section centroid |
| NEG | 2001-05-13 | 2211 | 0 | | | | | 40.306227 | -123.807752 | H 02S 03E 11 | Section centroid |
| NEG | 2001-05-29 | 2302 | 0 | | | | | 40.306227 | -123.807752 | H 02S 03E 11 | Section centroid |
| NEG | 2001-06-14 | 2205 | 0 | | | | | 40.306227 | -123.807752 | H 02S 03E 11 | Section centroid |
| AC | 2002 | | 2 | UMUF | Y | Y | 2 | 40.303241 | -123.799302 | H 02S 03E 11 | Contributor |
| NEG | 2004-03-11 | 1940 | 0 | | | | | 40.292801 | -123.808145 | H 02S 03E 14 | Section centroid |
| NEG | 2004-03-13 | 1840 | 0 | | | | | 40.292801 | -123.808145 | H 02S 03E 14 | Section centroid |
| POS | 2004-04-22 | 2109 | 1 | UM | | | | 40.292801 | -123.808145 | H 02S 03E 14 | Section centroid |
| NEG | 2004-05-26 | 1954 | 0 | | | | | 40.292801 | -123.808145 | H 02S 03E 14 | Section centroid |
| NEG | 2004-06-04 | 1950 | 0 | | | | | 40.292801 | -123.808145 | H 02S 03E 14 | Section centroid |
| NEG | 2004-06-11 | 2000 | 0 | | | | | 40.292801 | -123.808145 | H 02S 03E 14 | Section centroid |

| <i>Type</i> | <i>Date</i> | <i>Time</i> | <i>#Adults</i> | <i>Age/Sex</i> | <i>Pair</i> | <i>Nest</i> | <i>#Young</i> | <i>Latitude DD NAD83</i> | <i>Longitude DD NAD83</i> | <i>MTRS</i> | <i>Coordinate Source</i> |
|---|-------------|-------------|----------------|----------------|-------------|-------------|---------------|------------------------------|-------------------------------|-----------------|------------------------------|
| POS | 2005 | | 1 | UU | | | | 40.304127 | -123.798772 | H 02S 03E 11 | Contributor |
| NEG | 2005-03-13 | 1955 | 0 | | | | | 40.306227 | -123.807752 | H 02S 03E 11 | Section centroid |
| NEG | 2005-03-22 | 1845 | 0 | | | | | 40.306227 | -123.807752 | H 02S 03E 11 | Section centroid |
| NEG | 2005-03-30 | 1940 | 0 | | | | | 40.306227 | -123.807752 | H 02S 03E 11 | Section centroid |
| NEG | 2007-03-10 | 1845 | 0 | | | | | 40.306019 | -123.788344 | H 02S 03E 12 | Section centroid |
| NEG | 2007-03-11 | 0649 | 0 | | | | | 40.306019 | -123.788344 | H 02S 03E 12 | Section centroid |
| NEG | 2007-04-27 | 2015 | 0 | | | | | 40.306019 | -123.788344 | H 02S 03E 12 | Section centroid |
| Masterowl: HUM0842 Subspecies: NORTHERN | | | | | | | | | | | |
| POS | 1997-05-16 | | 2 | UMUF | Y | Y | | 40.295195 | -123.847447 | H 02S 03E 16 | Contributor |
| POS | 1998-04-27 | 1635 | 2 | AMAF | Y | Y | | 40.296098 | -123.850894 | H 02S 03E 16 | Quarter-section centroid |
| POS | 1998-06-09 | 1425 | 2 | AMAF | Y | Y | 2 | 40.296098 | -123.850894 | H 02S 03E 16 | Quarter-section centroid |
| POS | 1998-06-19 | 1300 | 2 | AMAF | Y | | 2 | 40.295195 | -123.847447 | H 02S 03E 16 | Contributor |
| POS | 1999-07-26 | 1435 | 2 | AMAF | Y | | | 40.296098 | -123.850894 | H 02S 03E 16 | Quarter-section centroid |
| POS | 2000 | | 2 | UMUF | Y | Y | 1 | 40.296098 | -123.850894 | H 02S 03E 16 | Quarter-section centroid |
| POS | 2000-05-15 | 2300 | 1 | UM | | | | 40.289090 | -123.850747 | H 02S 03E 16 | Quarter-section centroid |
| POS | 2000-05-16 | 1824 | 2 | AMAF | Y | Y | 1 | 40.295195 | -123.847447 | H 02S 03E 16 | Contributor |
| POS | 2000-06-15 | 0659 | 1 | UF | Y | Y | 1 | 40.296098 | -123.850894 | H 02S 03E 16 | Quarter-section centroid |

| <i>Type</i> | <i>Date</i> | <i>Time</i> | <i>#Adults</i> | <i>Age/Sex</i> | <i>Pair</i> | <i>Nest</i> | <i>#Young</i> | <i>Latitude DD NAD83</i> | <i>Longitude DD NAD83</i> | <i>MTRS</i> | <i>Coordinate Source</i> |
|-------------|-------------|-------------|----------------|----------------|-------------|-------------|---------------|------------------------------|-------------------------------|-----------------|------------------------------|
| POS | 2000-06-29 | 0945 | 1 | UF | Y | Y | 1 | 40.295731 | -123.848136 | H 02S 03E 16 | Activity center |
| POS | 2000-07-06 | 0740 | 2 | UMUF | Y | Y | 1 | 40.296098 | -123.850894 | H 02S 03E 16 | Quarter-section centroid |
| POS | 2000-08-22 | 2206 | 1 | UM | | | | 40.295949 | -123.860140 | H 02S 03E 17 | Quarter-section centroid |
| NEG | 2000-08-23 | 0702 | 0 | | | | | 40.292364 | -123.864836 | H 02S 03E 17 | Section centroid |
| POS | 2000-08-27 | 2157 | 1 | UU | | | | 40.309805 | -123.868530 | H 02S 03E 08 | Quarter-section centroid |
| POS | 2001 | | 2 | UMUF | Y | | | 40.296098 | -123.850894 | H 02S 03E 16 | Quarter-section centroid |
| POS | 2001-04-12 | 2140 | 1 | UF | | | | 40.292610 | -123.846121 | H 02S 03E 16 | Section centroid |
| POS | 2001-04-13 | 0728 | 2 | UMUF | Y | | | 40.296098 | -123.850894 | H 02S 03E 16 | Quarter-section centroid |
| POS | 2001-04-15 | 2033 | 2 | UMUF | Y | | | 40.292610 | -123.846121 | H 02S 03E 16 | Section centroid |
| POS | 2001-04-26 | 0031 | 1 | UU | | | | 40.292610 | -123.846121 | H 02S 03E 16 | Section centroid |
| POS | 2001-04-30 | 1045 | 1 | UF | Y | | | 40.295731 | -123.848136 | H 02S 03E 16 | Activity center |
| POS | 2001-06-25 | 0046 | 1 | UU | | | | 40.292610 | -123.846121 | H 02S 03E 16 | Section centroid |
| POS | 2001-07-10 | 2058 | 1 | UM | | | | 40.292610 | -123.846121 | H 02S 03E 16 | Section centroid |
| NEG | 2002 | | 0 | | | | | 40.296098 | -123.850894 | H 02S 03E 16 | Quarter-section centroid |
| NEG | 2002-05-03 | 0803 | 0 | | | | | 40.295731 | -123.848136 | H 02S 03E 16 | Activity center |
| NEG | 2002-07-01 | 0815 | 0 | | | | | 40.295731 | -123.848136 | H 02S 03E 16 | Activity center |
| POS | 2003 | | 2 | UMUF | Y | | | 40.297835 | -123.847421 | H 02S 03E 16 | Contributor |

| <i>Type</i> | <i>Date</i> | <i>Time</i> | <i>#Adults</i> | <i>Age/Sex</i> | <i>Pair</i> | <i>Nest</i> | <i>#Young</i> | <i>Latitude DD NAD83</i> | <i>Longitude DD NAD83</i> | <i>MTRS</i> | <i>Coordinate Source</i> |
|-------------|-------------|---------------|----------------|----------------|-------------|-------------|---------------|------------------------------|-------------------------------|-----------------|------------------------------|
| POS | 2003-05-22 | 0819 | 2 | AMAF | Y | N | | 40.296098 | -123.850894 | H 02S 03E 16 | Quarter-section centroid |
| POS | 2005 | | 1 | UU | | | | 40.295793 | -123.847078 | H 02S 03E 16 | Contributor |
| POS | 2006-04-25 | 1920 | 2 | UMUF | Y | | | 40.295784 | -123.847090 | H 02S 03E 16 | Contributor |
| NEG | 2006-06-16 | 0948 | 0 | | | | | 40.295731 | -123.848136 | H 02S 03E 16 | Activity center |
| NEG | 2006-06-26 | 1721 | 0 | | | | | 40.295731 | -123.848136 | H 02S 03E 16 | Activity center |
| POS | 2008 | | 2 | UMUF | Y | Y | 0 | 40.295731 | -123.848136 | H 02S 03E 16 | Contributor |
| POS | 2008 | | 2 | UMUF | Y | | | 40.290935 | -123.862006 | H 02S 03E 17 | Contributor |
| POS | 2009 | | 2 | UMUF | Y | | 1 | 40.295899 | -123.848099 | H 02S 03E 16 | Contributor |
| POS | 2010 | | 2 | UMUF | Y | | 1 | 40.293557 | -123.850056 | H 02S 03E 16 | Contributor |
| POS | 2011 | | 2 | UMUF | Y | Y | 0 | 40.294367 | -123.846874 | H 02S 03E 16 | Contributor |
| AC | 2012 | | 2 | UMUF | Y | Y | 2 | 40.296246 | -123.848197 | H 02S 03E 16 | Contributor |
| POS | 2013-06-18 | 1140- 1248 | 1 | UF | | | | 40.296098 | -123.850894 | H 02S 03E 16 | Quarter-section centroid |
| NEG | 2014-04-18 | 0943- 1100 | 0 | | | | | 40.296247 | -123.848197 | H 02S 03E 16 | Activity center |
| NEG | 2014-06-02 | 1045- 1255 | 0 | | | | | 40.296247 | -123.848197 | H 02S 03E 16 | Activity center |
| NEG | 2014-07-03 | 0815- 1020 | 0 | | | | | 40.296247 | -123.848197 | H 02S 03E 16 | Activity center |
| NEG | 2014-07-16 | 1930- 2115 | 0 | | | | | 40.296247 | -123.848197 | H 02S 03E 16 | Activity center |
| POS | 2014-08-12 | 1815- 1845 | 1 | UU | | | | 40.296101 | -123.850896 | H 02S 03E 16 | Quarter-section centroid |

| <i>Type</i> | <i>Date</i> | <i>Time</i> | <i>#Adults</i> | <i>Age/Sex</i> | <i>Pair</i> | <i>Nest</i> | <i>#Young</i> | <i>Latitude DD NAD83</i> | <i>Longitude DD NAD83</i> | <i>MTRS</i> | <i>Coordinate Source</i> |
|-------------|-------------|-------------|----------------|----------------|-------------|-------------|---------------|------------------------------|-------------------------------|-----------------|------------------------------|
| NEG | 2014-08-22 | 0920-1231 | 0 | | | | | 40.296247 | -123.848197 | H 02S 03E 16 | Activity center |
| NEG | 2014-08-25 | 1630-1745 | 0 | | | | | 40.296247 | -123.848197 | H 02S 03E 16 | Activity center |
| NEG | 2014-08-28 | 0905-1238 | 0 | | | | | 40.296247 | -123.848197 | H 02S 03E 16 | Activity center |
| NEG | 2015-03-30 | 1100-1300 | 0 | | | | | 40.296247 | -123.848197 | H 02S 03E 16 | Activity center |
| NEG | 2015-05-07 | 1730-1840 | 0 | | | | | 40.296247 | -123.848197 | H 02S 03E 16 | Activity center |
| NEG | 2015-06-18 | 1821-1918 | 0 | | | | | 40.296247 | -123.848197 | H 02S 03E 16 | Activity center |
| NEG | 2015-07-16 | 1530-1740 | 0 | | | | | 40.296247 | -123.848197 | H 02S 03E 16 | Activity center |
| NEG | 2015-07-24 | 0830-1038 | 0 | | | | | 40.296247 | -123.848197 | H 02S 03E 16 | Activity center |
| NEG | 2015-08-13 | 1630-1739 | 0 | | | | | 40.296247 | -123.848197 | H 02S 03E 16 | Activity center |
| NEG | 2015-08-19 | 0842-1103 | 0 | | | | | 40.296247 | -123.848197 | H 02S 03E 16 | Activity center |
| NEG | 2015-08-27 | 1908-1943 | 0 | | | | | 40.296247 | -123.848197 | H 02S 03E 16 | Activity center |
| NEG | 2016-05-04 | 1620-1700 | 0 | | | | | 40.296101 | -123.850896 | H 02S 03E 16 | Quarter-section centroid |
| NEG | 2016-07-18 | 1038-1245 | 0 | | | | | 40.296247 | -123.848197 | H 02S 03E 16 | Activity center |
| NEG | 2016-08-04 | 1047-1339 | 0 | | | | | 40.296247 | -123.848197 | H 02S 03E 16 | Activity center |
| POS | 2016-08-17 | 2113-2139 | 1 | UM | | | | 40.296101 | -123.850896 | H 02S 03E 16 | Quarter-section centroid |
| POS | 2016-08-18 | 0811-0927 | 1 | UM | | | | 40.296101 | -123.850896 | H 02S 03E 16 | Quarter-section centroid |
| NEG | 2017-03-17 | 1240-1340 | 0 | | | | | 40.296247 | -123.848197 | H 02S 03E 16 | Activity center |

| Type | Date | Time | #Adults | Age/Sex | Pair | Nest | #Young | Latitude DD NAD83 | Longitude DD NAD83 | MTRS | Coordinate Source |
|---|------------|---------------|---------|---------|------|------|--------|----------------------|-----------------------|-----------------|-----------------------------|
| NEG | 2017-05-31 | 1715- 1920 | 0 | | | | | 40.296247 | -123.848197 | H 02S 03E 16 | Activity center |
| POS | 2017-06-11 | 1900- 2000 | 1 | UM | | | | 40.296101 | -123.850896 | H 02S 03E 16 | Quarter-section centroid |
| NEG | 2017-06-20 | 0915- 1427 | 0 | | | | | 40.296247 | -123.848197 | H 02S 03E 16 | Activity center |
| NEG | 2017-07-18 | 1942- 2111 | 0 | | | | | 40.296247 | -123.848197 | H 02S 03E 16 | Activity center |
| POS | 2017-07-26 | 0932- 1148 | 2 | UMUF | Y | | | 40.303100 | -123.850639 | H 02S 03E 09 | Quarter-section centroid |
| POS | 2017-08-10 | 0630- 0755 | 2 | UMUF | Y | | | 40.296101 | -123.850896 | H 02S 03E 16 | Quarter-section centroid |
| Masterowl: HUM0932 Subspecies: NORTHERN | | | | | | | | | | | |
| POS | 1999 | | 1 | UM | | | | 40.308950 | -123.787837 | H 02S 03E 12 | Contributor |
| NEG | 1999-04-22 | 2012 | 0 | | | | | 40.306019 | -123.788344 | H 02S 03E 12 | Section centroid |
| NEG | 1999-04-23 | 2235 | 0 | | | | | 40.306019 | -123.788344 | H 02S 03E 12 | Section centroid |
| NEG | 1999-04-23 | 2326 | 0 | | | | | 40.306019 | -123.788344 | H 02S 03E 12 | Section centroid |
| NEG | 1999-05-12 | 0117 | 0 | | | | | 40.306019 | -123.788344 | H 02S 03E 12 | Section centroid |
| POS | 1999-05-28 | 2221 | 1 | UM | | | | 40.309340 | -123.783487 | H 02S 03E 12 | Quarter-section centroid |
| NEG | 1999-05-29 | 0033 | 0 | | | | | 40.306019 | -123.788344 | H 02S 03E 12 | Section centroid |
| NEG | 1999-06-03 | 1704 | 0 | | | | | 40.306019 | -123.788344 | H 02S 03E 12 | Section centroid |
| NEG | 1999-06-03 | 2048 | 0 | | | | | 40.306019 | -123.788344 | H 02S 03E 12 | Section centroid |
| POS | 1999-06-11 | 2341 | 1 | UU | | | | 40.309340 | -123.783487 | H 02S 03E 12 | Quarter-section centroid |

| <i>Type</i> | <i>Date</i> | <i>Time</i> | <i>#Adults</i> | <i>Age/Sex</i> | <i>Pair</i> | <i>Nest</i> | <i>#Young</i> | <i>Latitude DD NAD83</i> | <i>Longitude DD NAD83</i> | <i>MTRS</i> | <i>Coordinate Source</i> |
|-------------|-------------|-------------|----------------|----------------|-------------|-------------|---------------|------------------------------|-------------------------------|-----------------|------------------------------|
| POS | 1999-06-11 | 2311 | 1 | UU | | | | 40.309015 | -123.792863 | H 02S 03E 12 | Quarter-section centroid |
| POS | 1999-06-14 | 0742 | 1 | UM | | | | 40.306019 | -123.788344 | H 02S 03E 12 | Section centroid |
| POS | 1999-06-14 | 0925 | 1 | UM | | | | 40.309340 | -123.783487 | H 02S 03E 12 | Quarter-section centroid |
| POS | 1999-06-17 | 2119 | 1 | UM | | | | 40.309012 | -123.802477 | H 02S 03E 11 | Quarter-section centroid |
| POS | 1999-06-23 | 2307 | 1 | UU | | | | 40.309340 | -123.783487 | H 02S 03E 12 | Quarter-section centroid |
| POS | 1999-06-23 | 2305 | 1 | UF | | | | 40.309340 | -123.783487 | H 02S 03E 12 | Quarter-section centroid |
| NEG | 1999-06-23 | 2056 | 0 | | | | | 40.306019 | -123.788344 | H 02S 03E 12 | Section centroid |
| NEG | 1999-06-23 | 2223 | 0 | | | | | 40.306019 | -123.788344 | H 02S 03E 12 | Section centroid |
| NEG | 1999-06-24 | 0625 | 0 | | | | | 40.306019 | -123.788344 | H 02S 03E 12 | Section centroid |
| NEG | 1999-06-29 | 0130 | 0 | | | | | 40.306019 | -123.788344 | H 02S 03E 12 | Section centroid |
| NEG | 1999-08-05 | 1900 | 0 | | | | | 40.306019 | -123.788344 | H 02S 03E 12 | Section centroid |
| NEG | 2000 | | 0 | | | | | 40.309340 | -123.783487 | H 02S 03E 12 | Quarter-section centroid |
| POS | 2000 | | 2 | UMUF | Y | | | 40.309015 | -123.792863 | H 02S 03E 12 | Quarter-section centroid |
| NEG | 2000-03-24 | 0610 | 0 | | | | | 40.306019 | -123.788344 | H 02S 03E 12 | Section centroid |
| POS | 2000-03-28 | 1853 | 1 | UM | | | | 40.309015 | -123.792863 | H 02S 03E 12 | Quarter-section centroid |
| POS | 2000-03-29 | 0733 | 2 | UMUF | Y | | | 40.302858 | -123.784095 | H 02S 03E 12 | Quarter-section centroid |
| NEG | 2000-03-30 | 2319 | 0 | | | | | 40.306019 | -123.788344 | H 02S 03E 12 | Section centroid |

| <i>Type</i> | <i>Date</i> | <i>Time</i> | <i>#Adults</i> | <i>Age/Sex</i> | <i>Pair</i> | <i>Nest</i> | <i>#Young</i> | <i>Latitude DD NAD83</i> | <i>Longitude DD NAD83</i> | <i>MTRS</i> | <i>Coordinate Source</i> |
|-------------|-------------|-------------|----------------|----------------|-------------|-------------|---------------|------------------------------|-------------------------------|-----------------|------------------------------|
| NEG | 2000-04-10 | 2024 | 0 | | | | | 40.306019 | -123.788344 | H 02S 03E 12 | Section centroid |
| POS | 2000-04-10 | 0003 | 1 | UU | | | | 40.309015 | -123.792863 | H 02S 03E 12 | Quarter-section centroid |
| POS | 2000-04-11 | 0735 | 2 | UMUF | Y | | | 40.302947 | -123.793545 | H 02S 03E 12 | Quarter-section centroid |
| NEG | 2000-05-09 | 0053 | 0 | | | | | 40.306019 | -123.788344 | H 02S 03E 12 | Section centroid |
| POS | 2000-05-11 | 0928 | 2 | UMUF | Y | | | 40.302858 | -123.784095 | H 02S 03E 12 | Quarter-section centroid |
| NEG | 2000-05-16 | 0030 | 0 | | | | | 40.306019 | -123.788344 | H 02S 03E 12 | Section centroid |
| NEG | 2000-05-24 | 0014 | 0 | | | | | 40.306019 | -123.788344 | H 02S 03E 12 | Section centroid |
| AC | 2001 | | 2 | UMUF | Y | | | 40.306551 | -123.796164 | H 02S 03E 12 | Contributor |
| POS | 2001-04-27 | 0805 | 2 | UMUF | Y | | | 40.309015 | -123.792863 | H 02S 03E 12 | Quarter-section centroid |
| NEG | 2004-04-23 | 2005 | 0 | | | | | 40.306019 | -123.788344 | H 02S 03E 12 | Section centroid |
| POS | 2005 | | 1 | UU | | | | 40.311000 | -123.785884 | H 02S 03E 12 | Contributor |
| NEG | 2007-03-10 | 2105 | 0 | | | | | 40.306019 | -123.788344 | H 02S 03E 12 | Section centroid |
| NEG | 2007-03-11 | 1710 | 0 | | | | | 40.306019 | -123.788344 | H 02S 03E 12 | Section centroid |
| NEG | 2007-04-25 | 2105 | 0 | | | | | 40.306019 | -123.788344 | H 02S 03E 12 | Section centroid |
| NEG | 2007-04-27 | 2015 | 0 | | | | | 40.306019 | -123.788344 | H 02S 03E 12 | Section centroid |
| NEG | 2007-05-31 | 2130 | 0 | | | | | 40.306019 | -123.788344 | H 02S 03E 12 | Section centroid |
| NEG | 2007-06-13 | 2120 | 0 | | | | | 40.306019 | -123.788344 | H 02S 03E 12 | Section centroid |

| <i>Type</i> | <i>Date</i> | <i>Time</i> | <i>#Adults</i> | <i>Age/Sex</i> | <i>Pair</i> | <i>Nest</i> | <i>#Young</i> | <i>Latitude DD NAD83</i> | <i>Longitude DD NAD83</i> | <i>MTRS</i> | <i>Coordinate Source</i> |
|---|-------------|-------------|----------------|----------------|-------------|-------------|---------------|------------------------------|-------------------------------|-----------------|------------------------------|
| Masterowl: HUM0935 Subspecies: NORTHERN | | | | | | | | | | | |
| NEG | 1998-05-09 | 0515 | 0 | | | | | 40.277809 | -123.808166 | H 02S 03E 23 | Section centroid |
| NEG | 1998-05-16 | 2202 | 0 | | | | | 40.277809 | -123.808166 | H 02S 03E 23 | Section centroid |
| POS | 1999 | | 2 | UMUF | Y | | | 40.269130 | -123.813837 | H 02S 03E 26 | Contributor |
| NEG | 1999-04-22 | 2012 | 0 | | | | | 40.273961 | -123.793982 | H 02S 03E 24 | Quarter-section centroid |
| NEG | 1999-05-29 | 0033 | 0 | | | | | 40.277809 | -123.808166 | H 02S 03E 23 | Section centroid |
| NEG | 1999-06-03 | 2048 | 0 | | | | | 40.277809 | -123.808166 | H 02S 03E 23 | Section centroid |
| NEG | 1999-06-11 | 2124 | 0 | | | | | 40.277809 | -123.808166 | H 02S 03E 23 | Section centroid |
| POS | 1999-06-11 | 2112 | 1 | UU | | | | 40.274067 | -123.803440 | H 02S 03E 23 | Quarter-section centroid |
| POS | 1999-06-11 | 2057 | 2 | UMUF | Y | | | 40.266530 | -123.793777 | H 02S 03E 25 | Quarter-section centroid |
| POS | 1999-06-14 | 0701 | 1 | AF | | | | 40.266192 | -123.812638 | H 02S 03E 26 | Quarter-section centroid |
| POS | 1999-06-14 | 0716 | 1 | AF | | | | 40.281560 | -123.812869 | H 02S 03E 23 | Quarter-section centroid |
| POS | 1999-06-17 | 2300 | 2 | UMUF | Y | | | 40.266501 | -123.803221 | H 02S 03E 26 | Quarter-section centroid |
| POS | 1999-06-17 | 2314 | 1 | UF | | | | 40.266501 | -123.803221 | H 02S 03E 26 | Quarter-section centroid |
| POS | 1999-06-18 | 0753 | 1 | AF | | | | 40.266501 | -123.803221 | H 02S 03E 26 | Quarter-section centroid |
| NEG | 1999-06-18 | 0940 | 0 | | | | | 40.262524 | -123.807713 | H 02S 03E 26 | Section centroid |
| NEG | 1999-06-23 | 2056 | 0 | | | | | 40.277809 | -123.808166 | H 02S 03E 23 | Section centroid |

| <i>Type</i> | <i>Date</i> | <i>Time</i> | <i>#Adults</i> | <i>Age/Sex</i> | <i>Pair</i> | <i>Nest</i> | <i>#Young</i> | <i>Latitude DD NAD83</i> | <i>Longitude DD NAD83</i> | <i>MTRS</i> | <i>Coordinate Source</i> |
|-------------|-------------|-------------|----------------|----------------|-------------|-------------|---------------|------------------------------|-------------------------------|-----------------|------------------------------|
| NEG | 1999-06-29 | 0130 | 0 | | | | | 40.277809 | -123.808166 | H 02S 03E 23 | Section centroid |
| POS | 1999-07-06 | 2325 | 1 | UF | | | | 40.273961 | -123.793982 | H 02S 03E 24 | Quarter-section centroid |
| POS | 1999-07-06 | 2343 | 1 | UF | | | | 40.274067 | -123.803440 | H 02S 03E 23 | Quarter-section centroid |
| POS | 1999-07-07 | 1734 | 2 | UMUF | Y | | | 40.262524 | -123.807713 | H 02S 03E 26 | Section centroid |
| POS | 1999-07-07 | 1834 | 1 | UM | | | | 40.274067 | -123.803440 | H 02S 03E 23 | Quarter-section centroid |
| POS | 1999-07-13 | 1738 | 2 | UMAF | Y | | | 40.266501 | -123.803221 | H 02S 03E 26 | Quarter-section centroid |
| POS | 2000 | | 1 | UM | | | | 40.266501 | -123.803221 | H 02S 03E 26 | Quarter-section centroid |
| NEG | 2000-03-15 | 2103 | 0 | | | | | 40.262092 | -123.826677 | H 02S 03E 27 | Section centroid |
| POS | 2000-04-11 | 1009 | 1 | UM | | | | 40.266501 | -123.803221 | H 02S 03E 26 | Quarter-section centroid |
| POS | 2000-04-11 | 0930 | 1 | UM | | | | 40.262524 | -123.807713 | H 02S 03E 26 | Section centroid |
| NEG | 2000-04-12 | 2253 | 0 | | | | | 40.262092 | -123.826677 | H 02S 03E 27 | Section centroid |
| POS | 2000-05-15 | 0021 | 1 | UM | | | | 40.266192 | -123.812638 | H 02S 03E 26 | Quarter-section centroid |
| POS | 2000-05-17 | 2032 | 1 | UM | | | | 40.266501 | -123.803221 | H 02S 03E 26 | Quarter-section centroid |
| NEG | 2000-07-07 | 0701 | 0 | | | | | 40.262524 | -123.807713 | H 02S 03E 26 | Section centroid |
| POS | 2000-08-23 | 0730 | 1 | UM | | | | 40.262524 | -123.807713 | H 02S 03E 26 | Section centroid |
| POS | 2001 | | 2 | UMUF | Y | Y | 2 | 40.265717 | -123.799331 | H 02S 03E 26 | Contributor |
| POS | 2001-05-13 | 1538 | 1 | UM | | | | 40.262524 | -123.807713 | H 02S 03E 26 | Section centroid |

| <i>Type</i> | <i>Date</i> | <i>Time</i> | <i>#Adults</i> | <i>Age/Sex</i> | <i>Pair</i> | <i>Nest</i> | <i>#Young</i> | <i>Latitude DD NAD83</i> | <i>Longitude DD NAD83</i> | <i>MTRS</i> | <i>Coordinate Source</i> |
|-------------|-------------|-------------|----------------|----------------|-------------|-------------|---------------|------------------------------|-------------------------------|-----------------|------------------------------|
| POS | 2001-05-30 | 0650 | 2 | UMUF | Y | Y | 2 | 40.266501 | -123.803221 | H 02S 03E 26 | Quarter-section centroid |
| POS | 2002 | | 1 | UM | | | | 40.266501 | -123.803221 | H 02S 03E 26 | Quarter-section centroid |
| POS | 2003 | | 1 | UM | | | | 40.271122 | -123.804546 | H 02S 03E 23 | Contributor |
| POS | 2003-06-17 | 2116 | 1 | UM | | | | 40.273961 | -123.793982 | H 02S 03E 24 | Quarter-section centroid |
| POS | 2003-07-01 | 1941 | 1 | UM | | | | 40.274067 | -123.803440 | H 02S 03E 23 | Quarter-section centroid |
| POS | 2003-08-19 | 2123 | 1 | UM | | | | 40.262524 | -123.807713 | H 02S 03E 26 | Section centroid |
| NEG | 2005 | | 0 | | | | | 40.269231 | -123.804547 | H 02S 03E 26 | Contributor |
| NEG | 2005-06-23 | 0915 | 0 | | | | | 40.265717 | -123.799331 | H 02S 03E 26 | Activity center |
| NEG | 2006 | 2400 | 0 | | | | | 40.277504 | -123.813368 | H 02S 03E 23 | Contributor |
| NEG | 2006-07-14 | 0828 | 0 | | | | | 40.269221 | -123.804559 | H 02S 03E 26 | Contributor |
| NEG | 2007 | 2400 | 0 | | | | | 40.278033 | -123.817567 | H 02S 03E 23 | Contributor |
| NEG | 2007 | 2400 | 0 | | | | | 40.276191 | -123.811376 | H 02S 03E 23 | Contributor |
| POS | 2008 | | 1 | UM | | | | 40.269257 | -123.804571 | H 02S 03E 26 | Contributor |
| NEG | 2010 | | 0 | | | | | 40.269229 | -123.804544 | H 02S 03E 26 | Contributor |
| NEG | 2011 | | 0 | | | | | 40.269227 | -123.804549 | H 02S 03E 26 | Contributor |
| POS | 2012 | | 1 | UF | | | | 40.272924 | -123.798599 | H 02S 03E 24 | Contributor |
| AC | 2013 | | 2 | UMUF | Y | | | 40.269465 | -123.803314 | H 02S 03E 26 | Contributor |

| <i>Type</i> | <i>Date</i> | <i>Time</i> | <i>#Adults</i> | <i>Age/Sex</i> | <i>Pair</i> | <i>Nest</i> | <i>#Young</i> | <i>Latitude DD NAD83</i> | <i>Longitude DD NAD83</i> | <i>MTRS</i> | <i>Coordinate Source</i> |
|-------------|-------------|-------------|----------------|----------------|-------------|-------------|---------------|------------------------------|-------------------------------|--------------|------------------------------|
| POS | 2013-04-10 | 2016-2035 | 1 | UU | | | | 40.273879 | -123.812865 | H 02S 03E 23 | Quarter-section centroid |
| POS | 2013-04-22 | 1839-2005 | 2 | UMUF | Y | | | 40.266500 | -123.803220 | H 02S 03E 26 | Quarter-section centroid |
| POS | 2013-05-10 | 0945-1150 | 2 | UMUF | Y | | | 40.266500 | -123.803220 | H 02S 03E 26 | Quarter-section centroid |
| POS | 2013-05-20 | 1800-2010 | 2 | UMUF | Y | | | 40.266500 | -123.803220 | H 02S 03E 26 | Quarter-section centroid |
| POS | 2013-06-10 | 1802-2015 | 2 | UMUF | Y | N | | 40.266500 | -123.803220 | H 02S 03E 26 | Quarter-section centroid |
| POS | 2014-04-03 | 1730-1915 | 1 | UM | | | | 40.266500 | -123.803220 | H 02S 03E 26 | Quarter-section centroid |
| POS | 2014-04-15 | 1800-1930 | 1 | UM | | | | 40.267943 | -123.799876 | H 02S 03E 26 | Contributor |
| POS | 2014-04-30 | 1800-1920 | 1 | UM | | | | 40.266500 | -123.803220 | H 02S 03E 26 | Quarter-section centroid |
| POS | 2014-06-04 | 1730-2000 | 1 | UM | Y | N | | 40.266500 | -123.803220 | H 02S 03E 26 | Quarter-section centroid |
| POS | 2015-05-07 | 1405-1615 | 2 | UMUF | Y | | | 40.266500 | -123.803220 | H 02S 03E 26 | Quarter-section centroid |
| NEG | 2016-06-09 | 1700-1835 | 0 | | | | | 40.267943 | -123.799876 | H 02S 03E 26 | Activity center |
| POS | 2016-07-13 | 2055-2145 | 1 | UM | | | | 40.266527 | -123.793782 | H 02S 03E 25 | Quarter-section centroid |
| NEG | 2016-08-09 | 0645-0805 | 0 | | | | | 40.267943 | -123.799876 | H 02S 03E 26 | Activity center |
| NEG | 2017-05-15 | 1835-2020 | 0 | | | | | 40.267943 | -123.799876 | H 02S 03E 26 | Activity center |
| NEG | 2017-06-12 | 1717-1922 | 0 | | | | | 40.267943 | -123.799876 | H 02S 03E 26 | Activity center |
| NEG | 2017-07-19 | 0945-1058 | 0 | | | | | 40.267943 | -123.799876 | H 02S 03E 26 | Activity center |
| POS | 2017-08-09 | 2015-2105 | 1 | UU | | | | 40.266527 | -123.793782 | H 02S 03E 25 | Quarter-section centroid |

| <i>Type</i> | <i>Date</i> | <i>Time</i> | <i>#Adults</i> | <i>Age/Sex</i> | <i>Pair</i> | <i>Nest</i> | <i>#Young</i> | <i>Latitude DD NAD83</i> | <i>Longitude DD NAD83</i> | <i>MTRS</i> | <i>Coordinate Source</i> |
|---|-------------|-------------|----------------|----------------|-------------|-------------|---------------|------------------------------|-------------------------------|-----------------|------------------------------|
| Masterowl: HUM0939 Subspecies: NORTHERN | | | | | | | | | | | |
| AC | 1999 | | 2 | UMUF | Y | | | 40.280198 | -123.776328 | H 02S 04E 19 | Contributor |
| NEG | 1999-04-20 | 2001 | 0 | | | | | 40.277147 | -123.770517 | H 02S 04E 19 | Section centroid |
| POS | 1999-07-13 | 2312 | 1 | UU | | | | 40.273422 | -123.775156 | H 02S 04E 19 | Quarter-section centroid |
| NEG | 1999-07-14 | 1706 | 0 | | | | | 40.277147 | -123.770517 | H 02S 04E 19 | Section centroid |
| POS | 1999-07-26 | 2127 | 1 | UU | | | | 40.277147 | -123.770517 | H 02S 04E 19 | Section centroid |
| POS | 2000-05-11 | 0730 | 1 | UM | | | | 40.280856 | -123.775030 | H 02S 04E 19 | Quarter-section centroid |
| NEG | 2000-07-07 | 0624 | 0 | | | | | 40.277147 | -123.770517 | H 02S 04E 19 | Section centroid |
| POS | 2002 | | 2 | UMUF | Y | | | 40.273603 | -123.784486 | H 02S 03E 24 | Quarter-section centroid |
| POS | 2002-06-06 | 0730 | 2 | UMUF | Y | | | 40.273603 | -123.784486 | H 02S 03E 24 | Quarter-section centroid |
| POS | 2003 | | 1 | UU | | | | 40.273125 | -123.783233 | H 02S 03E 24 | Contributor |
| POS | 2003-06-06 | 0820 | 1 | UU | | | | 40.273603 | -123.784486 | H 02S 03E 24 | Quarter-section centroid |
| NEG | 2003-06-26 | 0634 | 0 | | | | | 40.280198 | -123.776328 | H 02S 04E 19 | Activity center |
| NEG | 2004-04-11 | 2111 | 0 | | | | | 40.280856 | -123.775030 | H 02S 04E 19 | Quarter-section centroid |
| NEG | 2004-04-27 | 0046 | 0 | | | | | 40.277147 | -123.770517 | H 02S 04E 19 | Section centroid |
| NEG | 2004-05-05 | 0910 | 0 | | | | | 40.277147 | -123.770517 | H 02S 04E 19 | Section centroid |
| NEG | 2004-06-14 | 0112 | 0 | | | | | 40.277147 | -123.770517 | H 02S 04E 19 | Section centroid |

| Type | Date | Time | #Adults | Age/Sex | Pair | Nest | #Young | Latitude DD NAD83 | Longitude DD NAD83 | MTRS | Coordinate Source |
|--|------------|---------------|---------|---------|------|------|--------|----------------------|-----------------------|-----------------|-----------------------------|
| NEG | 2004-06-22 | 0815 | 0 | | | | | 40.277147 | -123.770517 | H 02S 04E 19 | Section centroid |
| NEG | 2004-07-08 | 0648 | 0 | | | | | 40.277147 | -123.770517 | H 02S 04E 19 | Section centroid |
| NEG | 2004-07-13 | 0645 | 0 | | | | | 40.277147 | -123.770517 | H 02S 04E 19 | Section centroid |
| NEG | 2004-07-19 | 2114 | 0 | | | | | 40.280856 | -123.775030 | H 02S 04E 19 | Quarter-section centroid |
| NEG | 2004-07-20 | 0938 | 0 | | | | | 40.277147 | -123.770517 | H 02S 04E 19 | Section centroid |
| NEG | 2004-08-04 | 2319 | 0 | | | | | 40.277147 | -123.770517 | H 02S 04E 19 | Section centroid |
| NEG | 2005 | | 0 | | | | | 40.271233 | -123.783235 | H 02S 03E 24 | Contributor |
| NEG | 2005-03-09 | 0745 | 0 | | | | | 40.277147 | -123.770517 | H 02S 04E 19 | Section centroid |
| NEG | 2005-04-21 | 0010 | 0 | | | | | 40.277147 | -123.770517 | H 02S 04E 19 | Section centroid |
| NEG | 2005-05-10 | 2121 | 0 | | | | | 40.277147 | -123.770517 | H 02S 04E 19 | Section centroid |
| NEG | 2005-05-31 | 2318 | 0 | | | | | 40.277147 | -123.770517 | H 02S 04E 19 | Section centroid |
| NEG | 2005-07-06 | 0600 | 0 | | | | | 40.277147 | -123.770517 | H 02S 04E 19 | Section centroid |
| Positive Spotted Owl detections not associated with a known Activity Center Subspecies: NORTHERN | | | | | | | | | | | |
| POS | 2013-03-25 | 1030- 1145 | 1 | UU | | | | 40.274064 | -123.803441 | H 02S 03E 23 | Quarter-section centroid |
| POS | 2013-04-22 | 2042- 2105 | 1 | UM | | | | 40.274064 | -123.803441 | H 02S 03E 23 | Quarter-section centroid |
| POS | 2013-04-23 | 1743- 1850 | 1 | UU | | | | 40.276930 | -123.802155 | H 02S 03E 23 | Contributor |

Additional surveys within the search area with no Spotted Owls detected

| <i>Type</i> | <i>Date</i> | <i>Time</i> | <i>#Adults</i> | <i>Age/Sex</i> | <i>Pair</i> | <i>Nest</i> | <i>#Young</i> | <i>Latitude DD NAD83</i> | <i>Longitude DD NAD83</i> | <i>MTRS</i> | <i>Coordinate Source</i> |
|-------------|-------------|---------------|----------------|----------------|-------------|-------------|---------------|------------------------------|-------------------------------|-----------------|------------------------------|
| NEG | 2006 | 2400 | 0 | | | | | 40.273804 | -123.830410 | H 02S 03E 22 | Contributor |
| NEG | 2006 | 2400 | 0 | | | | | 40.271622 | -123.835371 | H 02S 03E 22 | Contributor |
| NEG | 2013 | | 0 | | | | | 40.311567 | -123.836147 | H 02S 03E 09 | Activity center |
| NEG | 2014-07-23 | 1630- 1830 | 0 | | | | | 40.311567 | -123.836147 | H 02S 03E 09 | Activity center |
| NEG | 2014-08-01 | 0800- 1005 | 0 | | | | | 40.276930 | -123.802155 | H 02S 03E 23 | Activity center |
| NEG | 2015 | | 0 | | | | | 40.276930 | -123.802155 | H 02S 03E 23 | Activity center |
| NEG | 2015-07-23 | 1735- 1855 | 0 | | | | | 40.276930 | -123.802155 | H 02S 03E 23 | Activity center |
| NEG | 2017-06-12 | 1930- 2030 | 0 | | | | | 40.276930 | -123.802155 | H 02S 03E 23 | Activity center |

APPENDIX 3. Global Conservation Status Definitions

Listed below are definitions for interpreting NatureServe global (range-wide) conservation status ranks. These ranks are assigned by NatureServe scientists or by a designated lead office in the NatureServe network.

Listed below are definitions for interpreting NatureServe global (range-wide) conservation status ranks. These ranks are assigned by NatureServe scientists or by a designated lead office in the NatureServe network.

G1 Critically Imperiled – At very high risk of extinction due to extreme rarity (often 5 or fewer populations), very steep declines, or other factors.

G2 Imperiled – At high risk of extinction or elimination due to very restricted range, very few populations, steep declines, or other factors.

G3 Vulnerable – At moderate risk of extinction or elimination due to a restricted range, relatively few populations, recent and widespread declines, or other factors.

G4 Apparently Secure – Uncommon but not rare; some cause for long-term concern due to declines or other factors.

G5 Secure – Common; widespread and abundant.

G#G# Range Rank – A numeric range rank (e.g. G2G3, G1G3) is used to indicate the range of uncertainty about the exact status of a taxon or ecosystem type. Ranges cannot skip more than two ranks (e.g., GU should be used rather than G1G4).

Intraspecific Taxon Conservation Status Ranks

T# Intraspecific Taxon (trinomial) – The status of intraspecific taxa (subspecies or varieties) are indicated by a “T-rank” following the species global rank. Rules for assigning T-ranks follow

APPENDIX 3. Global Conservation Status Definitions

The same principles outlined above. For example, the global rank of a critically imperiled subspecies of an otherwise widespread and common species would be G5T1. A T subrank cannot imply the subspecies or variety is more abundant than the species. For example, a G1T2 subrank should not occur. A vertebrate animal population, (e.g., listed under the U.S. Endangered Species Act or assigned candidate status) may be tracked as an infraspecific taxon and given a T-rank; in such cases a Q is used after the T-rank to denote the taxon's informal taxonomic status.

Subnational (S) Conservation Status Ranks

S1 Critically Imperiled – Critically imperiled in the jurisdiction because of extreme rarity or because of some factor(s) such as very steep declines making it especially vulnerable to extirpation from the jurisdiction.

S2 Imperiled – Imperiled in the jurisdiction because of rarity due to very restricted range, very few populations, steep declines, or other factors making it very vulnerable to extirpation from jurisdiction.

S3 Vulnerable – Vulnerable in the jurisdiction due to a restricted range, relatively few populations, recent and widespread declines, or other factors making it vulnerable to extirpation.

S4 Apparently Secure – Uncommon but not rare; some cause for long-term concern due to declines or other factors.

S5 Secure – Common, widespread, and abundant in the jurisdiction.

S#S# Range Rank – A numeric range rank (e.g., S2S3 or S1S3) is used to indicate any range of uncertainty about the status of the species or ecosystem. Ranges cannot skip more than two ranks (e.g., SU is used rather than S1S4).

Rank Qualifiers

? Inexact Numeric Rank – Denotes inexact numeric rank; this should not be used with any of the Variant Global Conservation Status

Q Questionable taxonomy that may reduce conservation priority – Distinctiveness of this entity as a taxon or ecosystem type at the current level is questionable; resolution of this uncertainty may result in change from a species to a subspecies or hybrid, or inclusion of this taxon or type in another taxon or type, with the resulting taxon having a lower-priority

BIOLOGICAL RESOURCE ASSESSMENT
DIB MANGEMENT

(numerically higher) conservation status rank. The “Q” modifier is only used at a global level and not at a national or subnational level.

APPENDIX 4. CNPS Ranking Definitions

RARE PLANT RANKING DEFINITIONS

California Native Plant Society List Definitions:

California Rare Plant List 1A

California Rare Plant List 1B

California Rare Plant List 2A

California Rare Plant List 2B

California Rare Plant List 3A

California Rare Plant List 3B

California Rare Plant List 4A

California Rare Plant List 4B

California Native Plant Society Threat Ranks:

Ranks at each level also include a threat rank (e.g., CRPB 4.3) and are determined as follows:

- 0.1-Seriously threatened in California (over 80% of occurrences threatened / high degree and immediacy of threat)
- 0.2-Moderately threatened in California (20-80% occurrences threatened / moderate degree and immediacy of threat)
- 0.3-Not very threatened in California (less than 20% of occurrences threatened / low degree and immediacy of threat or no current threats known)

Notes:

1. The above Threat Rank guidelines only represent a starting point in the assessment of threat level. Other factors, such as habitat vulnerability and specificity,

BIOLOGICAL RESOURCE ASSESSMENT
DIB MANGEMENT

distribution, and condition of occurrences, are also considered in setting the Threat Rank.

2. Many of the Threat Ranks have not been reassessed since the time they were first designated after implementation of the Rare Plant Status Review Process, and therefore may not represent the current level of threats associated with a given taxon.
3. The Threat Ranks do not designate a change of environmental protections. For instance a CRPR 1B.3 plant has the same environmental protections as a CRPR 1B.1 plant, and it is mandatory that both be fully considered during preparation of environmental documents relating to CEQA.

APPENDIX 6.

Humboldt County APN # 211-341-073

Erosion Control Measures for Construction Activities (North Coast Regional Water Quality Control Board)

The following soil stabilization measures shall be implemented as general best management practices:

1. Timing for soil stabilization measures within the 100 feet of a watercourse or lake: For areas disturbed from May 1 through October 15, treatment shall be completed prior to the start of any rain that cause overland flow across or along the disturbed surface. For areas disturbed from October 16 through April 20, treatment shall be completed prior to any day which a chance of rain of 30 percent or greater is forecast by the National Weather Service or within 10 days, whichever is earlier.
2. Within 100 feet of a watercourse or lake, the traveled surface of access roads shall be treated to prevent waterborne transport of sediment and concentration of runoff that results from operations. Treatment may consist of, but not limited to, rocking, outsloping, rolling dips, cross drains, waterbars, slope stabilization measures, or other practices appropriate to site-specific conditions.
3. The treatment for other disturbed areas with 100 feet of a watercourse or lake, including: (A) areas exceeding 100 contiguous square feet where operations have exposed bare soil, (B) approaches to road watercourse crossings out to 100 feet or the nearest drainage facility, whichever is farthest, (C) road cut banks and fills, and (D) any other area of disturbed soil that threatens to discharge sediment into waters in amounts deleterious to the quality and beneficial use of water, shall be grass seeded and mulched with straw or fine slash. Grass seed shall be applied at a rate exceed 100 pounds per acre. Straw mulch shall be applied in amounts sufficient to provide at least 2 to 4-inch depth with a minimum of 90% coverage. Any treated area that has been subject to reuse or has less than 90% surface cover shall be treated again prior to the end of operations.
4. With 100 feet of a watercourse or lake, where the undisturbed natural ground cover cannot effectively protect beneficial use of water from operations, the ground shall be treated with slope stabilization described in #3 above per timing described in #1 above.
5. Sidecast or fill material extended more than 20 feet in slope distance for the outside edge of a roadbed, which has access to a watercourse or lake, shall

APPENDIX 5.

be treated with slope stabilization measures described in #3 above. Timing shall occur per #1 above unless outside 100 feet of a watercourse or lake in which completion date is October 15.

6. Sidecast or fill material extended more than 20 feet in slope distance for the outside edge of a landing, which has access to a watercourse or lake, shall be treated with slope stabilization measures described in #3 above. Timing shall occur per #1 above unless outside 100 feet of a watercourse or lake in which completion date is October 15.

7. All roads shall have drainage and/or drainage collection and storage facilities installed as soon as practical following operations and prior to either (1) the start of any rain which cause overland flow across or along the disturbed surface within 100 feet of a 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 flash flood watch.

APPENDIX 6.

Humboldt County APN # 211-341-073

Erosion Control Measures for Construction Activities (North Coast Regional Water Quality Board)

Avoidance and Minimization Measures

1. Permitted Project Activities: Work shall be in accordance with the permittee notification received with fees upon the day allowed by CDFW.
2. Maximum Diversion Rate: The maximum diversion rate from the water intake will be determined by CDFW.
3. Bypass Flow: The permittee shall pass sufficient flow at all times to keep all aquatic species including fish and other aquatic life in good condition below the point(s) of diversion.
4. Seasonal Diversion Minimization: No more than allowed by CDFW shall be diverted in total from either POD during the season during period of forbearance that is agreed upon.
5. Measurement of Diverted Flow: The permittee shall install a device acceptable to CDFW for measuring the quantity of water diverted to and from the storage system. This measurement will begin at time upon the notification is agreed upon and signed. The permittee shall record the quantity of water pumped to and from the system on a weekly basis. Alternatively, the permittee can record the frequency of pumping and the time to fill storage.
6. Intake Structure: No polluting materials (e.g., particle board, plastic sheeting, bentonite) shall be used to construct or screen, or cover the diversion intake structure.
7. Intake Screening: Screens shall be installed on intakes wherever water is diverted, and shall be in place whenever water is diverted. Opening in intakes shall not exceed 1/8 inch diameter (horizontal for slotted or square openings) or 3/32 inch for round openings. The permittee shall regularly inspect, clean, and maintain screens in good conditions.
8. Intake Shall Not Impede Aquatic Species Passage: The water diversion structure shall be designed, constructed, and maintained such that they do not constitute a barrier to upstream or downstream movement of aquatic life.
9. Water Conservation: The permittee shall make best efforts to minimize water use, and to follow best practices for water conservation and management.

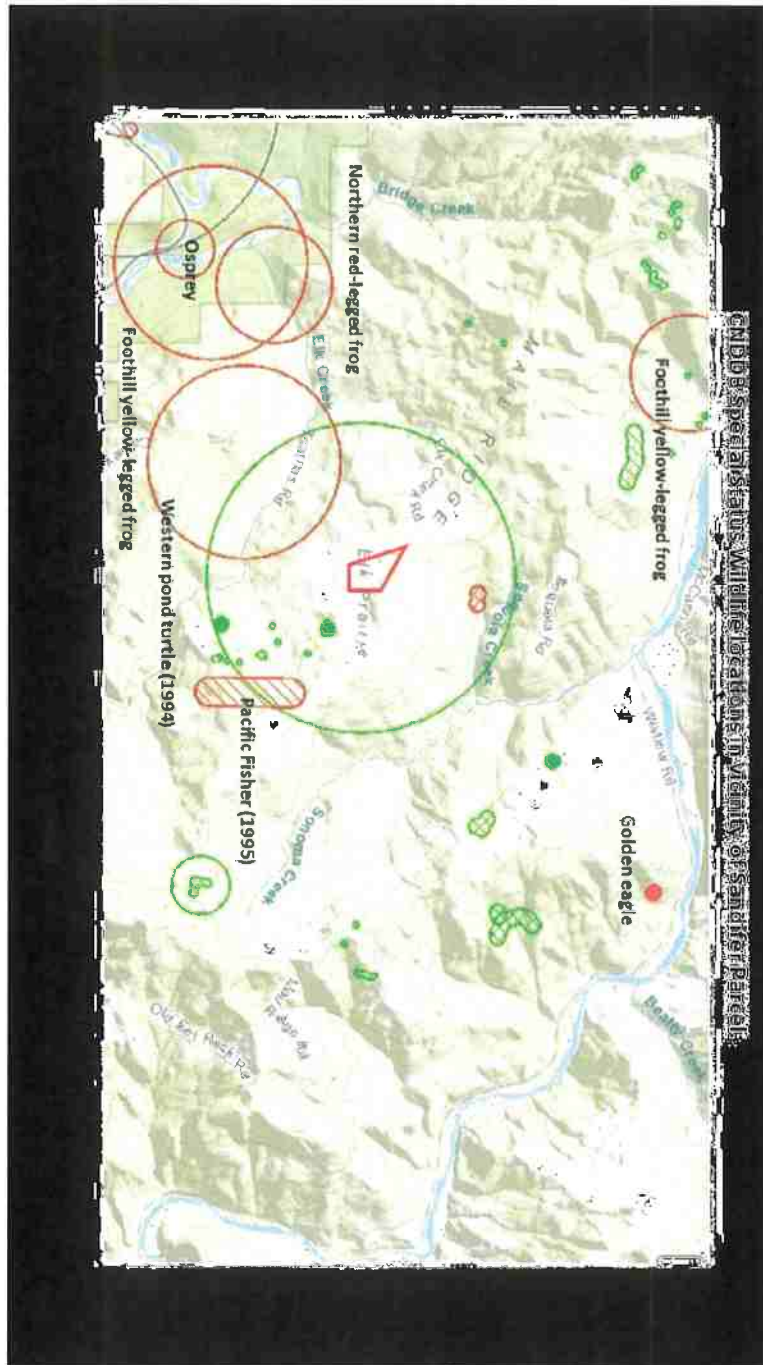
BIOLOGICAL RESOURCE ASSESSMENT
DIB MANGEMENT

10. Water Storage Maintenance: Storage tanks shall have a float valve to shut off the diversion when tanks are full to prevent overflow from being diverted when not needed. The permittee shall install any other measures necessary to prevent overflow of tanks resulting in more water being diverted than is used.

11. State Water Code: Once awarded an agreement it does not constitute a valid water right. The permittee shall comply with State Water Code sections 5100 and

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DIB MANGEMENT

APPENDIX 7: SPECIAL STATUS WILDLIFE SURROUNDING SANDIFER PROPERTY

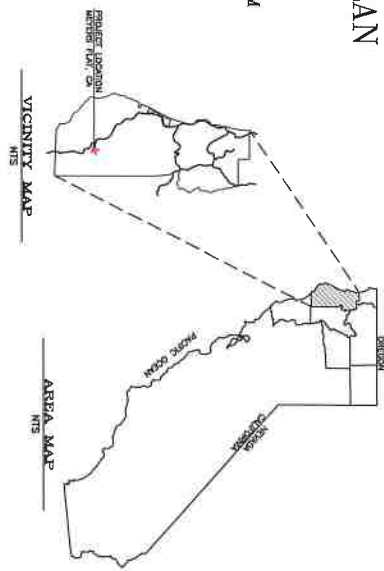


10924 DYERVILLE LOOP RD.
MEYERS FLAT, CA

PORTION OF SECTION 14 TOWNSHIP 2 SOUTH, RANGE 3 EAST, H.M.

APN: 211-341-073

DIB MANAGEMENT
71 TIPTOP RIDGE RD
MCKINLEYVILLE, CA 95519



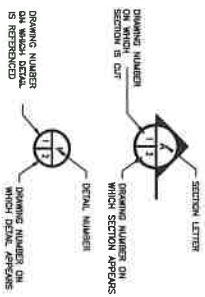
| EXTENSION | FIGURE | DESCRIPTION |
|-----------|--------|-----------------------------------|
| 1000 | ① | CABLE TV OUTSTATION |
| 1001 | ② | TELEPHONE EXCHANGE |
| 1002 | ③ | TELEPHONE STATION |
| 1003 | ④ | POWER (HYDROELECTRIC) PLANT |
| 1004 | ⑤ | GAS LINE |
| 1005 | ⑥ | WATER/SEWER MAIN |
| 1006 | ⑦ | SEWER MANHOLE |
| 1007 | ⑧ | SEWER LINE |
| 1008 | ⑨ | FLUORINE GAS/CHLORINE GAS SERVICE |
| 1009 | ⑩ | STEAM DOWN MAINLINE |
| 1010 | ⑪ | STEAM DOWN PIPE |
| 1011 | ⑫ | STEAM MAINLINE |
| 1012 | ⑬ | WATER VALVE |
| 1013 | ⑭ | INDICATOR |
| 1014 | ⑮ | BLOW OFF ASSEMBLY |
| 1015 | ⑯ | AIR RELIEF VALVE |
| 1016 | ⑰ | FIRE HYDRANT ASSEMBLY |
| 1017 | ⑱ | FLUE EXHAUST PIPE/VENT |
| 1018 | ⑲ | DOME VALVE |
| 1019 | ⑳ | SECONDARY PUMP |
| 1020 | ㉑ | BACKFLOW |
| 1021 | ㉒ | SAFETY MOUNTING |
| 1022 | ㉓ | CORRELATOR |
| 1023 | ㉔ | HOISTING LINE |
| 1024 | ㉕ | EXHAUST LINE |
| 1025 | ㉖ | STEAM LINE |
| 1026 | ㉗ | CONDENSATE LINE |
| 1027 | ㉘ | SEWAGE |
| 1028 | ㉙ | STREET LIGHT |
| 1029 | ㉚ | STREET NAME SIGN |

[illegible]

SHEET INDEX

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| 092 | 0 | 05/07/18 | 0</ |

SYMBOLS



ENGINEERING NOTES

ALL REQUIREMENTS FROM THE SOHS REPORT HAVE BEEN INCORPORATED INTO THESE PLANS.

SURVEY NOTES

FIELD SURVEY FOR TOPOGRAPHIC PURPOSES WAS
CONDUCTED BY TWO DNR
ARCH. 2018 & APRIL 2018

CONTRACTOR ALERT!

CONTRACTOR MUST CONTACT US AT 800-227-2600 AT LEAST 72 HOURS BEFORE ANY EARTHWORK OR ACTIVITIES THAT MAY IMPACT DESIGN UNDERGROUND UTILITIES.

JARED SANDIFER & TYNEL HUMPHERYS
APN: 211-341-073

TITLE SHEET

10924 DYERVILLE LOOP RD., MYERS FLAT, CA 95554
PHONE: (707) 599-5487 EMAIL: jared707@hotmail.com





PROJECT LOCATION
MYERS FLAT, CA

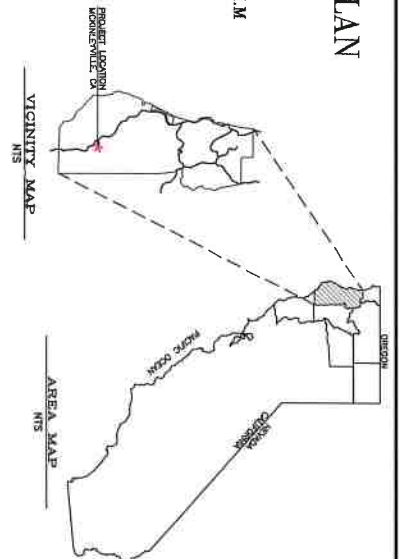
GRADING & EROSION CONTROL PLAN

10924 DYERVILLE LOOP RD.
MEYERS FLAT, CA

PORTION OF SECTION 14 TOWNSHIP 2 SOUTH, RANGE 3 EAST, H.M.

APN: 211-341-073

FOR:
DIB MANAGEMENT
71 TREETOP RIDGE RD
MCKINNEYVILLE, CA 95619



VICINITY MAP
MIS

AREA MAP
MIS

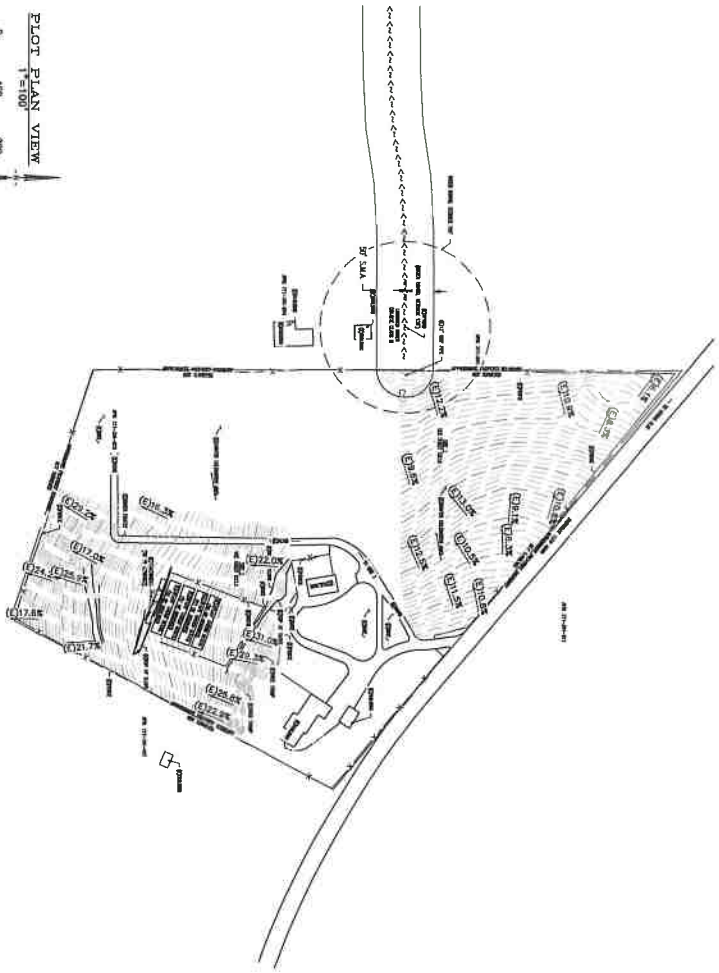
GENERAL NOTES

PROVIDE ASSURANCE WATER STORAGE AND DELIVERY AS OBTAINED BY SEA
PROVIDE ASSURANCE TURN AROUND AND PAYOUTS AS OBTAINED BY SEA
ORGANIC REQUIREMENTS AND CULTURE REQUIREMENTS

DOMESTIC EMERGENCY WATER SUPPLY SYSTEM

1. THE DOMESTIC EMERGENCY WATER SUPPLY SYSTEM SHALL BE DESIGNED TO PROVIDE A MINIMUM OF 100 GPM FOR THE USE OF THE DOMESTIC EMERGENCY WATER SUPPLY SYSTEM.
2. THE DOMESTIC EMERGENCY WATER SUPPLY SYSTEM SHALL BE DESIGNED TO PROVIDE A MINIMUM OF 100 GPM FOR THE USE OF THE DOMESTIC EMERGENCY WATER SUPPLY SYSTEM.
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16. THE DOMESTIC EMERGENCY WATER SUPPLY SYSTEM SHALL BE DESIGNED TO PROVIDE A MINIMUM OF 100 GPM FOR THE USE OF THE DOMESTIC EMERGENCY WATER SUPPLY SYSTEM.
17. THE DOMESTIC EMERGENCY WATER SUPPLY SYSTEM SHALL BE DESIGNED TO PROVIDE A MINIMUM OF 100 GPM FOR THE USE OF THE DOMESTIC EMERGENCY WATER SUPPLY SYSTEM.
18. THE DOMESTIC EMERGENCY WATER SUPPLY SYSTEM SHALL BE DESIGNED TO PROVIDE A MINIMUM OF 100 GPM FOR THE USE OF THE DOMESTIC EMERGENCY WATER SUPPLY SYSTEM.
19. THE DOMESTIC EMERGENCY WATER SUPPLY SYSTEM SHALL BE DESIGNED TO PROVIDE A MINIMUM OF 100 GPM FOR THE USE OF THE DOMESTIC EMERGENCY WATER SUPPLY SYSTEM.
20. THE DOMESTIC EMERGENCY WATER SUPPLY SYSTEM SHALL BE DESIGNED TO PROVIDE A MINIMUM OF 100 GPM FOR THE USE OF THE DOMESTIC EMERGENCY WATER SUPPLY SYSTEM.

PLOT PLAN VIEW
1"=100'
SCALE IN FEET



JARED SANDIFER & TYNEL HUMPHREYS
APN: 211-341-073

PLOT PLAN

10924 DYERVILLE LOOP RD., MEYERS FLAT, CA 95554
PHONE: (707) 589-5487 EMAIL: jared707@hotmail.com

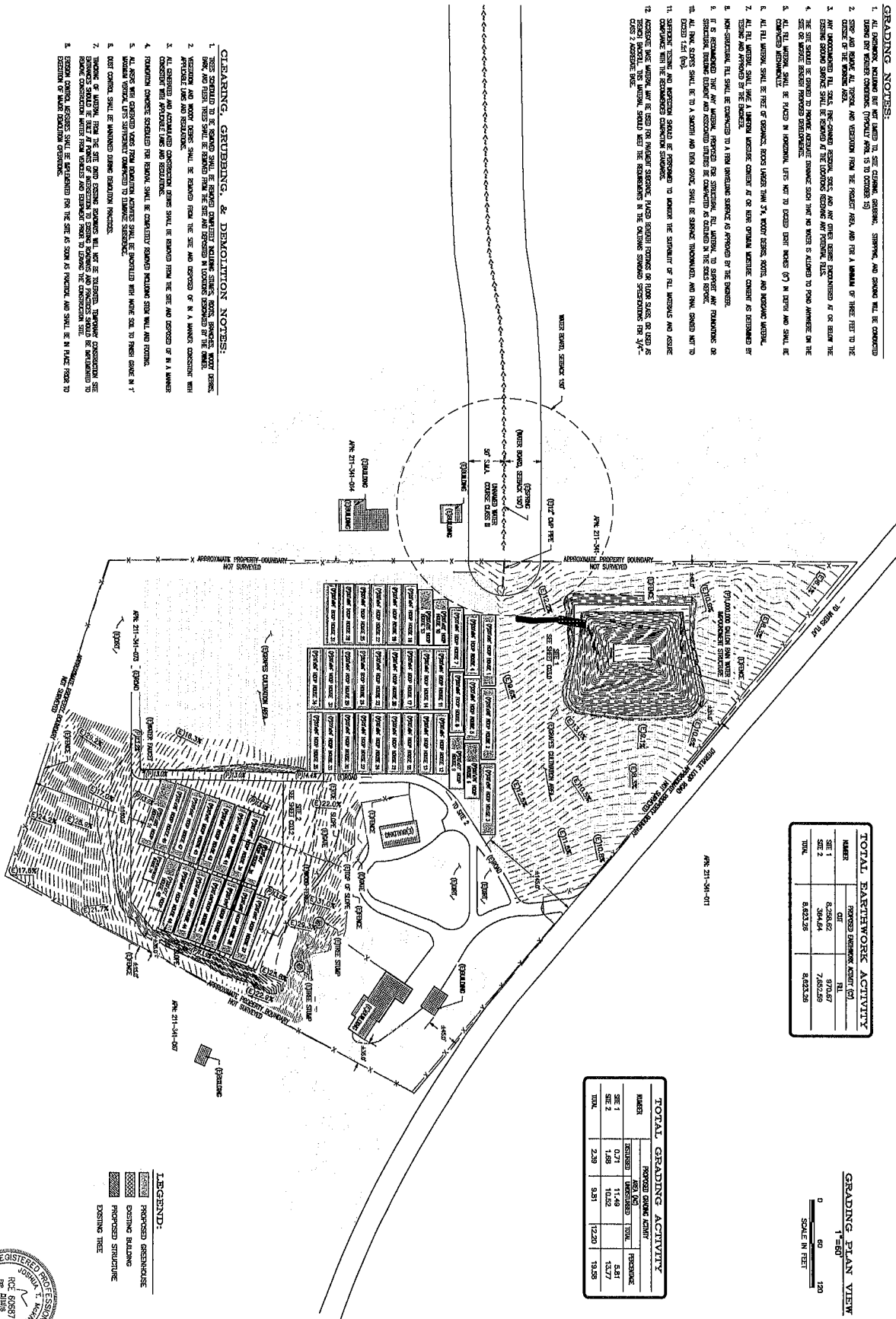


GRADING NOTES:

1. ALL DRAINAGE, INCLUDING BUT NOT LIMITED TO, SITE CULVERTS, DRAINAGE, SWIRLING, AND CHANNELS WILL BE CONSTRUCTED ACCORDING TO THE FOLLOWING SPECIFICATIONS: (TYPICAL) 1.5' TO 2' DEPTH.
2. GRASS AND SOIL SHALL BE REMOVED FROM THE PROJECT AREA, AND FOR A MINIMUM OF THREE FEET TO THE CENTER OF THE DRAINAGE, SHALL BE REMOVED FROM THE SITE AND DEPOSITED IN A LAWYER'S CONSTRUCTION WITH APPROPRIATE TIME AND RESOURCES.
3. ALL EXISTING AND REMOVED DRAINAGE SYSTEMS SHALL BE REMOVED FROM THE SITE AND DEPOSITED IN A LAWYER'S CONSTRUCTION WITH APPROPRIATE TIME AND RESOURCES.
4. THE SITE SHALL BE GRADDED TO MAINTAIN A MINIMUM OF 1% SLOPE TO THE DRAINAGE SYSTEMS.
5. ALL EXISTING DRAINAGE SHALL BE MAINTAINED IN EXISTENCE, LETS NOT TO EXCEED DEPTH MARKS OF 1' IN ANY AND SHALL BE MAINTAINED IN EXISTENCE.
6. ALL EXISTING DRAINAGE SHALL BE MAINTAINED IN EXISTENCE, LETS NOT TO EXCEED DEPTH MARKS OF 1' IN ANY AND SHALL BE MAINTAINED IN EXISTENCE.
7. ALL EXISTING DRAINAGE SHALL BE MAINTAINED IN EXISTENCE, LETS NOT TO EXCEED DEPTH MARKS OF 1' IN ANY AND SHALL BE MAINTAINED IN EXISTENCE.
8. IF IT IS DETERMINED THAT ANY DRAINAGE, PROPOSED OR EXISTING, IS REQUIRED TO SUPPORT ANY FOUNDATIONS OR STRUCTURES, DRAINAGE SHALL BE MAINTAINED IN EXISTENCE, LETS NOT TO EXCEED DEPTH MARKS OF 1' IN ANY AND SHALL BE MAINTAINED IN EXISTENCE.
9. ALL EXISTING DRAINAGE SHALL BE MAINTAINED IN EXISTENCE, LETS NOT TO EXCEED DEPTH MARKS OF 1' IN ANY AND SHALL BE MAINTAINED IN EXISTENCE.
10. ALL EXISTING DRAINAGE SHALL BE MAINTAINED IN EXISTENCE, LETS NOT TO EXCEED DEPTH MARKS OF 1' IN ANY AND SHALL BE MAINTAINED IN EXISTENCE.
11. DRAINAGE SYSTEMS SHALL BE MAINTAINED IN EXISTENCE, LETS NOT TO EXCEED DEPTH MARKS OF 1' IN ANY AND SHALL BE MAINTAINED IN EXISTENCE.
12. DRAINAGE SYSTEMS SHALL BE MAINTAINED IN EXISTENCE, LETS NOT TO EXCEED DEPTH MARKS OF 1' IN ANY AND SHALL BE MAINTAINED IN EXISTENCE.

CLEARING, GRUBBING, & DEMOLITION NOTES:

1. TREES TO BE REMOVED SHALL BE REMOVED IMMEDIATELY FOLLOWING THE START OF CONSTRUCTION.
2. GRASS AND SOIL SHALL BE REMOVED FROM THE SITE AND DEPOSITED IN A LAWYER'S CONSTRUCTION WITH APPROPRIATE TIME AND RESOURCES.
3. ALL EXISTING AND REMOVED DRAINAGE SYSTEMS SHALL BE REMOVED FROM THE SITE AND DEPOSITED IN A LAWYER'S CONSTRUCTION WITH APPROPRIATE TIME AND RESOURCES.
4. FOUNDATION CONCRETE EXPOSED FOR REMOVAL SHALL BE COMPLETELY REMOVED INCLUDING STEEL WALLS AND REINFORCEMENT.
5. ALL EXISTING WOOD STRUCTURES SHALL BE REMOVED FROM THE SITE AND DEPOSITED IN A LAWYER'S CONSTRUCTION WITH APPROPRIATE TIME AND RESOURCES.
6. EXISTING CONCRETE SHALL BE MAINTAINED IN EXISTENCE, LETS NOT TO EXCEED DEPTH MARKS OF 1' IN ANY AND SHALL BE MAINTAINED IN EXISTENCE.
7. EXISTING CONCRETE SHALL BE MAINTAINED IN EXISTENCE, LETS NOT TO EXCEED DEPTH MARKS OF 1' IN ANY AND SHALL BE MAINTAINED IN EXISTENCE.
8. EXISTING CONCRETE SHALL BE MAINTAINED IN EXISTENCE, LETS NOT TO EXCEED DEPTH MARKS OF 1' IN ANY AND SHALL BE MAINTAINED IN EXISTENCE.



TOTAL EARTHWORK ACTIVITY

| MARKER | EXISTING | PROPOSED | TOTAL |
|--------|-----------|-----------|-----------|
| SITE 1 | 8,208.52 | 7,074.57 | 15,283.09 |
| SITE 2 | 8,208.52 | 7,074.57 | 15,283.09 |
| TOTAL | 16,417.04 | 14,149.14 | 30,566.18 |

TOTAL GRADING ACTIVITY

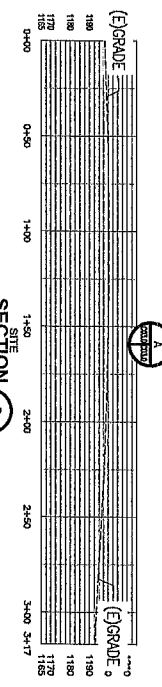
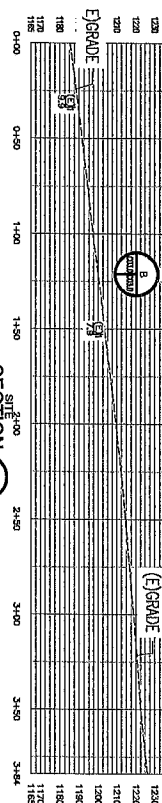
| MARKER | EXISTING | PROPOSED | TOTAL |
|--------|----------|----------|-------|
| SITE 1 | 0.71 | 11.49 | 12.20 |
| SITE 2 | 1.58 | 10.52 | 12.10 |
| TOTAL | 2.29 | 22.01 | 24.30 |

GRADING PLAN VIEW
1"=50'
0 50 100
SCALE IN FEET



JARED SANDERFER & TANEL HUMPHREYS
APR 21-24-07
OVERALL GRADING & DRAINAGE PLAN
10024 DYERVILLE LOOP RD., MYERS FLAT, CA 95554
PHONE: (707) 569-5487 EMAIL: jared707@hotmail.com



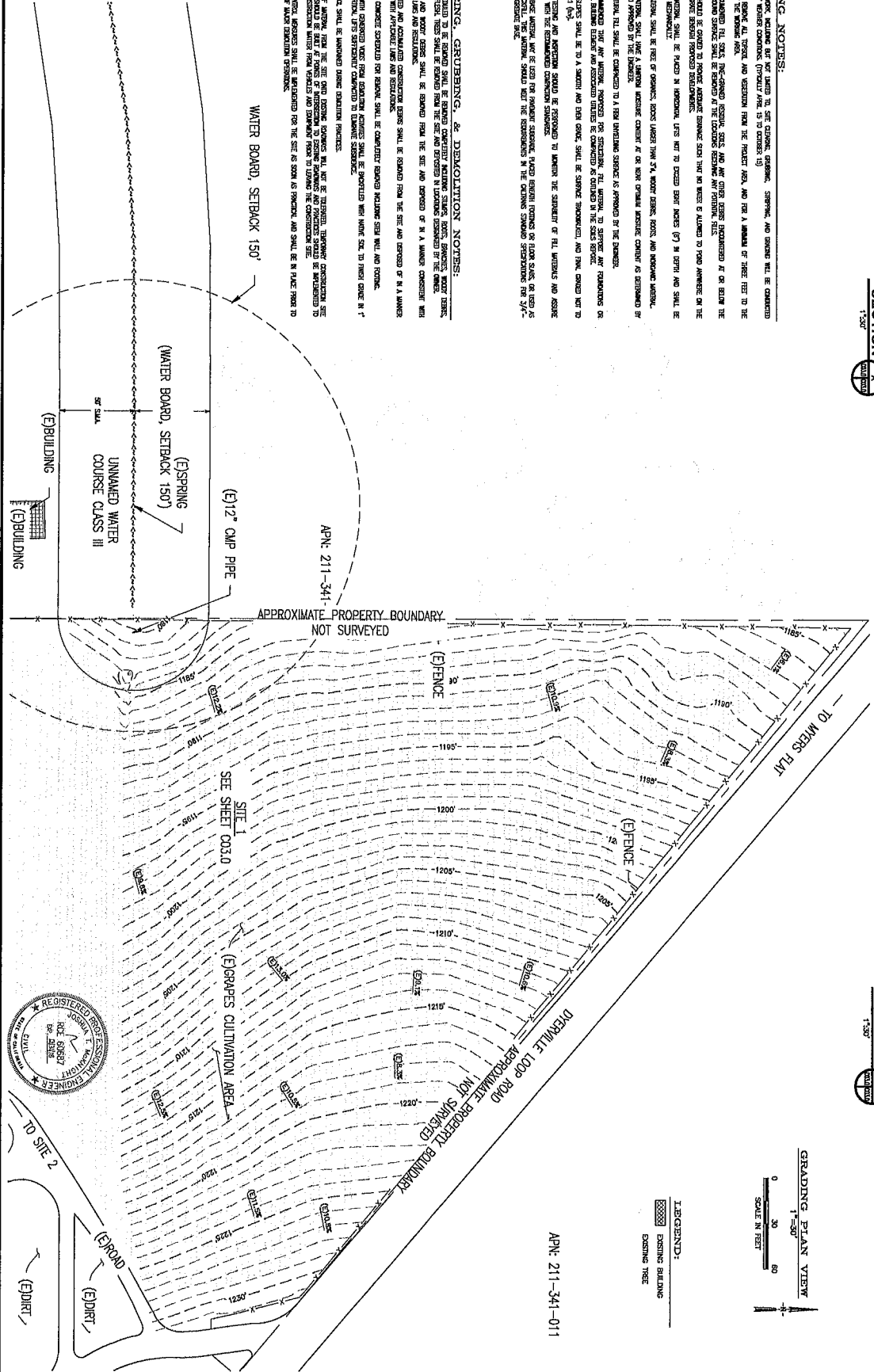


GRADING NOTES:

2. STEP AND BOUND, ALL TYPES, AND QUESTION FROM THE PROJECT AREA, AND FOR A MINIMUM OF THREE FEET TO THE DISTANCE (16)
3. THE FOLLOWING INFORMATION IS REQUIRED:
 - A. AN UNBROKEN TIL. SLAB, RE-COATED, CRACK, TEXT, AND OTHER DEFECTS IDENTIFIED AT OR NEAR THE SURFACE OF THE TIL. SLAB, AND THE LOCATION OF CRACKS AND DEFECTS, AS WELL AS A LISTING OF THE TYPE OF SURFACE DEFECTS OBSERVED, INCLUDING REPAIRS.
 - B. ALL TIL. MATERIAL SHALL BE PLACED IN A MINIMUM, UP TO TWO TO EXCEED SEVEN FEET (16) IN WIDTH, AND SHALL BE CHANGED FREQUENTLY.
 - C. ALL TIL. MATERIAL SHALL HAVE A MINIMUM AVERAGE THICKNESS OF 1/8" (16), AND BEHAVE UNIFORM.
 - D. NON-STRUCTURAL TIL. SHALL BE COMPARED TO A FIRM UNBROKEN SURFACE AS PROVIDED BY THE DRAWING.
 - E. IT IS RECOMMENDED THAT ALL MATERIAL, EXCEPT FOR CRACKING, TIL. MATERIAL, TO SURFACE, AND STRUCTURAL DEFECTS, BE IDENTIFIED AND RECORDED, AND BE IDENTIFIED IN THE DRAWING.
 - F. ALL TIL. TYPES SHALL BE IN A SMOOTH AND SHALL BE SURFACE THICKNESS, AND SHALL BEHAVE UNIFORM.
4. THE FOLLOWING INFORMATION IS REQUIRED TO DETERMINE THE QUALITY OF TIL. MATERIALS AND ASSURE THE FOLLOWING INFORMATION IS REQUIRED:
 - A. ALL TIL. MATERIAL SHALL BE USED FOR PROPER SURFACE, AND BEHAVE UNIFORM, AND BEHAVE UNIFORM.
 - B. ALL TIL. MATERIAL SHALL BE USED FOR PROPER SURFACE, AND BEHAVE UNIFORM, AND BEHAVE UNIFORM.
 - C. ALL TIL. MATERIAL SHALL BE USED FOR PROPER SURFACE, AND BEHAVE UNIFORM, AND BEHAVE UNIFORM.

1. TREES SCHEDULED TO BE REMOVED SHALL BE REMOVED COMPLETELY INCLUDING STILBES, ROOTS, BRANCHES &

- [illegible]



GRADING PLAN VIEW
1"=30'



SCALE IN FEET

LEGEND:

EXISTING BUILDING
EXISTING TREE

EXISTING TREE



C03.0

JARED SANDIFER & TYNEL HUMPHERYS
APN: 211-341-073
**SITE 1 EXISTING GRADING
& DRAINAGE PLAN**

10924 DYERVILLE LOOP RD., MYERS FLAT, CA 95554
PHONE: (707) 599-5487 EMAIL: Jared707@hotmail.com

PHONE: (707) 599-5487 EMAIL: jared707@hotmail.com

| | |
|---------------|---------------------------|
| DATE OF ISSUE | DRAWN BY H. NAVARRO |
| | DESIGNED BY JTM |
| | CHECKED BY J. McKNIGHT |
| | APPROVED BY TYCE |

REV 2016

PROJECT NO: 1211

0070

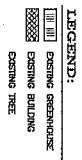
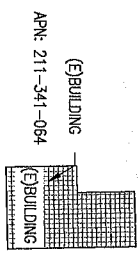
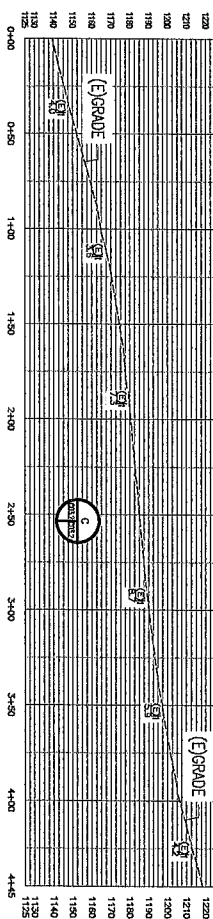
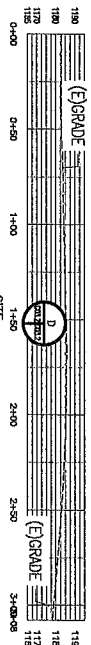
G. MCGRATH, INC.



67 WALNUT WAY
PO BOX 1587
WILLOW CREEK, CA 95573
PHONE (530) 628-3000
FAX (530) 628-3011

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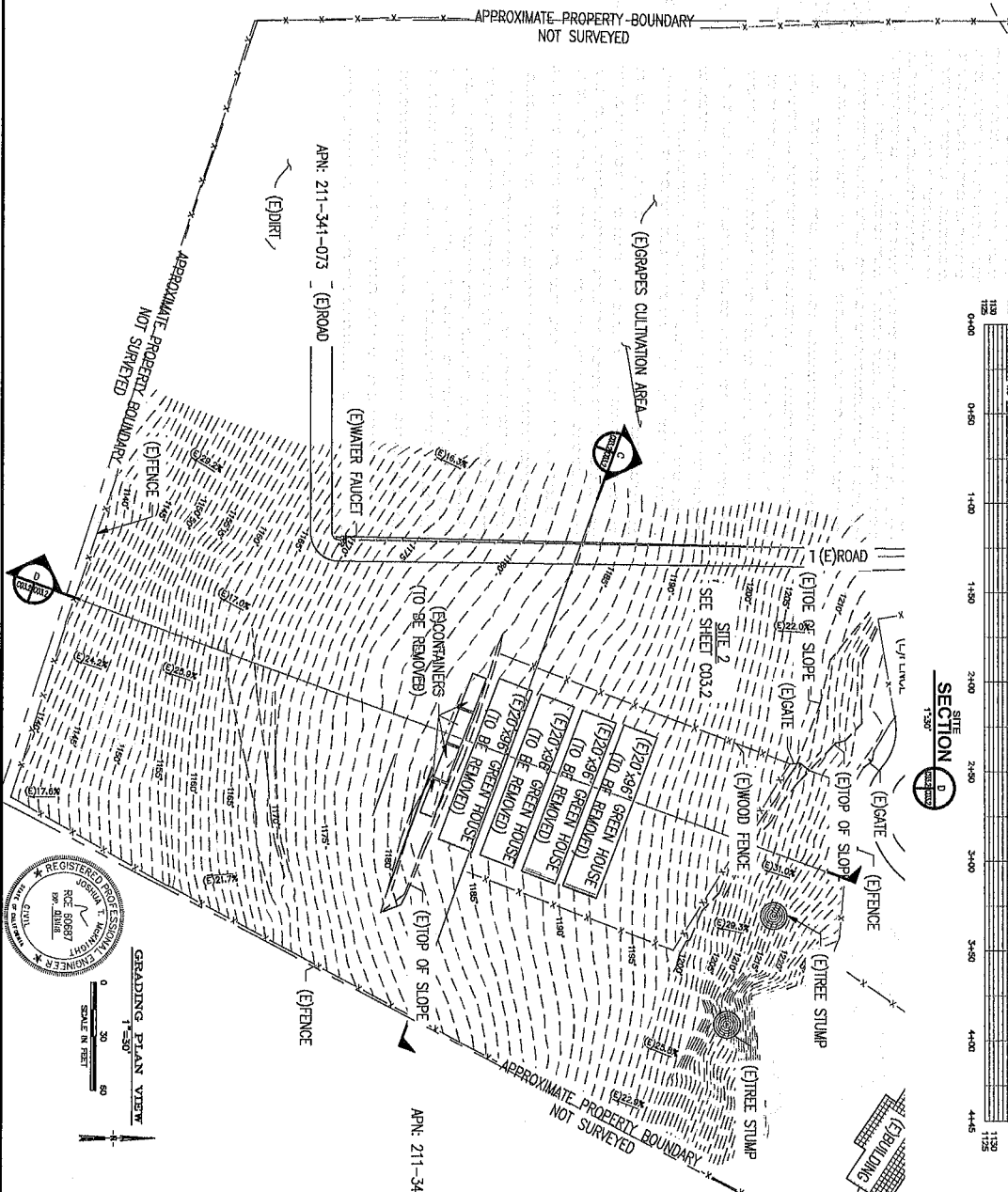


GRADING NOTES:

1. ALL EXISTING GRADING, SLOPING, AND DRAINAGE WILL BE CONSIDERED.
2. STEP AND BENCH ALL SLOPES AND TERRACES FROM THE PROJECT AREA, AND FOR A MINIMUM OF THREE FEET TO THE EXISTING GRADING.
3. ANY UNDESIRABLE FILL, SOILS, OR EXISTING GRADING, SHALL BE REMOVED AT THE LOCATION OF THE PROPOSED FILL.
4. THE SITE SHALL BE CONSIDERED TO BE A GRADE-LEVEL SITE, AND NO FILL IS ALLOWED TO BE PLACED ANYWHERE ON THE SITE.
5. ALL FILL MATERIAL SHALL BE PLACED IN LAYERED LOTS NOT TO EXCEED 24" IN DEPTH AND SHALL BE COMPACTED TO 95% OF THE MAXIMUM DRY DENSITY.
6. ALL FILL MATERIAL SHALL BE FREE OF ROCKS, ROOTS, LIMBS, AND OTHER MATERIAL.
7. ALL FILL MATERIAL SHALL BE PLACED IN A MANNER THAT WILL NOT CAUSE ANY ADVERSE EFFECTS TO THE EXISTING GRADING.
8. NON-STRUCTURAL FILL SHALL BE CONFINED TO A FIRM EXISTING SURFACE AS APPROVED BY THE ENGINEER.
9. ALL EXISTING FILL SHALL BE REMOVED TO THE EXISTING GRADING, AND ALL EXISTING FILL SHALL BE REMOVED TO THE EXISTING GRADING.
10. ALL EXISTING FILL SHALL BE REMOVED TO THE EXISTING GRADING, AND ALL EXISTING FILL SHALL BE REMOVED TO THE EXISTING GRADING.
11. STRUCTURAL FILL SHALL BE REMOVED TO THE EXISTING GRADING, AND ALL EXISTING FILL SHALL BE REMOVED TO THE EXISTING GRADING.
12. EXISTING FILL MATERIAL MAY BE USED FOR FILLING EXISTING FILL, PROVIDED THAT THE FILL IS COMPACTED TO 95% OF THE MAXIMUM DRY DENSITY.

CLEARING, GRUBBING, & DEMOLITION NOTES:

1. TREES TO BE REMOVED SHALL BE REMOVED COMPLETELY INCLUDING STUMP, ROOTS, BRANCHES, AND LIMBS.
2. BRANCHES AND LIMBS SHALL BE REMOVED FROM THE SITE AND DISPOSED IN A MANNER CONSISTENT WITH LOCAL ORDINANCES.
3. ALL EXISTING GRUBBING AND DEMOLITION SHALL BE COMPLETED WITHIN THE SPECIFIED TIME FRAME.
4. DEMOLITION OF EXISTING BUILDINGS SHALL BE COMPLETED WITHIN THE SPECIFIED TIME FRAME.
5. ALL EXISTING GRUBBING AND DEMOLITION SHALL BE COMPLETED WITHIN THE SPECIFIED TIME FRAME.
6. EXISTING GRUBBING AND DEMOLITION SHALL BE COMPLETED WITHIN THE SPECIFIED TIME FRAME.
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11. EXISTING GRUBBING AND DEMOLITION SHALL BE COMPLETED WITHIN THE SPECIFIED TIME FRAME.
12. EXISTING GRUBBING AND DEMOLITION SHALL BE COMPLETED WITHIN THE SPECIFIED TIME FRAME.



GRADING PLAN VIEW
SCALE IN FEET
1" = 30'

003.2






| | |
|------------------|-------------|
| DATE OF ISSUE | 12/11 |
| DATE OF REVISION | 12/11 |
| DESIGNED BY | J. MCKNIGHT |
| CHECKED BY | J. MCKNIGHT |
| APPROVED BY | J. MCKNIGHT |
| SCALE | AS SHOWN |
| PROJECT NO. | 1211 |
| DRAWING NO. | 003.2 |

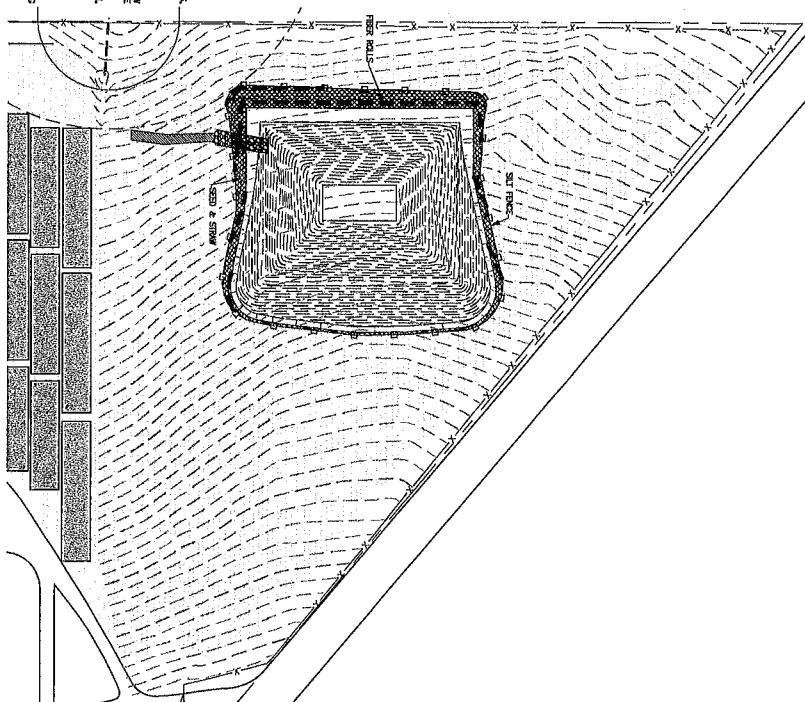
JARED SANDIFER & TRIN LUMPHIERYS
APN: 211-341-073
SITE 2 EXISTING GRADING & DRAINAGE PLAN
10924 DYERVILLE LOOP RD., MYERS FLAT, CA 95654
PHONE: (707) 569-5487 EMAIL: jared707@hotmail.com

| NO. | DATE | DESCRIPTION |
|-----|-------|-------------------|
| 1 | 12/11 | ISSUED FOR PERMIT |

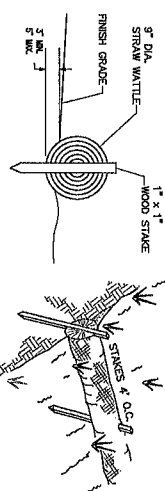
TVCE
67 WALNUT HILL
501 W. WALNUT HILL
MILPITAS, CA 95035
TEL: (408) 261-1000
FAX: (408) 261-1001

0 40 80
SCALE IN FEET

| | |
|---|---|
| ON-SITE OVERLAND RELEASE PATH |  |
| OFF-SITE OVERLAND RELEASE PATH |  |
| STRAW/FEED ROLLS |  |
| SILT FENCE |  |
| SEED AND STRAW |  |

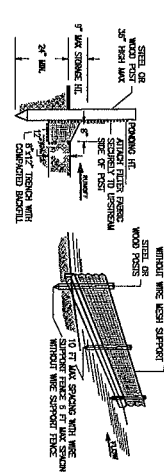
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2. STRAW ROLL INSTALLATION REQUIRES THE PLACEMENT AND SECURE STIKING OF THE ROLL IN A TRENCH, 3'-6" DEEP. RAINFALL MUST NOT BE ALLOWED TO RUN UNDER OR AROUND THE ROLL.



NOTES

1. THE CONTRACTOR SHALL INSPECT AND REPAIR FENCE AFTER EACH STORM EVENT.
2. CONTRACTORS SHALL REMOVE STAMENTS AS NECESSARY. REMOVED STAMENTS SHALL BE DEPOSITED TO AN AREA THAT WILL NOT COMPROMISE SEDIMENT OFF-SITE AND IN AN AREA THAT CAN BE PERMANENTLY STABILIZED.
3. SET FENCE SHALL BE PLACED ON SLOPE CONTOURS TO MAXIMIZE FENCING EFFICIENCY.

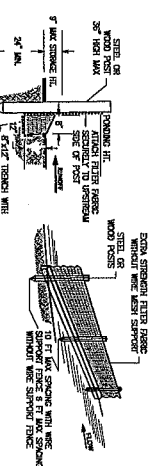


NTS

1. CONTRACTOR MAY SUBSTITUTE TEMPORARY SILT FENCES FOR STRAW AND PIERR ROLLS AND VICE VERSA

1. ALL OF THE MENTIONED DAYS SHALL BE INSPECTED AND CORRECTED AS NEEDED PRIOR TO, DURING, AND DIRECTLY FOLLOWING ANY STORM EVENT, OR WHENEVER PRACTICAL.





INSTALLATION OF THE ROLL INSULATION REQUIRES THE PLACEMENT AND SECURE STAKING OF THE ROLL IN A TRIANGULAR, 3"-5" RADIUS. THE ROLL INSULATION MUST NOT BE ALLOWED TO ROLL UNDER OR AGAINST THE ROLL INSULATION. THE ROLL INSULATION SHOULD BE STAKED TO EACH OTHER SHAKED OR OVERLAPPED BY SIX INCHES.

INTRODUCTION

SILT FENCE DETAILS

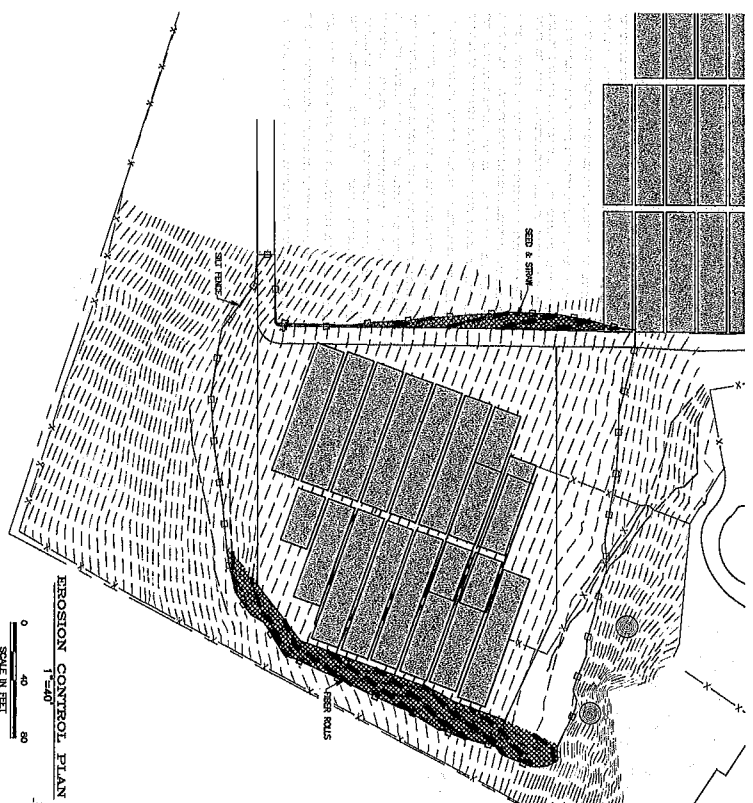
INTRODUCTION

1. STRAW SHALL BE BUNDLED FROM HEAVY, CLEAN, DRY, SWEET, WHOLES, REQUIRED BY THE PLANS, SPECIFICATIONS, AND/OR CONTRACT DOCUMENTS. STRAW SHALL BE BUNDLED IN THE FOLLOWING MANNER:
 - A. FODDER OR ANIMAL FEED STRAW SHALL BE BUNDLED IN THE FOLLOWING MANNER:
 1. STRAW SHALL BE THE PRESCRIBED LENGTH FOR ANCHORING STRAW MATT TO THE SOIL ON SLOPES.
 2. A TUCKER IS THE PRESCRIBED METHOD FOR ANCHORING STRAW MATT TO THE SOIL ON SLOPES.
 - B. GRASSING, PUNCH HOLE STRAW, OR FODDER STRAW SHALL BE BUNDLED TO INTERLOCK STRAW MATT TO THE SOIL ON SLOPES.
 - C. THE END OF STRAW MATT SHALL BE BUNDLED TO THE SOIL ON SLOPES TO PREVENT SLIDING AND INTERLOCK.
2. A TUCKER IS THE PRESCRIBED METHOD FOR ANCHORING STRAW MATT TO THE SOIL ON SLOPES.
3. ANCHORING STRAW MATT SHALL BE BUNDLED TO THE SOIL ON SLOPES TO PREVENT SLIDING AND INTERLOCK.
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14. ANCHORING STRAW MATT SHALL BE BUNDLED TO THE SOIL ON SLOPES TO PREVENT SLIDING AND INTERLOCK.
15. ANCHORING STRAW MATT SHALL BE BUNDLED TO THE SOIL ON SLOPES TO PREVENT SLIDING AND INTERLOCK.

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EROSION AND SEDIMENT CONTROL NOTES

- [illegible]



EROSION CONTROL PLAN

SCALE IN FEET

NOTE

1. CONNECTOR AND SUBSTITUTE TRANSPORT SUI FENCES FOR STRAW AND FIBER ROLLS AND VICE VERSA

BMP MAINTENANCE NOTES:

1. ALL OF THE IMPLEMENTED SAUS SHALL BE INSPECTED AND CORRECTED AS NEEDED PRIOR TO, DURING, AND DIRECTLY FOLLOWING ANY STORM EVENT, OR WHENEVER PRACTICE.



JARED SANDIFER & TYNEL HUMPHERYS
APN: 211-341-073

SITE 2 EROSION CONTROL PLAN & DETAILS

10924 DYERVILLE LOOP RD., MYERS FLAT, CA 95554
PHONE: (707) 890-5487 FAX: (707) 890-5487

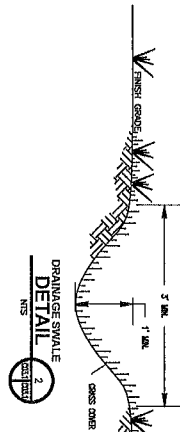
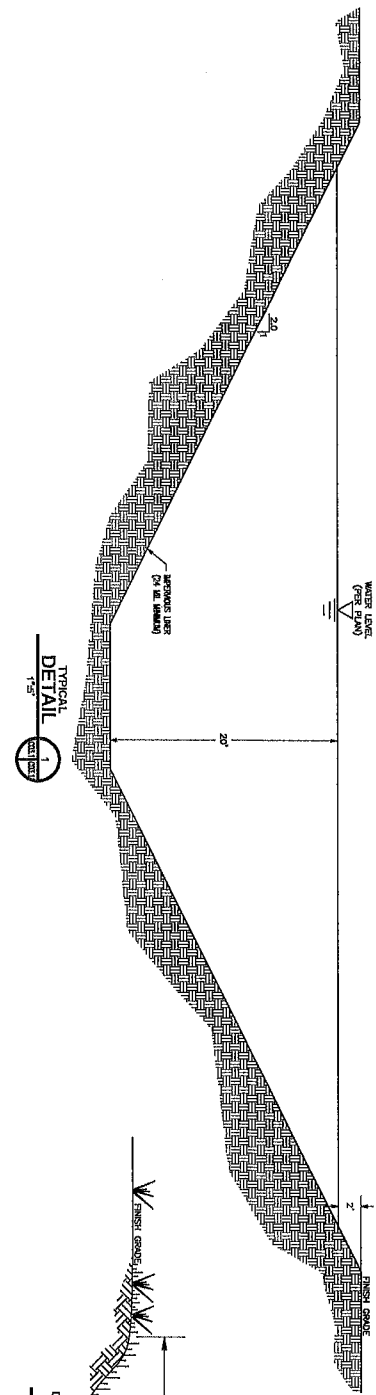
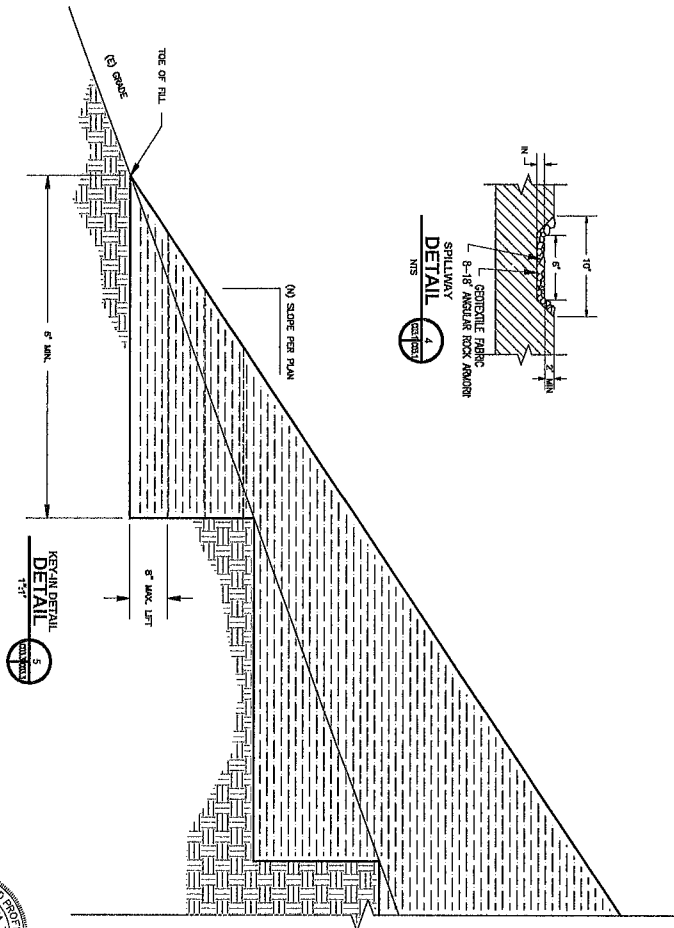
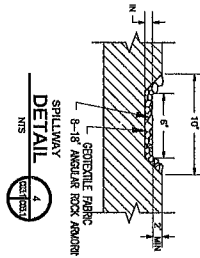
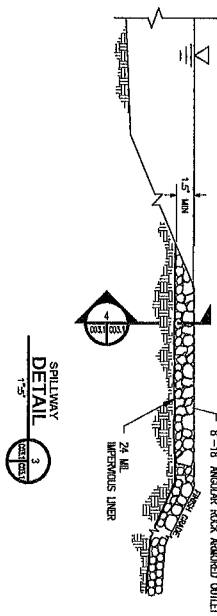
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CO4.2



| COMPACTION STANDARDS | | |
|--|--|---------------------------------------|
| FILL PLACEMENT LOCATION | COMPACTION RECOMMENDATIONS (ASTM D 1557-METHOD PROCTOR) | MOISTURE CONTENT (PERCENT OPTIMUM) |
| STRUCTURAL FILL SUPPORTING FOOTINGS | 90% | -1 TO +3 PERCENT |
| STRUCTURAL FILL SUPPORTING FOOTINGS SLAB-ON-GRADE | 90% | -1 TO +3 PERCENT |
| STRUCTURAL FILL PLACED WITHIN 3 FEET BEYOND THE PERIMETER OF THE BUILDING PAD | 90% | -1 TO +3 PERCENT |
| UTILITY TRENCHES WITHIN BUILDING AND ANY PAVEMENT AREAS | 90% | -1 TO +3 PERCENT |
| UTILITY TRENCHES BEYOND LANDSCAPE AND GRASS AREAS | 90% | -1 TO +3 PERCENT |
| STRUCTURAL FILL FOR POND CONSTRUCTION | 90% | -1 TO +3 PERCENT |



| | |
|-------------|----------------|
| DATE | 1 MAY 2018 |
| SCALE | AS SHOWN |
| PROJECT NO. | 1211 |
| DESIGNED BY | J. A. McKNIGHT |
| APPROVED BY | TVC |

JARED SANDIFER & TYNEL HUMPHREYS
APH: 211-341-073
DETAILS
10924 DYERVILLE LOOP RD., MYERS FLAT, CA 95554
PHONE: (707) 698-5487 EMAIL: jared707@hotmail.com

| REV | DATE | DESCRIPTION | OWN | DES | BY | CHK | APP |
|-----|------|-------------|-----|-----|----|-----|-----|
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