

# Appendix D

## Old Arcata Road Natural Environmental Study

# City of Arcata



## Natural Environment Study

Old Arcata Road Rehabilitation & Pedestrian/Bikeway  
Improvements

Bayside and Arcata

Humboldt County, California

Caltrans District 01

Federal Project No. RPSTPL-5021(023)

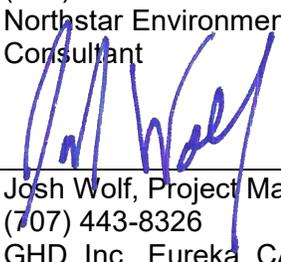
January 2020



# Natural Environment Study

STATE OF CALIFORNIA  
Department of Transportation  
City of Arcata

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## Abbreviations

APE	Area of Potential Effect
BGEPA	Bald and Golden Eagle Protection Act
BMP	Best Management Practice
BSA	Biological Study Area
CCC	California Coastal Commission
CDFW	California Department of Fish and Wildlife
CEQA	California Environmental Quality Act
CESA	California Endangered Species Act
CNDDDB	California Natural Diversity Database
CNPS	California Native Plant Society
CRPR	California Rare Plant Ranking
CWA	Clean Water Act
DOT	Department of Transportation
ESHA	Environmental Sensitive Habitat Area
FESA	Federal Endangered Species Act
GHD	GHD Inc.
GIS	Geographic Information System
GPS	Global Positioning System
MBTA	Migratory Bird Treaty Act
NEPA	National Environmental Policy Act
NES	Natural Environmental Study
NMFS	National Marine Fisheries Service
NRCS	National Resources Conservation Service
PES	Preliminary Environmental Survey
PJD	Preliminary Jurisdictional Determination
Project	Old Arcata Road Improvement Project
RWQCB	North Coast Regional Water Quality Control Board
SWPPP	Stormwater Pollution Prevention Plan
TSC	Transportation Safety Committee
USACE	United States Army Corp of Engineers
USDA	United States Department of Agriculture
USDOI	United States Department of the Interior
USFWS	United States Fish and Wildlife Service
USGS	United States Geological Survey

## Summary

**Project Purpose, Need, and Description:** The Project is primarily located within the limits of the City of Arcata and Bayside in Humboldt County, California. The primary permitting jurisdiction resides with the Local Coastal Programs of both the City of Arcata and Humboldt County for their respective portions of the Project. The purpose of the proposed Project is to improve connectivity and construct safety improvements to an approximate one-mile section of the Old Arcata Road, including associated improvements to the pedestrian and bicycle paths along the route and the development of a roundabout to control traffic flow. All work will occur within the existing City of Arcata or Humboldt County right-of-ways, except for driveway conforms to replace existing driveways to provide for smooth transitions to improvements, and the replacement of sanitary sewer laterals.

The overall need for this Project is to improve the safety of this transportation corridor and to address community safety concerns including excessive vehicle speeds, unsafe passing resulting from narrow roads, inadequate and unsafe parking conditions at Jacoby Creek Elementary School, limited pedestrian crosswalks, inadequate or non-existent pedestrian sidewalks, and an overall need for safety improvements at the intersection of Jacoby Creek Road and Old Arcata Road.

**Habitat Effects:** The Project Area is within the Redwood – Douglas Fir vegetation community with Old Arcata Road the dominant feature throughout the Project Area. The botanical survey identified individual redwood trees adjacent to Old Arcata Road but determined they did not constitute a forest community and are not considered Environmentally Sensitive Habitat Areas.

A small potential wetland area of 0.04 acres (1,600 square feet) exists adjacent to the north side of Jacoby Creek Road. Communication with Kasey Sirkin of the USACE confirmed that the potential wetland was smaller than the USACE discretionary threshold of 0.10 acres, and therefore mitigation would not be required by the USACE. However, it is anticipated that the North Coast Regional Water Quality Control Board will require mitigation.

No additional special concern habitats or natural communities exist within the BSA.

**Special Status Species Effects:** No special status plant species were identified within the BSA. Per GHD, a consultation with California Department of Transportation (Caltrans) officials during development of the Preliminary Environmental Survey determined that the potential for federally listed threatened or endangered species, or their critical habitat or essential fish habitat to occur within or adjacent to the construction area was to be determined. Subsequent review of special status species indicated they were unlikely to occur within the Biological Study Area (BSA), with the potential exception of the Northern Red-legged Frog, which may occur in areas adjacent the BSA.

**Permits Required:** Prior to the start of construction, the following permits, certifications, and approvals are required:

- California Environmental Quality Act (CEQA) Compliance
- National Environmental Policy Act (NEPA) Compliance
- Humboldt County:
  - Coastal Development Permit

- Encroachment Permit
- Grading Permit
- City of Arcata:
  - Coastal Development Permit
  - Encroachment Permit
  - Grading Permit
  - Tree Removal Permit (if required)
- North Coast Regional Water Quality Control Board (RWQCB) Clean Water Act (CWA) Section 401 Compliance
- United States Army Corp of Engineers (USACE) CWA Section 404 Compliance

Per Kasey Sirkin of the USACE, while the potential wetland area (0.04 acres) adjacent to the north side of Jacoby Creek Road is below the USACE discretionary threshold (0.10 acres), a Section 404 permit application would still be required.

**Invasive Species:** No survey of invasive species within the BSA was conducted in preparation for this Project. However, a number of invasive grass species were identified during the wetland delineation survey, including tall fescue (*Festuca arundinacea* synonym: *Schedonorus arundinaceus*), creeping bent (*Agrostis stolonifera*), and velvet grass (*Holcus lanatus*), all of which are rated as facultative species and are present throughout the area.

**Minimization Measures:** While no special status plant or wildlife species have been identified within the BSA, the potential exists for the Northern Red-legged Frog to occur in areas adjacent to the BSA, and by extension, potentially within the BSA. As such, efforts will be taken to prevent damages to the BSA and adjacent habitats through the use of BMPs and SWPPP inspections.

Physical controls will include temporary BMPs such as straw waddles, sandbags, silt screen, vehicle dry brushing, rumble grids, containment berms, and spill kits to prevent potential contamination by hazardous substances and invasive species.

Administrative controls will include regular SWPPP inspections, vehicle maintenance, and Project scheduling (for example, vegetation clearing may occur during the non-bird nesting season, between August 16<sup>th</sup> and March 14<sup>th</sup>; and, work near wetlands will only occur during the dry season between May and October).

Due to the high probability of precipitation occurring during the construction phase, an emphasis on controlling stormwater runoff must be addressed (see Section 4.1.4). Additional stormwater control measures must be considered to minimize impacts to adjacent wetlands, including such features as stormwater culverts, diversions, and the use of stockpile covers to actively contain stormwater runoff.

With regards to migratory birds, an effort will be made to perform vegetation clearing outside the bird nesting season (March through August); however, if clearing must occur during the nesting season, it is recommended that a qualified biologist should be employed to conduct a nest survey within 10 days of the start of construction. Active nests should be protected from disturbance with the appropriate buffer. Buffer zones will be delineated with flagging and maintained until the nests have fledged or nesting activity has ceased, as determined by the qualified biologist. If vegetation clearing work lapses for 10 days or longer during the nesting season, a qualified biologist shall conduct a supplemental nest survey before Project work is reinitiated.

**Mitigation Measures:** The Project may include onsite wetland establishment within the City's right-of-way between Old Arcata Road and Bayside Road. Approximately 1,600 square feet of wetland establishment is anticipated. Groundwater data will be obtained and used to inform wetland design grading depths to ensure wetland hydrology criteria are met. Wetlands will be established by excavating to a target elevation.

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## 1.0 – Introduction

On behalf of GHD Inc. (GHD), Northstar Environmental of Lake Forest, California conducted a review of associated environmental studies performed by others for the Old Arcata Road Improvement Project (Project) and prepared this *Natural Environment Study* (NES) for the Project in August 2019. GHD performed the field surveys and generated the supporting documentation required for this NES, including the *Preliminary Environmental Study* (PES) (GHD 2018a; included in Appendix B), *Special Status Plant Survey and ESHA Evaluation for the Old Arcata Road Improvement Project* (GHD 2018b; included in Appendix C), and the *Wetland Delineation Report* (GHD 2019a; included in Appendix D). This NES has been prepared in part to satisfy the requirements of NEPA compliance, and the response letter to the PES from the Caltrans dated December 19, 2018 (Caltrans 2018).

### 1.1 - Project History

The purpose of the proposed Project is to improve connectivity and construct safety improvements to an approximate one-mile section of the Old Arcata Road in Humboldt County, California, including associated improvements to the pedestrian and bicycle paths along the route and the development of a roundabout to control traffic flow.

The overall need for this Project is to improve the safety of this transportation corridor. In 2016, the City of Arcata Transportation Safety Committee (TSC), as part of a review of conditions along Old Arcata Road, identified an inadequate and disconnected presence of pedestrian and bicycle facilities in the Project Area. Further community outreach (City of Arcata, 2017) identified additional safety concerns including excessive vehicle speeds, unsafe passing resulting from narrow roads, inadequate and unsafe parking conditions at Jacoby Creek Elementary School, limited pedestrian crosswalks, inadequate or non-existent pedestrian sidewalks, and an overall need for safety improvements at the intersection of Jacoby Creek Road and Old Arcata Road for all conditions above.

The Project will address these safety concerns, repair damaged pedestrian and motorist facilities, and bring existing walkways, driveways, and curbs along the route up to current code.

### 1.2 - Project Description

The entirety of Section 1.2 was provided by GHD (unless otherwise indicated) as part of a draft Project description document, which is subject to change (GHD 2019b).

The Project is primarily located within the limits of the City of Arcata (Figure 1 in Appendix A). The proposed roundabout at the Jacoby Creek Road, along with its eastern and southern approaches (on Jacoby Creek Road, and Old Arcata Road, respectively) are located within the jurisdiction of Humboldt County. West of Old Arcata Road, the Project is primarily located within the Coastal Zone. East of Old Arcata Road, the Project is located outside the Coastal Zone boundary (Figure 2 in Appendix A). The primary permitting jurisdiction resides with the Local Coastal Programs of both the City of Arcata and Humboldt County for their respective portions of the Project. All work will occur within the existing City of Arcata or Humboldt County right-of-ways, with the exception of driveway conforms to replace existing driveways to provide for smooth transitions to improvements, and the replacement of sanitary sewer laterals.

Old Arcata Road is an eastern alternate to U.S. Highway 101 (US 101) between the cities of Arcata and Eureka, with connectivity to US 101 at the Bayside Cutoff [to the south and the Samoa Boulevard interchange to the north] (Figure 1 in Appendix A). The Project is in Section 33 of Township 6 North, Range 1 East of the Arcata South U.S. Geological Survey (USGS) 7.5-minute topographic quadrangle. The northern and southern boundaries of the Project are located at latitude 40°51'20.20" N and longitude 124°04'16.03" W and latitude 40°50'29.23" N and longitude 124°03'53.46" W, respectively. The Project endpoint along the Jacoby Creek Road alignment is located at latitude 40°50'30.82" N and longitude 124°03'44.85" W.

The elevation within the Project Area ranges from approximately 20 to 55 feet above mean sea level. The Project can be accessed from Arcata by taking the SR 255/Samoa exit from US 101 and heading east toward Sunnybrae. The northern endpoint of the Project begins approximately 600 feet south of the Buttermilk [Lane] Roundabout along Old Arcata Road, and the southern endpoints of the Project Area located near the Jacoby Creek Road intersection with Old Arcata Road (Figure 1 in Appendix A).

### **1.2.1 – Proposed Project Elements**

Key elements of the Old Arcata Road Improvement Project are shown in Figure 3 (Appendix A). The figure was provided by GHD as part of a draft Project description document (GHD 2019b).

#### ***Repaving Along Old Arcata Road and Adjacent Bike Lanes***

Old Arcata Road will be repaved between approximately 600 feet south of the Buttermilk [Lane roundabout] to the proposed new roundabout at the Jacoby Creek Road intersection. Repaving will extend approximately 300 feet beyond the new roundabout along both Jacoby Creek Road and Old Arcata Road. The existing roadway width, alignment, and footprint will be similar to post-project dimensions and alignment between the Buttermilk [Lane] Roundabout and Hyland Street, including 10-foot travel lanes and adjacent 5-foot bikes lanes. A left-hand turn lane for north bound traffic may be included for the Jacoby Creek Elementary School parking lot at the Hyland Street intersection. South of Hyland Street, the existing roadway alignment may be shifted east up to 5 feet to accommodate a new 6-foot wide walkway, described below.

The existing asphalt roadway will be rehabilitated by overlaying the existing surface and/or grinding-out and replacing the existing surface. Excavation will not extend into the native subgrade, except in isolated areas where deeper excavations may be required to remediate poor soil/subgrade conditions.

Portions of existing driveways, including the Bayside Post Office driveway, will also be repaved.

#### ***Pedestrian Walkway***

The existing walkway between the Buttermilk Road Roundabout and Hyland Street will be replaced or widened to a width of approximately 6 feet.

South of Hyland Street, the existing roadway alignment may be shifted east up to 5 feet to accommodate a new 6-foot wide walkway. The 6-foot wide walkway will be separated

from the roadway by a 5-foot wide vegetated strip that may also be designed to convey stormwater. Areas of new asphalt roadway will be constructed over 12 to 16 inches of base material and a similar depth of excavation.

In front of Jacoby Creek Elementary School, a new 6-foot wide sidewalk (4 inches of concrete over 6 inches of base) is proposed on the west side of the road. Some minor modifications to the school parking lot will be required to conform to the new sidewalk. Excavation for sidewalk and parking modifications are expected to be less than 1 foot in depth.

### ***Crosswalks and Speed Humps***

Existing crosswalks and speed humps will be upgraded coincident with repaving. New speed humps will be located north of the Hyland Street intersection and south of Jacoby Creek Elementary School to improve safety and provide vehicular speed control. A raised crosswalk in front of Jacoby Creek Elementary School at the Hyland Street intersection will remain. Crosswalks will also be integrated into the new Jacoby Creek Road Roundabout, discussed below. All crosswalks across Old Arcata Road and Jacoby Creek Road may also be enhanced with push button activated warning lights (e.g. LED enhanced signs or rapid rectangular flashing beacons).

### ***Sidewalk, Curb Ramps, Gutters, and Retaining Structures***

In front of Jacoby Creek Elementary School, a new 6-foot wide sidewalk (4 inches of concrete over 6 inches of base) is proposed on the west side of the road. Some minor modifications to the school parking lot will be required to conform to the new sidewalk. Excavation for sidewalk and parking modifications is expected to be less than 1 foot in depth. Construction of a new sidewalk along approximately 375 feet of Hyland Street is also included in the Project. Where necessary, curb ramps and gutters will be integrated into the sidewalk design. A new retaining wall will be constructed near the Jacoby Creek Road roundabout.

### ***Turn Lane***

Existing park located along Old Arcata Road in front of Jacoby Creek Elementary School will be replaced with a designated turn lane into the school parking lot to ease congestion and improve safety.

### ***Jacoby Creek Road Roundabout***

A new roundabout is proposed for the intersection at Jacoby Creek Road and Old Arcata Road to improve traffic flow and user safety. The roundabout will be configured to be within existing City and County right-of-way to the extent practical, although some encroachments onto private property may be necessary and may require acquisitions or easements. Excavation to accommodate the roundabout and roadway approaches is expected generally to be approximately 2 to 4 feet, although some isolated deeper excavations may be required to remediate poor soil/subgrade conditions.

### ***Lighting***

The Project may include streetlight installation in conjunction with the new Jacoby Creek Road roundabout. Lighting will be designed to protect wildlife and nighttime views,

including views of the night sky. This design goal would be satisfied using a variety of means as applicable, including fixture types, cut off angles, shields, lamp arm extensions, and pole heights. Specific design preferences include directing light downward and away from other properties, avoiding brightly illuminated vertical surfaces where feasible, such as walls and lamp poles, and directing lighting away from sensitive habitat areas.

### ***Striping, Signage and Vehicle Control***

The repaved Old Arcata Road and Jacoby Creek Road segments will include required striping and signage in order to comply with California Manual on Uniform Traffic Control Devices (MUTCD) requirements.

### ***Storm Drain and Sanitary Sewer Infrastructure Improvements***

Storm drain improvements include new and upgraded storm drain piping, catch basins, and junction boxes. Excavation and trenching depths for storm drain systems will be approximately 4 feet (6 feet max). Work may also include the installation of shallow swales to convey and treat stormwater runoff.

Existing sanitary sewer laterals may be replaced with new cleanouts placed at the edge of the right-of-way. Depth of excavation/trenching for sewer lateral replaced will be approximately 3 feet (6 feet max).

### ***Wetland Establishment***

The Project may include onsite wetland creation within the City's right-of-way between Old Arcata Road and Bayside Road. Approximately 1,600 square feet of wetland creation is anticipated. Groundwater data will be obtained and used to inform wetland design grading depths to ensure wetland hydrology criteria are met. The criteria for meeting wetland hydrology as defined by the USACE is flooding or ponding, or a water table within 12 inches of the soil surface for 14 or more consecutive days (USACE 2010). Wetlands will be established by excavating to a target elevation.

## **1.2.2 – Proposed Construction Activity**

### ***Construction Schedule***

Construction is anticipated to occur over a six to eight-month construction window planned for 2021. Vegetation clearing may occur during the non-bird nesting season, between August 16<sup>th</sup> and March 14<sup>th</sup>. Work near wetlands will only occur during the dry season between May and October. Anticipated daytime work hours are 7:00 a.m. to 7:00 p.m., Monday through Friday with occasional work on Saturdays. Construction on Sunday or legal and county holidays is not currently anticipated except for emergencies or with prior approval from the City of Arcata.

### ***Construction Staging, Activities and Equipment***

Construction staging areas will be identified during the design phase of work and are expected to occur within the Project footprint, or within paved, graveled or designated, previously disturbed areas. Spoils or construction materials will be stored on site within previously designated staging areas only.

Construction will primarily include trimming and/or removal of trees and vegetation, excavation and grading, roadway, walkway, and driveway entrance paving, replacement of sanitary sewer laterals, and trenching and excavation to install new sanitary sewer laterals and storm drainage systems (inlets, pipes, and/or culverts). Construction will also include installation of new lighting, new crosswalks and upgraded crosswalks and speed bumps, a short retaining wall, and signage along the Project alignment. All construction activities would be accompanied by both temporary and permanent erosion and sediment control best management practices (BMPs).

Project construction will include the following activities:

- Clearing and grubbing – To clear trees, vegetation and topsoil from the proposed trail footprint
- Excavation – Primarily at shallow excavations to maintain design grades
- Embankment – Fill to maintain design grades through low areas
- Aggregate base – For walkway and roadway shoulders and to support asphalt and concrete paving
- Retaining wall – To prevent encroachments onto private property
- Concrete curbs, gutters, walkways, sidewalks and curb ramps
- Hot mix asphalt and concrete paving – For roadway, walkway, sidewalk and parking surfaces
- Crosswalks, enhanced signage and lighting – For safety
- Speed humps – For speed control and safety
- Striping and signage

Equipment required for construction would include: tracked excavators, backhoes, graders, bulldozers, dump trucks, rollers, pavers, water trucks, and pick-up trucks. It is not anticipated that any temporary utility extensions, such as electric power or water, would be required for construction.

### ***Construction Access and Hauling Traffic***

The anticipated Project haul truck routes include Old Arcata Road and Samoa Boulevard with connection to the US 101 Samoa Boulevard interchange in Arcata, and Old Arcata Road and Bayside Cutoff with connection to US 101 Bayside Cutoff intersection. The number of construction-related vehicles traveling to and from Project Area will vary on a daily basis. It is anticipated that up to 60 haul truck round trips would occur on a peak day. In addition, it is anticipated that construction crew trips would require up to eight round trips per day. Therefore, for the purposes of analysis, on any one day during construction, up to 68 vehicle round trips could occur.

### ***Traffic Control***

In accordance with jurisdictional requirements, the construction contractor would be required to obtain an encroachment permit and temporary traffic control approvals from the City of Arcata and Humboldt County prior to beginning the work within their respective right-of-ways. As part of the encroachment permit process, the construction contractor would be required to prepare a traffic control plan for review and acceptance of planned work within the public right-of-way. The development and implementation of a traffic control plan would include, but not necessarily be limited to: temporary traffic control systems, delineators, signs, and flaggers conforming to the current California Manual of Uniform Traffic Control Devices.

### ***Groundwater Dewatering***

If needed, temporary groundwater dewatering will be conducted to provide a dry work area. Dewatering will involve pumping water out of a trench or excavation. Groundwater will typically be pumped to Baker tanks (or other similar type of settling tank) or into a dewatering bag. Following the settling process provided by a tank or filter, the water will be used for dust control and compaction. Discharge water from Baker tanks would not be discharged into wetlands or any water bodies.

### ***Site Restoration and Demobilization***

Following construction, the contractor will demobilize and remove equipment, supplies, and construction wastes. The disturbed areas along the Project alignment will be restored to pre-construction conditions or stabilized with a combination of grass seed (broadcast or hydroseed), straw mulch, rolled erosion control fabric, rock, and other plantings/vegetation.

## **2.0 – Study Methods**

### **2.1 - Regulatory Requirements**

#### **Federal Regulations**

##### **Federal Endangered Species Act**

The U.S. Fish and Wildlife Service (USFWS), which has jurisdiction over federally listed (i.e., threatened and endangered) plants, wildlife, and resident fish, and the National Marine Fisheries Service (NMFS), which has jurisdiction over anadromous fish and marine fish and mammals, implement the Federal Endangered Species Act (FESA). Section 7 of the FESA mandates that all federal agencies consult with the USFWS and NMFS to ensure that federal agency actions do not jeopardize the continued existence of a listed species or destroy or adversely modify critical habitat for listed species. Federal agencies are required to consult with the USFWS and NMFS if they determine that a Project “may affect” a listed species. The FESA prohibits the “take” of any fish or wildlife species listed as threatened or endangered, including the destruction of habitat that could hinder species recovery.

##### **Clean Water Act**

The *U.S. Army Corps of Engineers Jurisdictional Determination Form Instructional Guidebook* (USACE and USEPA 2007) indicates that the USACE and USEPA will assert jurisdiction over the following categories of water bodies: Traditionally Navigable Water (TNWs); all wetlands adjacent to TNWs; non-navigable tributaries to TNWs that are relatively permanent water (RPWs); and wetlands that directly abut such tributaries. In addition, the USACE and USEPA will assert jurisdiction over every water body that is not a RPW if the water body is determined to have a significant nexus with a TNW. These types of water bodies include: non-navigable tributaries that do not typically flow year-round or have continuous flow at least seasonally; wetlands adjacent to such tributaries; and wetlands that are adjacent to but do not directly abut relatively permanent, non-navigable tributaries. A significant nexus exists if the tributary, in combination with all its adjacent wetlands, has more than a speculative or in-substantial effect on the chemical, physical, and/or biological integrity of the TNW (USACE and USEPA 2007). To define a wetland, the USACE requires that vegetation, soil, and hydrology contain wetland attributes. The wetland delineation for this Project used USACE criteria from the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Western Mountains, Valleys and Coast Region* (USACE 2010).

Section 401 of the CWA requires that an applicant for a federal license or permit that allows activities resulting in a discharge to waters of the U.S., must obtain a state certification that the discharge complies with other provisions of CWA. The Regional Water Quality Boards (RWQCB) administer the certification program in California.

The guidelines allow the discharge of dredged or fill material into the aquatic system only if there is no practicable alternative that would have less adverse impacts.

##### **Migratory Bird Treaty Act**

The Migratory Bird Treaty Act (MBTA) of 1918 (16 USC §§ 703-708, 710-712) protects migratory bird species through the implementation of various treaties and conventions

between the US and Canada, Japan, Mexico, and the former Soviet Union. A migratory bird is any species or family of birds that live, reproduce, or migrate within or across international borders at some point during their annual life cycle (MBTA 1918, as amended). There are currently 1,026 species included on the list of migratory birds that are protected under the MBTA (U.S. Department of the Interior [USDO I] 2013). The USFWS is responsible for administering the MBTA (USFWS 2017).

The MBTA makes it unlawful to take affirmative and purposeful actions to “pursue; hunt; take; capture; kill; attempt to take, capture, or kill; possess; offer for sale; sell; offer to barter; barter; offer to purchase; purchase; deliver for shipment; ship; export; import; cause to be shipped, exported, or imported; deliver for transportation; transport or cause to be transported; carry or cause to be carried; or receive for shipment, transportation, carriage, or export; any migratory bird, any part, nest, or egg of any such bird; or any product, whether or not manufactured, which consists, or is composed in whole or part, of any such bird or any part, nest, or egg thereof” (16 USC § 703 (a)). Based on the USDO I December 22, 2017 memorandum (M-37050), the MBTA does not prohibit an “incidental take” or accidental actions that result in the take or killing of migratory birds, their nests, or their eggs (USDO I 2017). In accordance with the USDO I memorandum, the MBTA is limited to affirmative and purposeful actions, such as hunting or poaching, that reduce migratory birds, their nests, and their eggs, by killing or capturing, to human control.

In the USDO I April 11, 2018 memorandum, USDO I further clarified the MBTA’s prohibitions on take apply when the purpose of an action is to take migratory birds, their eggs, or their nests. Conversely, the take of birds, eggs, or nests occurring as the result of an activity, the purpose of which is not to take birds, eggs or nests, is not prohibited by the MBTA (USDO I 2018). Therefore, if the purpose of an activity (i.e., pipeline and facility construction) is not to take migratory birds, their eggs, or their nests, then any take resulting from the activity would be considered incidental, and such activity would not be a violation of the MBTA.

### **Bald and Golden Eagle Protection Act**

The BGEPA of 1940 (16 USC §§ 668-668d, 54 Stat. 250 and as amended) protects the bald eagle and golden eagle and is administered by the USFWS (16 USC §§ 1801-1884 and 668-668c). The BGEPA makes it unlawful to, without a permit, “take, possess, sell, purchase, barter, offer to sell, purchase or barter, transport, export or import... any bald eagle... or any golden eagle, alive or dead, or any part, nest, or egg thereof” (16 USC § 668(a)). “Take” is defined as: “pursue, shoot, shoot at, poison, wound, kill, capture, trap, collect, or molest or disturb.” “Disturb” is defined as: “to agitate or bother a bald or golden eagle to a degree that causes, or is likely to cause, based on the best scientific information available (1) injury to an eagle, (2) a decrease in its productivity, by substantially interfering with normal breeding, feeding, or sheltering behavior, or (3) nest abandonment, by substantially interfering with normal breeding, feeding, or sheltering behavior.”

### **Executive Order 11990 – Protection of Wetlands**

Established a national policy to avoid adverse impacts on wetlands whenever there is a practicable alternative. The U. S. Department of Transportation (DOT) promulgated DOT Order 5660.1A in 1978 to comply with this directive. On federally funded Projects, impacts on wetlands must be identified. Alternatives that avoid wetlands must be

considered. If wetland impacts cannot be avoided, then all practicable measures to minimize harm must be included.

This must be documented in a specific Wetlands Only Practicable Alternative Finding. Additional requirement is to provide early public involvement in Projects affecting wetlands. FHWA provides technical assistance (Technical Advisory 6640.8A) and reviews environmental documents for compliance.

### **Executive Order 13112 – Invasive Species**

On February 3, 1999, President William J. Clinton signed Executive Order (EO) 13112 requiring federal agencies to combat the introduction or spread of invasive species in the United States. The order defines invasive species as “any species, including its seeds, eggs, spores, or other biological material capable of propagating that species, that is not native to that ecosystem whose introduction does or is likely to cause economic or environmental harm or harm to human health.” Federal Highway Administration (FHWA) guidance issued August 10, 1999 directs the use of the State’s invasive species list, maintained by the California Invasive Species Council to define the invasive plants that must be considered as part of the NEPA analysis for a proposed Project.

Under the E.O., federal agencies cannot authorize, fund, or carry out actions that it believes are likely to cause or promote the introduction or spread of invasive species in the United States or elsewhere unless all reasonable measures to minimize risk of harm have been analyzed and considered.

### **Essential Fish Habitat**

The Magnuson-Stevens Fishery Conservation and Management Act of 1976 was established to conserve and manage fishery resources found off the coast, as well as anadromous species and Continental Shelf fishery resources of the United States, by exercising (A) sovereign rights for the purposes of exploring, exploiting, conserving, and managing all fish within the exclusive economic zone established by Presidential Proclamation 5030, dated March 10, 1983, and (B) exclusive fishery management authority beyond the exclusive economic zone over such anadromous species, Continental Shelf fishery resources, and fishery resources in special areas.

### **State Regulations**

#### **California Endangered Species Act**

The State of California enacted the California Endangered Species Act (CESA) in 1984. The CESA prohibits the “take” of State endangered and threatened species; however, habitat destruction is not included in the State’s definition of take. Section 2090 of the CESA requires State agencies to comply with endangered species protection and recovery and to promote conservation of these species. The California Department of Fish and Wildlife (CDFW) administers the CESA and, with the exception of “Fully Protected Species,” authorizes take through Section 2080.1 agreements (also known as a Consistency Determination) for take of species that are both federal- and State-listed, and Section 2081 for take of a State-only listed species.

## **State Listed Special Status Plant Species**

Special status plant species under State jurisdiction include those listed as endangered, threatened, or as candidate species by the California Department of Fish and Wildlife (CDFW) under the California Endangered Species Act (CESA). Plant species on California Native Plant Society's (CNPS) California Rare Plant Ranking (CRPR) Lists 1A, 1B and 2 are considered eligible for state listing as Endangered or Threatened pursuant to the California Fish and Game Code and CDFW has oversight of these special status plant species as a trustee agency. As part of the CEQA process, such species should be considered as they meet the definition of Threatened or Endangered under Sections 2062 and 2067 of the California Fish and Game Code. CRPR List 3 and 4 plants do not have formal protection under CEQA. CDFW publishes and periodically updates lists of special status species which include, for the most part, the above categories. Additionally, there are 64 plant species designated as "rare" which is a special designation created before plants were rolled into CESA in the 1980s (CDFW 2018a). A Project is required to have a "Scientific, Educational, or Management Permit" from CDFW for activities that would result in "take," possession, import, or export of state-listed plant species including research, seed banking, reintroduction efforts, habitat restoration, and other activities relating to any plant designated SE (State endangered), ST (State threatened), SR (State rare), or SC (State candidate for listing).

## **California Coastal Act and Local Coastal Programs**

The California Coastal Commission (CCC) through the Coastal Act, and the City of Arcata and the County of Humboldt through their Local Coastal Programs are the jurisdictional agencies that exert authority in identifying and protecting ESHA for Projects. Section 30107.5 of the Coastal Act defines ESHA as: "*Any area in which plant or animal life or their habitats are either rare or especially valuable because of their special nature or role in an ecosystem and which could be easily disturbed or degraded by human activities and developments.*"

## **California Fish and Game Code (FGC) - Birds of Prey and Native Nesting Birds**

Section 3503 of the FGC prohibits the take, possession, or needless destruction of the nest or eggs of any bird. Subsection 3503.5 specifically prohibits the take, possession, or destruction of any birds in the orders Falconiformes (hawks and eagles) or Strigiformes (owls) and their eggs or nests. These provisions, along with the federal MBTA, essentially serve to protect nesting native birds. Non-native species, including the European Starling, Rock Dove, and House Sparrow, are not afforded protection under the MBTA or FGC.

## **California FGC - Fully Protected Species**

The CDFW enforces the FGC, which provides protection for "fully protected birds" (Section 3511), "fully protected mammals" (Section 4700), "fully protected reptiles and amphibians" (Section 5050), and "fully protected fish" (Section 5515). As fully protected species, the CDFW cannot authorize any Project or action that would result in "take" of these species even with an incidental take permit.

## 2.2 - Studies Required

### Literature Search

Prior to field surveys, a scoping list of CRPR plant species and habitats with recorded occurrences in the Project vicinity was compiled by consulting the Arcata South quad *California Natural Diversity Database* (CNDDDB)[CDFW 2018], the CNPS *Inventory of Rare and Endangered Vascular Plants* (CNPS 2018), the list of Federally listed plant species maintained by the U.S. Fish and Wildlife Service (USFWS 2018), and the NMFS Species List.

The scoping list includes special-status plants that occur in habitat similar to the Project Area with documented occurrences on the Arcata South USGS quadrangle or adjacent quadrangles. CDFW and CNPS recommend the assessment area be a minimum of nine USGS quadrangles with the survey area located in the central quad. The scoping list also contains other taxa that may occur in the Project Area whose habitat is suitable if the Project is within or near the known range of the species.

### Field Reviews

The assessment area was defined as the nine USGS 7.5' minute quadrangles centered around the Arcata South quadrangle (Tyee City, Arcata North, Blue Lake, Eureka, Korbel, Cannibal Island, Fields Landing, and McWhinney Creek USGS 7.5' quadrangles). The queries yielded 55 sensitive species previously documented in the assessment area (see Table 1 of the *Draft Special Status Plant Survey and ESHA Evaluation*, included in Appendix C of this document). Due to the highly altered condition of the potential habitat contained within the BSA none of the plant species were thought to have a high probability of occurring within the study area. Within the assessment area, three sensitive plant communities are documented according to the CNDDB (ibid).

Vegetation assessment or screening for ESHA occurring within the BSA began with research to determine what areas might be considered ESHA that may occur within the BSA. No comprehensive list of ESHA for the state, Humboldt County, or the City of Arcata exists. However, the CCC, County of Humboldt, and City of Arcata rely on the *Hierarchical List of Natural Communities* developed by the California Department of Fish and Wildlife (CDFG 2010) for guidance on what constitutes ESHA. The Hierarchical list of Natural Communities coincides with the classification system presented in *A Manual of California Vegetation Second Edition* (Sawyer et al. 2009) which defines vegetation communities based on a system of alliances. Natural communities are further broken down to association level for vegetation types affiliated with ecological sections in California. The Hierarchical list of Natural Communities also identifies Natural Communities as "high priority" based on global or state rarity rankings. CDFW tracks data on Natural Communities through the California Natural Diversity Database (CDFW 2018a). Thus, the initial analysis of whether ESHA might occur within the APE began with a review of CNDDB for the Arcata South USGS 7.5' quadrangles and eight adjacent quadrangles, as well as a review of community descriptions of potential Natural Communities as defined in *A Manual of California Vegetation Second Edition* (Sawyer et al. 2009).

The vegetation groupings discussed in this report are Alliances based on dominant characteristic plants whose presence was constant within the observed groupings. *A Manual of California Vegetation Second Edition* defines alliance as "A classification unit of vegetation, containing one or more associations and defined by one or more diagnostic

species often of high cover, in the uppermost layer or the layers with the highest canopy cover” (Sawyer et al. 2009). The alliances described in *A Manual of California Vegetation* are the California expression of the National Vegetation Classification (CDFW 2017). The rankings for these communities are defined according to the NatureServe’s Heritage Program methodology defined for Natural Community Conservation Ranks and outlined in *A Manual of California Vegetation*, Second Edition (Sawyer et al. 2009).

## **Biological Study Area**

The Biological Study Area (Figure 2 in Appendix A) covers the entire extent of the proposed impact area plus a buffer zone of 5-10 feet around the perimeter. Though the impact area is proposed to end at the northern intersection of Old Arcata Road with Bayside Road, the BSA was extended approximately 600 feet further north to the roundabout at Buttermilk Lane to accommodate any potential design changes. No design changes are anticipated for this Project.

## **Survey Methods**

The entirety of the following text is extracted from the *DRAFT Special Status Plant Survey and ESHA Evaluation* (GHD 2018b; included in Appendix B of this document) and the *Wetland Delineation Report* (GHD 2019a; included in Appendix C of this document).

The wetland delineation was conducted by a GHD botanist and soil scientist. The wetlands occurring within the road median, southwest of Old Arcata Road, on the northern side of the BSA, were also reviewed by a GHD senior Certified Professional Wetland and Certified Professional Soil Scientist. To define a wetland, the USACE requires that all three parameters (vegetation, soil, and hydrology) show wetland attributes (USACE 1987; USACE 2010). The City of Arcata requires that only two parameters are present in order to define a wetland. The California Coastal Commission requires only one parameter to be present in order to define the site as a wetland (14 CCR 13577). The wetland delineation used USACE criteria from the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Western Mountains, Valleys and Coast Region* (USACE 2010). The current standard forms provided by the USACE (2010) were used for botany/soils/hydrology data collection.

Vegetation and soil data were collected at transects across the upland/wetland boundary with two plots (upland/wetland) per transect. The naming convention used on data sheets to designate upland or wetland plots associated with a transect was –U or –W, respectively. The wetland/upland boundary was recorded with a GPS device, individual wetland and upland plots were not. The distance to the wetland/upland boundary from the individual wetland and upland plots was recorded on each respective datasheet.

Intermediate GPS points were collected without the collection of data (soils, vegetation, or hydrology) as appropriate, and are shown without labels on the figures. In addition to the paired transect plots, one wetland test pit and one upland test pit were described that were not part of paired transects. These were labeled “WTP7” or “UTP8” respectively. In the case of the wetland test pit “WTP7”, a paired upland test pit was not dug due to the presence of underground utilities. The upland test pit “UTP8” was completed to confirm the presence of 1-parameter wetland based on vegetation, and the lack of soil and hydrology indicators.

During the delineation mapping, each section of wetland was designated with a number e.g. "W1". Wetland transects were labeled with a respective wetland number. Some wetland sections were mapped from intermediate points only, with no transects completed for these sections. For this reason, two wetland identification numbers are missing from the sequence of the transect datasheets (3 and 4). In addition, GHD revisited the road median on the northeast side of the BSA, which is why it contains non-sequential transects.

Field mapping of 1-parameter and 3-parameter wetlands was completed with a GeoPro 6H global positioning system (GPS) receiver with sub-meter accuracy, connected to a Motion F5v Tablet running ArcPad geographic information system (GIS) software on August 28 and August 29, 2018. Field mapping on September 20, 2018 was completed with a Trimble GeoExplorer GPS unit with sub-meter accuracy running ArcPad (GIS) software with a Trimble Tornado antenna. Data was post-processed using GPS Pathfinder office which referenced UNAVCO base stations. The points were then connected using ArcGIS for map preparation.

Vegetation data collection consisted of listing the dominant species in the herbaceous, shrub, and tree layer within a standard sized plot depending on layer. The species listed for each plot were classified as to whether or not they were wetland or upland indicators, using the standard reference for plant wetlands indicators: *State of California 2016 Wetland Plant List* (Lichvar et al. 2016). Plants were classified based on the probability that they would be found in wetlands (USACE 1987), ranging from Obligate (almost always in wetlands) [OBL], Facultative/wet (67% to 99% in wetlands) [FACW], Facultative (34% to 66% in wetlands) [FAC], Facultative/up (1% to 33% in wetlands) [FACU], or Uplands (less than 1% in wetlands) [UP]. Plants not listed in the manual were considered to be in the upland category (Lichvar et al. 2016). Standard procedures for documenting hydrophytic vegetation indicators were used per the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual* (USACE 2010).

The *Regional Supplement to the Corps of Engineers Wetland Delineation Manual* (USACE 2010) procedures were combined with the Natural Resources Conservation Service's (NRCS) definition of hydric soils presented in *Field Indicators of Hydric Soils in the United States* (USDA/NRCS 2016).

Soil pits were dug to an approximate depth of 16 inches. Data on soil color, texture and redoximorphic features were collected. Any observed redoximorphic features (iron concentrations) were noted along with their percentage within the soil matrix, and care was taken to distinguish chromas of 1 and 2 indicative of an iron-depleted soil within 12 inches of the soil surface (USACE 2010; USDA/NRCS 2016).

Colors were described for the entire depth of the test pit and colors were determined on moist natural soil aggregate (ped) surfaces, which had not been crushed, using the Munsell Color Chart (COLOR, M. 2000). Soils with low chromas were verified as being hydric or upland with *Field Indicators of Hydric Soils in the United States* (Version 8.0, 2016).

The delineation was performed in late August and September, towards the end of the dry season. Although some standing water was observed in a few sections of roadside ditch, near the BSA and also outside of the BSA on the northeast side of Old Arcata Road, standing water was not present in wetland test pits which were dug closer to the wetland

boundary. In general, two secondary indicators were identified to meet the wetland hydrology parameter per the USACE criteria.

Surveys to determine the presence of special status plant species (listed as rare, threatened, endangered, or candidate under the State or Federal Endangered Species Acts, CNPS, or species of local importance) were timed to coordinate with the blooming period for the majority of the species thought to possibly occur within the Project Area. After a review of the scoping list it was determined that two surveys, an early season survey and a late season survey, would be necessary to capture the blooming period for the majority of target species (species thought to have some potential to occur within the Project Area).

The surveys were floristic in nature following *Protocols for Surveying and Evaluating Impacts to Special Status Native Plant Populations and Natural Communities* by the California Natural Resource Agency (CDFW 2018c) and *General Rare Plant Survey Guidelines by the Endangered Species Recovery Program* (USFWS 2002). An intuitively controlled survey was conducted that sampled and identified potential habitat(s). Plants were identified to the lowest taxonomic level (genus or species) necessary for rare plant identification. Nomenclature follows *The Jepson Manual* (Baldwin et al 2012). Surveys were conducted by walking the site looking for the presence of target species and habitats identified on the scoping list, as well as presence of any other incidental sensitive-listed plant species. In total, approximately six field person hours were spent surveying the BSA specifically for special status plants over both the early season and late season survey dates.

Assessment of potential ESHA within the BSA was conducted by using the resources outlined above including identification of Sensitive community alliances as defined by the *Hierarchical list of Natural Communities* (CDFW 2018d) and by *A Manual of California Vegetation Second Edition* (Sawyer et al. 2009). Mapping of individual trees during the assessment of potential ESHA was completed with a GeoPro 6H global positioning system (GPS) receiver connected to a Motion F5v Tablet running ArcPad geographic information system (GIS) software.

### 2.3 - Personnel and Survey Dates

The role of lead biologist was tasked to GHD botanist Amy Livingston, who was present for all field surveys. She was further assisted by GHD environmental scientist Matt Tolley. Survey dates and tasks are summarized in Table 1. Brief biographical summaries of both personnel follow thereafter.

<b>Survey Task</b>	<b>Survey Dates</b>	<b>Personnel</b>
Wetland Delineation Survey	08/28/2018 08/29/2018 09/20/2018	A. Livingston, M. Tolley A. Livingston, M. Tolley A. Livingston, M. Tolley
Special Status Plant Survey	06/18/2018 07/31/2018	A. Livingston A. Livingston
Environmentally Sensitive Habitat Area Survey	08/31/2018 09/20/2018	A. Livingston A. Livingston

**Amy Livingston**  
**M.S. Natural Resources: Forest, Watershed, and Wildland Sciences, Humboldt State University, 2014**

Amy Livingston has over twelve years of experience in the fields of botany and plant ecology in northern California. Amy has completed several wetland delineations in northern California including the wetland delineation for the Humboldt Bay Trail South for the County of Humboldt, the Redwood National and State Park Visitor Center and Restoration Project in Orick for Save the Redwoods League, and the Covelo SR 162 Corridor Multi-Purpose Trail Project for the Mendocino Council of Governments. Amy has received wetland delineation training through the National Wetlands Training Institute and is also a certified California Rapid Assessment Method (CRAM) Practitioner for Wetland Evaluation.

**Matt Tolley**  
**B.A. Environmental Science, Humboldt State University, 2004**

Matt Tolley has over 13 years of experience in hazardous materials characterization, assessment, and reporting; air quality assessment and reporting; biological monitoring; and operations and maintenance (O&M). Matt has prepared U.S. Army Corps of Engineers, Regional Water Control Board and Lake and Streambed Alteration permit applications. Mr. Tolley has assisted with wetland delineations throughout coastal northern California, working with the Mendocino Council of Governments, City of Arcata, Fortuna Fire Department and private developers. In addition, Matt has expertise in piezometer design, equipment installation, monitoring and soil data logging. He also has completed percolation and infiltration testing in a variety of soil types. This experience has involved conducting over 230 energy site assessment investigations and Phase I ESAs throughout northern California, for such clients as the County of Humboldt, Eureka City Schools, Humboldt State University, the California Department of General Services, UC Davis, the Border Coast Regional Airport Authority, and the Humboldt Bay Harbor Recreation and Conservation District, in which he sometimes operated as Project manager.

## **2.4 - Agency Coordination and Professional Contacts**

### **U.S. ARMY CORP OF ENGINEERS**

In follow up to the Preliminary Jurisdictional Determination (PJD) issued on April 2, 2019, GHD coordinated with Kasey Sirkin of the USACE regarding a small potential wetland area (0.0367 acres) adjacent to the north side of Jacoby Creek Road. On July 8, 2019, Ms. Sirkin confirmed that the compensatory mitigation would not be required because the area of fill was under 0.10 acres (USACE discretionary threshold) of poor-quality wetlands. Ms. Sirkin further noted that a Section 404 permit application package would still be required.

### **NORTH COAST WATER QUALITY CONTROL BOARD**

On July 9, 2019, GHD coordinated with Brandon Stevens at the North Coast Regional Water Quality Control Board regarding the potential wetland area adjacent to the north side of Jacoby Creek Road. Mr. Stevens indicated his discretionary threshold for requiring wetland mitigation is 10 lineal feet. While a Mitigation, Monitoring, and Reporting Plan (MMRP) would be required if wetlands were to be impacted, there was discretion for the

plan to be streamlined given the small area of wetland impacts and the poor quality of existing wetland resources. Additionally, it may be possible to reduce the duration of the monitoring period from five years to one year.

## **2.5 - Limitations That May Influence Results**

Focused or presence/absence protocol-level surveys were not conducted for special-status wildlife species potentially occurring in the Project vicinity, because it was determined while preparing the PES with DOT approval that a Biological Assessment was not required. Focused surveys or surveys during particular seasons were not deemed necessary for special-status species given the particular species involved and Project-specific conditions. For species potentially occurring in the Project Area, assessment of habitat conditions and occurrence records in the region are adequate to determine that the species are absent. Information obtained during focused surveys or at a time of year more conducive for detecting the species would not have altered the determinations regarding potential presence or absence of these species. This methodology is consistent with the generally accepted standards for the preparation of an NES in that it may recommend further focused surveys to determine presence/absence of species with the potential to occur in the Project Area.

## **3.0 – Results: Environmental Setting**

### **3.1 - Description of the Existing Biological and Physical Conditions**

#### **3.1.1 - Study Area**

The BSA for the Old Arcata Road Improvement Project is located in the USGS Arcata South 7.5-minute quadrangle. It includes Old Arcata Road and adjacent roadsides through the community of Bayside, between the intersections with Buttermilk Road and Jacoby Creek Road, as well as short sections of adjacent roads and roadsides (Figure 2 in Appendix A). The BSA covers the entire footprint of the proposed improvements (Figure 3 in Appendix A) and extends an additional 600 feet north of the end of the proposed improvements, plus a buffer zone of approximately 5 to 10 feet around the entire Project. The BSA is primarily within the Coastal Zone, and primarily within jurisdiction of the City of Arcata, and within the appeal zone of the California Coastal Commission. A section of the BSA (a portion of the intersection with Jacoby Creek Road) is located in Humboldt County primary jurisdiction, within the appeal zone of the Coastal Commission.

#### **3.1.2 - Physical Conditions**

The BSA, running approximately north by northwest from Bayside to Arcata, is located on the median between two distinct geographic regions. West of the site are the Bayside Bottoms mud flats and Gannon Slough, low profile wetland features supporting drainage to Humboldt Bay and possessing numerous standing waters. East of the site is Fickle Hill, characterized by low elevation foothills drained by numerous creeks. The most prominent creeks near the site are Beith Creek (approximately 50 feet north of the BSA), Jacoby Creek (located south and west of the BSA), and Grotzman Creek (located north and west of the BSA). No jurisdictional waters occur within the BSA. The elevation within the BSA ranges from approximately 20 to 55 feet above mean sea level. Annual precipitation averages 41-53 inches and mean annual temperature ranges from 52-55 degrees Fahrenheit (NRCS 2018).

The BSA lies entirely on the Hookton-Tablebluff soils complex, which is comprised of largely undifferentiated alluvial and aeolian sediment forming loams and silty clay-loams in the top 5 feet of soil. Specific groundwater depths are currently unknown at the Project location, but NRCS estimates range from 10 to 40 inches below ground surface. Topography slopes from 2 to 9 percent grade. The soils range from poorly to moderately well-drained and possess a moderately low water transmissivity value (0.20 – 0.60 inches per hour). (NRCS 2018). Field surveys performed by GHD also indicated the presence of naturally occurring gravels in varying frequencies, and larger quantities of gravel placed by humans in drainage ditches (GHD 2019a).

#### **3.1.3 - Biological Conditions in the Biological Study Area**

The Project Area is within the Redwood – Douglas Fir vegetation community (ICE 1997) with Old Arcata Road the dominant feature throughout the BSA. The botanical survey conducted by GHD identified individual redwood trees adjacent to Old Arcata Road but determined they did not constitute a forest community and are not considered Environmentally Sensitive Habitat Areas (GHD 2018b).

### 3.2 - Regional Species and Habitats and Natural Communities of Concern

The list of federal and state-listed threatened and endangered species having the potential to occur in the vicinity of the Project was developed via review of online and hard copy resources, agency database requests, and agency consultation. The USFWS *Information for Planning and Consultation* (IPaC) website and the Arcata South quad CNDDDB [CDFW 2018] was consulted for a list of federal and state-listed species and critical habitat that might be present within the proposed Project and the BSA (USFWS 2019). Table 2 (below) summarizes the federal and state-listed species identified from these source reviews and a determination regarding their presence or absence in the specific Project Area.

<b>Table 2: Federal and State-Listed Species and Their Habitats Potentially Occurring or Known to Occur in the Project Area</b>					
<b>Common Name</b>	<b>Scientific Name</b>	<b>Status (USFWS, CA, CDFW)</b>	<b>General Habitat Description</b>	<b>Habitat Present/Absent</b>	<b>Rationale</b>
<b>MAMMALS</b>					
Fisher	<i>Pekania pennanti</i>	USFWS Proposed Threatened, CA Threatened, CDFW Species of Special Concern	Late-successional coniferous or mixed forests. Key habitat components include relatively large diameter trees, high canopy closure, large trees (hardwood and conifer) with cavities, and large down wood.	Absent	Habitat is absent from the BSA.
Sonoma Tree Vole	<i>Arborimus pomo</i>	CDFW Species of Special Concern	Nests high in the canopy in wet, old-growth forests.	Absent	Suitable habitat is absent from BSA.
Townsend's big-eared bat	<i>Corynorhinus townsendii</i>	CDFW Species of Special Concern	Uses caves, mines, and isolated buildings (e.g. barns) for day and night roosting, maternity roosting, and hibernacula. Occasionally uses hollow trees and bridges for day or night roosting.	Absent	Habitat is generally absent in the BSA; however, habitat is adjacent to the BSA and a potential to occur does exist.
<b>BIRDS</b>					
Marbled Murrelet	<i>Brachyramphus marmoratus</i>	Threatened	Known to nest high in trees in old-growth forest several miles inland from coast.	Absent	Habitat is absent from the BSA.

**Table 2: Federal and State-Listed Species and Their Habitats Potentially Occurring or Known to Occur in the Project Area**

Common Name	Scientific Name	Status (USFWS, CA, CDFW)	General Habitat Description	Habitat Present/Absent	Rationale
Northern Spotted Owl	<i>Strix occidentalis caurina</i>	Threatened	Inhabit older forested habitats required for nesting, roosting, and foraging. Specifically require multi-layered, multi-species canopy with moderate to high canopy closure.	Absent	Habitat is absent from the BSA.
Western Snowy Plover	<i>Charadrius nivosus nivosus</i>	Threatened	Breeds on coastal beaches. Generally breeding occurs above the high tide line on coastal beaches, sand spits, dune-backed beaches, sparsely vegetated dunes, beaches at creek and river mouths, and salt pans at lagoons and estuaries.	Absent	Habitat is absent from the BSA.
Yellow-billed Cuckoo	<i>Coccyzus americanus</i>	Threatened	Breeds mostly in dense deciduous stands, including forest edges, tall thickets, dense second growth, overgrown orchards, and scrubby oak woods. Often found in willow groves around marshes.	Absent	Habitat is absent from the BSA.
White-tailed Kite	<i>Elanus leucurus</i>	CDFW Fully Protected	Common in savannas, open woodlands, marshes, desert grasslands, partially cleared lands, and cultivated fields.	Absent	Habitat is generally absent in the BSA; however, habitat is adjacent to the BSA and a potential to occur does exist.
Mountain Plover	<i>Charadrius montanus</i>	CDFW Species of Special Concern	Breeds on open plains at moderate elevations. Winters in short-grass plains and fields, plowed fields, and sandy deserts. Usually not found near bodies of water or even wet soil.	Absent	Habitat is absent from the BSA.
American Peregrine Falcon	<i>Falco peregrinus anatum</i>	CDFW Fully Protected	Breeds in open landscapes with cliffs (or skyscrapers) for nest sites.	Absent	Habitat is absent from the BSA.

**Table 2: Federal and State-Listed Species and Their Habitats Potentially Occurring or Known to Occur in the Project Area**

Common Name	Scientific Name	Status (USFWS, CA, CDFW)	General Habitat Description	Habitat Present/Absent	Rationale
Bryant's Savannah Sparrow	<i>Passerculus sandwichensis alaudinus</i>	CDFW Species of Special Concern	Inhabit grasslands with few trees, including meadows, pastures, grassy roadsides, sedge wetlands, and cultivated fields planted with cover crops like alfalfa. Near oceans, they also inhabit tidal saltmarshes and estuaries.	Absent	Suitable habitat is absent from the BSA.
California Brown Pelican	<i>Pelecanus occidentalis californicus</i>	CDFW Fully Protected	Nest in colonies on offshore islands free from predators. Roost communally in areas that are near adequate food supplies, have a physical barrier from predators, and provide protection from wind or high surf.	Absent	Habitat is absent from the BSA.
Yellow Rail	<i>Coturnicops noveboracensis</i>	CDFW Species of Special Concern	Breeding birds typically inhabit fresh and brackish-water marshes, preferring the higher (drier) margins.	Absent	Habitat is absent from the BSA and the Project Area is outside of the Yellow Rail's known range.
<b>AMPHIBIANS</b>					
Pacific Tailed Frog	<i>Ascaphus truei</i>	CDFW Species of Special Concern	Inhabits cold, fast-moving streams with cobblestone bottoms.	Absent	Habitat is absent from the BSA.
Foothill Yellow-legged frog	<i>Rana boylei</i>	CA Threatened, CDFW Species of Special Concern	Typically inhabits rocky streams and rivers with rocky substrate and open, sunny banks, in forests, chaparral, and woodlands.	Absent	Habitat is absent from the BSA.
Northern Red-legged Frog	<i>Rana aurora</i>	CDFW Species of Special Concern	Typically found in woods adjacent to streams. Found in humid forests, woodlands, grasslands, and streamsides with plant cover. Breeding habitat is in permanent water sources (lakes, ponds, streams, etc.).	May be present	Habitat is generally absent in the BSA; however, habitat is adjacent to the BSA and a potential to occur does exist.

**Table 2: Federal and State-Listed Species and Their Habitats Potentially Occurring or Known to Occur in the Project Area**

Common Name	Scientific Name	Status (USFWS, CA, CDFW)	General Habitat Description	Habitat Present/Absent	Rationale
Southern Torrent Salamander	<i>Rhyacotriton variegatus</i>	CDFW Species of Special Concern	Found in shallow, cold, clear, well-shaded streams, waterfalls and seepages, particularly those running through talus and under rocks all year, in mature old-growth forests.	Absent	Habitat is absent from the BSA.
<b>REPTILES</b>					
Western Pond Turtle	<i>Emys marmorata</i>	CDFW Species of Special Concern	Inhabits calm and quiet ponds, marshes, and pools.	Absent	Habitat is absent from the BSA.
<b>FISH</b>					
Tidewater Goby	<i>Eucyclogobius newberryi</i>	USFWS Endangered, CDFW Species of Special Concern	Inhabits lagoons formed by streams running into the sea.	Absent	Habitat is absent from the BSA.
Green Sturgeon	<i>Acipenser medirostris</i>	USFWS Threatened, CDFW Species of Special Concern	Found in riverine, estuarine, and marine habitats along the west coast of North America, spending substantial portions of their lives in marine waters.	Absent	Habitat is absent from the BSA.
Longfin Smelt	<i>Spirinchus thaleichthys</i>	USFWS Candidate, CA Threatened	Found in bays, estuaries, and nearshore coastal areas, and migrate into freshwater rivers to spawn.	Absent	Habitat is absent from the BSA.
Eulachon	<i>Thaleichthys pacificus</i>	USFWS Threatened	Found near the bottom of the continental shelf, usually at depths of 20-200m. Spawning occurs within tidal influence of river mouth.	Absent	Habitat is absent from the BSA.

**Table 2: Federal and State-Listed Species and Their Habitats Potentially Occurring or Known to Occur in the Project Area**

Common Name	Scientific Name	Status (USFWS, CA, CDFW)	General Habitat Description	Habitat Present/Absent	Rationale
Coho Salmon	<i>Oncorhynchus kisutch</i>	USFWS Threatened, CA Threatened	Spawning occurs in small streams with stable gravel substrates. The remainder of the life cycle is spent foraging in estuarine and marine waters of the Pacific Ocean.	Absent	Habitat is absent from the BSA.
Steelhead Trout	<i>Oncorhynchus mykiss irideus</i>	USFWS Threatened	Spawn in fast-flowing, gravel-bottomed, well-oxygenated rivers and streams.	Absent	Habitat is absent from the BSA.
Chinook Salmon	<i>Oncorhynchus tshawytscha</i>	USFWS Threatened	Juveniles may spend 3 months to 2 years in freshwater before migrating to estuarine areas and then into the ocean to feed and mature. They prefer streams that are deeper and larger than those used by other Pacific salmon species.	Absent	Habitat is absent from the BSA.
Coast Cutthroat Trout	<i>Oncorhynchus clarkii clarkii</i>	CDFW Species of Special Concern	Inhabit a large range along the Pacific coast. They prefer estuaries, lagoons, and small, low-gradient coastal streams.	Absent	Habitat is absent from the BSA.
Pacific Lamprey	<i>Entosphenus tridentatus</i>	CDFW Species of Special Concern	Typically found in stream and river reaches that have relatively stable flow conditions. Spawning occurs in medium-sized rivers and smaller tributary streams.	Absent	Habitat is absent from the BSA.
<b>PLANTS</b>					
Western Lily	<i>Lilium occidentale</i>	USFWS Endangered, CA Endangered	Grows at the edges of sphagnum bogs and in forest or thicket openings along the margins of ephemeral ponds and small channels. It also grows in coastal prairie and scrub near the ocean where fog is common.	Absent	Habitat is absent from the BSA.

## 4.0 – Results: Biological Resources, Discussion of Impacts and Mitigation

### 4.1 - Habitats and Natural Communities of Special Concern

#### 4.1.1 – Discussion of Special Concern Habitats and Natural Communities

No special concern habitats or natural communities exist within the BSA.

#### 4.1.2 - Survey Results

##### Wetlands

The BSA consists of two types of presumed USACE jurisdictional wetlands that were classified using Cowardin nomenclature from *Classification of Wetlands and Deepwater Habitats of the United States* (Federal Geographic Data Committee 2013), Palustrine Emergent Persistent Wetlands and Palustrine Broad-leaved Deciduous Scrub-Shrub Wetlands. The BSA also contains 1-parameter wetlands meeting Coastal Commission requirements based only on wetland (FAC or wetter) vegetation. These wetlands were mapped based on dominant native vegetation as 1-Parameter Willow Series. The 1-Parameter Willow Series was mapped to the willow canopy dripline. Areas where the canopy extends over pavement were also mapped. No 2-parameter wetlands were identified. Figures 2:1-5 of the *Wetland Delineation Report* (Appendix C) shows the results of the wetland delineation. In Summary, 0.158 acres of 3-parameter Palustrine Emergent Persistent Wetlands, 0.239 acres of 3-parameter Palustrine Broad-leaved Deciduous Scrub-Shrub Wetlands, and 0.082 acres of 1-Parameter Willow Series were identified within the BSA (not including the area where the willow canopy dripline extended over pavement).

The Palustrine Emergent Persistent Wetland and the Palustrine Scrub-Shrub, Broad leaved Deciduous Wetlands occurred primarily within roadside ditches along the northeast side of Old Arcata Road. The Palustrine Emergent Persistent Wetland consisted primarily of an herbaceous layer and the Palustrine Scrub-Shrub, Broad leaved Deciduous Wetlands consisted of tree, shrub, and herbaceous vegetation layers. Willow species (*Salix* spp.) were the dominant trees in the shrub-scrub wetlands often occurring with Himalayan blackberry (*Rubus armeniacus*) and California blackberry (*Rubus ursinus*) in the shrub layer. Hydrophytic vegetation was dominant within all wetland areas.

The majority of upland plots also contained hydrophytic vegetation, dominated by non-native, invasive grass species such as tall fescue (*Festuca arundinacea* synonym: *Schedonorus arundinaceus*), creeping bent (*Agrostis stolonifera*), and velvet grass (*Holcus lanatus*), all of which are rated as facultative species. It is likely that roadside mowing is favoring these invasive grass species. As defined by Lichvar (2016), facultative species have a 36% to 66% probability of occurring in wetlands, making these species statistically equally likely to occur in wetlands or uplands. Field inspections to determine the presence of hydric soil conditions and/or wetland hydrology can alleviate potential technical misinterpretation of facultative species. Considering that wetland hydrology and hydric soils were not present in the upland plots and given that these nonnative species are favored by disturbance and are located in the mowed roadside corridor, it has been determined these species are not growing as hydrophytes and are not 1-parameter wetlands.

Soils in the delineated wetlands were generally silt loam, silty clay loam, and silty clay in texture containing various amounts of gravel. An exception to this is the road median area on the north side of the BSA which is discussed separately. Wetland soils exhibited redoximorphic features typically found in hydric soils including low chromas with redoximorphic (iron concentrations) at or above 10 inches from the soil surface. Representative wetland (hydric) soils had matrix colors of 2.5YR 3/1, 2.5YR 4/1, 2.5Y 4/1, 2.5Y 2/1, with iron concentrations of 10YR 5/6 and 7.5Y 4/6. The hydric soil indicators observed included redox dark surface (F6) and depleted matrix (F3).

Representative upland soils were generally silty loam, silty clay loam, or silt clay. Representative upland soils had matrix colors of 2.5Y 3/3, 2.5Y 4/3. Upland soil colors were with either no redoximorphic features observed, or very small percentages of redox features observed and thus the soils did not meet field indicators for hydric soils.

The delineation was performed in late August and September of 2018 at the end of the dry season. No water was observed in the test pits. The most frequent secondary indicators of hydrology observed were geomorphic position and passing the FAC-neutral test.

The road median on the northern side of the BSA contained a drainage ditch that parallels Old Arcata Road with a smaller drainage ditch perpendicular to the longer one. Soils were disturbed and most likely human placed and contained a high percentage of gravel. The vegetation had recently been cut and the ground was covered with straw. Within this road median two, 3-Parameter Palustrine Emergent Wetlands were mapped, and one, 1-Parameter Willow Series wetland was mapped based on the dominance of hydrophytic vegetation.

#### **4.1.3 - Project Impacts**

The Project may impact approximately 0.04 acres (1,600 square feet) of wetlands adjacent to the north side of Jacoby Creek Road. If the area of Project impacts increases a result of final design adjustments, additional mitigation would be required.

#### **4.1.4 - Avoidance and Minimization Efforts**

Efforts will be taken to prevent the contamination of potential adjacent habitats by utilizing BMPs in the form of physical and administrative controls. Physical controls will include temporary BMPs such as straw waddles, sandbags, and silt screen to prevent infiltration by hazardous substances and debris into wetlands and stormwater drains. Administrative controls will include regular Stormwater Pollution Prevention Plan (SWPPP) inspections, vehicle maintenance, and Project scheduling (for example, vegetation clearing may occur during the non-bird nesting season, between August 16<sup>th</sup> and March 14<sup>th</sup>; and, work near wetlands will only occur during the dry season between May and October).

#### **4.1.5 - Compensatory Mitigation**

The Project may include onsite wetland establishment within the City's right-of-way between Old Arcata Road and Bayside Road. Approximately 0.04 acres (1,600 square feet) of wetland establishment is anticipated. Groundwater data will be obtained and used to inform wetland design grading depths to ensure wetland hydrology criteria are met. The criteria for meeting wetland hydrology as defined by the USACE is flooding or ponding, or

a water table within 12 inches of the soil surface for 14 or more consecutive days (USACE 2010). Wetlands will be established by excavating to a target elevation.

In follow up to the Preliminary Jurisdictional Determination (PJD) issued on April 2, 2019, GHD coordinated with Kasey Sirkin of the USACE regarding a small potential wetland area (0.04 acres) adjacent to the north side of Jacoby Creek Road. On July 8, 2019, Ms. Sirkin confirmed that the compensatory mitigation would not be required because the area of fill was under 0.10 acres (USACE discretionary threshold) of poor-quality wetlands. Ms. Sirkin further noted that a Section 404 permit application package would still be required. The RWQCB assumes jurisdiction for all wetlands greater than 10 lineal feet; it is anticipated compensatory mitigation will be required by the RWQCB for the 0.04 acres (1,600 square feet) of potential wetlands along Jacoby Creek Road.

#### **4.1.6 - Cumulative Impacts**

The Project may impact approximately 0.04 acres (1,600 square feet) of wetlands adjacent to the north side of Jacoby Creek Road.

## **4.2 - Special Status Plant Species**

### **4.2.1 - Discussion of Special Status Plant Species**

No special status plant species were identified within the BSA.

### **4.2.2 - Survey Results**

On June 18 and July 31, 2018 the BSA was surveyed in an effort to identify if federal, state and/or CNPS listed plant species are present. No special status species were observed during the protocol level surveys in 2018. Vegetation mapping to screen for Environmentally Sensitive Habitat Areas (ESHA) occurred on August 31, 2018 and September 20, 2018. Within the assessment area, three sensitive plant communities have a documented potential to exist according to the CNDDDB - upland Douglas-fir forest, northern coastal salt marsh, and northern foredune grassland (CDFW 2018a). None of these communities were observed within the BSA. Palustrine emergent persistent wetlands, palustrine broad-leaved deciduous scrub-shrub wetlands, and 1-parameter wetlands occur within the BSA. The 1-parameter wetlands meet the Coastal Commission requirements based on dominance of wetland (FAC or wetter) vegetation, in this case willows (*Salix* spp.). All wetlands occurring within the BSA are addressed in the attached *Wetland Delineation Report* (Appendix D).

No sensitive vegetation alliances were identified within the BSA based on CDFW's *Hierarchical List of Natural Communities* (CDFW 2018b). Some individual redwood trees (*Sequoia sempervirens*) occur within the BSA. On the northern end of the BSA near the Buttermilk Lane roundabout, there are a few young redwood trees that appear to have been planted. North of Jacoby Creek Elementary School, between a fence line and the sidewalk, there are two mature redwood trees and a small (<5-foot tall) sapling located between the two larger trees. The *Sequoia sempervirens* Forest Alliance has a Global listing of G3 and State Ranking of S3 (CDFW 2018b). None of the redwood trees within the BSA are connected to a forest and therefore they do not constitute a Forest Alliance. Redwood trees are not considered special-status plant species as individuals and are not considered ESHA. Figures showing the location of the redwood trees are provided in Figure 2:1-5 of the *Wetland Delineation Report* (Appendix D).

### **4.2.3 - Project Impacts**

There are no potential Project impacts because no special status plant species were identified within the BSA.

### **4.2.4 - Avoidance and Minimization Efforts**

While no special status plant species were identified within the BSA, an effort will be made to control invasive plant species through the means of regular inspections and the use of BMPs, as necessary (including straw wattles, dry brushing area, rumble grids, etc.). Inspections will be performed on all construction equipment when entering the Project for signs of plant debris from other locations and removed and contained for proper disposal. Straw wattles should be employed around the perimeter of the staging area and sandbags or other filtration utilized at stormwater drains to prevent migration of seeds from invasive species. Care will be taken to minimize the tracking of mud across the work site by using rumble grids where necessary to shake off excess debris. Regular SWPPP inspections will be conducted on all BMPs, which must be replaced if invasive species are identified growing from them. Additionally, soil and material stockpiles must be inspected for signs of invasive species.

### **4.2.5 - Compensatory Mitigation**

The Project may include onsite wetland establishment within the City's right-of-way between Old Arcata Road and Bayside Road. Approximately 1,600 square feet of wetland establishment is anticipated. Groundwater data will be obtained and used to inform wetland design grading depths to ensure wetland hydrology criteria are met. The criteria for meeting wetland hydrology as defined by the USACE is flooding or ponding, or a water table within 12 inches of the soil surface for 14 or more consecutive days (USACE 2010). Wetlands will be established by excavating to a target elevation.

In follow up to the Preliminary Jurisdictional Determination (PJD) issued on April 2, 2019, GHD coordinated with Kasey Sirkin of the USACE regarding a small potential wetland area (0.04 acres) adjacent to the north side of Jacoby Creek Road. On July 8, 2019, Ms. Sirkin confirmed that the compensatory mitigation would not be required because the area of fill was under 0.10 acres (USACE discretionary threshold) of poor-quality wetlands. Ms. Sirkin further noted that a Section 404 permit application package would still be required.

### **4.2.6 – Cumulative Impacts**

There will be no potential cumulative Project impacts because no special status plant species were identified within the BSA.

## **4.3 - Special Status Animal Species Occurrences**

### **4.3.1 - Discussion of Special Status Animal Species**

No special status animal species or their habitats were identified within the BSA.

### **4.3.2 - Survey Results**

The USFWS *Information for Planning and Consultation* (IPaC) website was consulted for a list of federally-listed species and critical habitat that might be present within the

proposed Project and the BSA (USFWS 2019) (Table 2). Additionally, the CNDDDB list of Federally and State-listed species was reviewed for species that may potentially occur in the area. Surveys indicated there were no special status species or their potential habitats within the BSA.

The Project Area contains habitat suitable for nesting migratory birds. Species with the potential to be affected by Project activities are those that nest in the vegetation and trees adjacent to Old Arcata Road.

#### **4.3.3 - Project Impacts**

Potential habitat exists for the Northern Red-legged Frog adjacent to the BSA. Therefore, there is a potential for impact to Northern Red-legged Frogs if they are present within the BSA during construction activities. Impacts to Northern Red-legged Frogs could potentially occur to egg masses or tadpoles within wetted areas, or to adults out of water, on land, post breeding. Impacts to egg masses or tadpoles are unlikely due to the limited amount of standing water. Potential direct effects to adults may include harassment, injury, and mortality due to equipment and vehicle traffic and construction-related ground disturbance in wetland areas. These direct effects could occur in freshwater areas located within the proposed BSA or in adjacent terrestrial habitat with herbaceous vegetation. The species may be indirectly affected if construction activities result in degradation of adjacent aquatic habitat and water quality due to erosion and sedimentation, accidental fuel leaks, and spills leaving the Project site.

Potential impacts to nesting birds may occur due to vegetation removal, ground disturbance, or construction noise if Project activities occur during migratory bird nesting season (March through August). Avoidance measures are recommended to minimize potential impacts to migratory bird nests.

#### **4.3.4 - Avoidance and Minimization Measures**

Although Northern Red-legged Frog breeding is not documented in the Project Area, measures for this species are included because individual frogs may disperse for considerable distances and could enter construction areas. The following mitigation measures are proposed to minimize potential impacts to northern red-legged frogs:

1. Within 24 hours prior to commencement of ground disturbance within 50 feet of suitable Northern Red-legged Frog habitat, a qualified wildlife biologist shall perform a pre-construction survey for the Northern Red-legged Frog within the Project Area and shall relocate any specimens that occur within the work -impact zone to nearby suitable habitat.
2. In the event that a Northern Red-legged Frog is observed in an active construction zone, the contractor shall halt construction activities in the area and the frog shall be moved to a safe location in similar habitat outside of the construction zone.

While no special status wildlife species were identified within the BSA based on a desktop evaluation, Project construction activities will avoid potential impacts to nearby wetlands and waters outside of the Project Area (Beith Creek, Bayside Bottoms, and Gannon Slough). The use of BMPs will be utilized where necessary to prevent potential runoff and silt migration generated by construction activity. These BMPs may include straw wattles, sandbags, and silt fence as passive controls. Regular SWPPP inspections will be conducted on BMPs and construction equipment. Spill response kits (for oil and hydraulic

spills, etc.) will be kept onsite and included in SWPPP inspections. All hazardous materials will be properly stored and labelled within the staging area and kept within secondary containment (flammable cabinet, plastic sheeting with berms, etc.).

Construction equipment and personal vehicles must be kept in good operating condition. If signs of persistent leaks are observed on vehicles during SWPPP inspections, the vehicle must be parked or staged over plastic sheeting until repairs can be completed. Administrative controls will include Project scheduling (for example, vegetation clearing may occur during the non-bird nesting season, between August 16<sup>th</sup> and March 14<sup>th</sup>; and, work near wetlands will only occur during the dry season between May and October).

Moreover, due to the high probability of precipitation occurring during the construction phase, an emphasis on controlling stormwater runoff must be addressed. Additional stormwater control measures must be considered to minimize impacts to adjacent wetlands, including such features as stormwater culverts, diversions, and the use of stockpile covers to actively contain stormwater runoff.

Measures shall be implemented to avoid or minimize the potential for Project-related impacts on migratory birds that have no other special-status.

Clearing of shrubs or other vegetation or ground disturbance shall be conducted, if possible, during the fall and/or winter months and outside of the avian nesting season (March 15<sup>th</sup> – August 15<sup>th</sup>) for Humboldt County. If vegetation removal or ground disturbance cannot be confined to work outside of the nesting season, a qualified ornithologist shall conduct pre-construction surveys within the vicinity of the Project Area, to check for nesting activity of native birds and to evaluate the site for presence of raptors and special-status bird species. The ornithologist shall conduct a minimum of one day pre-construction survey within the 7-day period prior to vegetation removal and ground-disturbing activities. If ground disturbance and vegetation removal work lapses for seven days or longer during the breeding season, a qualified biologist shall conduct a supplemental avian pre-construction survey before Project work is reinitiated.

If active nests are detected within the construction footprint or within the construction buffer established by the Project biologist, the biologist shall flag a buffer around each nest. Construction activities shall avoid nest sites until the biologist determines that the young have fledged or nesting activity has ceased. If nests are documented outside of the construction (disturbance) footprint, but within construction buffer, nest buffers will be implemented as needed. In general, the buffer size for common species would be determined on a case-by-case basis in consultation with the California Department of Fish and Wildlife (CDFW). Buffer sizes will take into account factors such as (1) noise and human disturbance levels at the construction site at the time of the survey and the noise and disturbance expected during the construction activity; (2) distance and amount of vegetation or other screening between the construction site and the nest; and (3) sensitivity of individual nesting species and behaviors of the nesting birds.

If active nests are detected during the survey, the qualified ornithologist shall monitor all nests at least once per week to determine whether birds are being disturbed. Activities that might, in the opinion of the qualified ornithologist, disturb nesting activities (e.g., excessive noise), shall be prohibited within the buffer zone until such a determination is made. If signs of disturbance or distress are observed, the qualified ornithologist shall immediately implement adaptive measures to reduce disturbance. These measures may include, but are not limited to, increasing buffer size, halting disruptive construction

activities in the vicinity of the nest until fledging is confirmed, placement of visual screens or sound dampening structures between the nest and construction activity, reducing speed limits, replacing and updating noisy equipment, queuing trucks to distribute idling noise, locating vehicle access points and loading and shipping facilities away from noise-sensitive receptors, reducing the number of noisy construction activities occurring simultaneously, and/or reorienting and/or relocating construction equipment to minimize noise at noise-sensitive receptors.

#### **4.3.5 - Compensatory Mitigation**

Compensatory mitigation is not required because no special status animal species were identified within the BSA.

#### **4.3.6 - Cumulative Impacts**

There will be no potential cumulative Project impacts because no special status animal species were identified within the BSA.

## **5.0 – Conclusions and Regulatory Determinations**

### **5.1 - Federal Endangered Species Act Consultation Summary**

No Section 7 Consultation was conducted in preparation for this Project. It was concluded that a Biological Assessment was not necessary, and no effects to Federally Listed Species. The list of Federally Listed Species that may potentially occur in the BSA was from the USFWS *Information for Planning and Consultation* (IPaC) website and included in Table 2.

### **5.2 - Essential Fish Habitat Consultation Summary**

This consultation was not performed because no essential fish habitat occurs within the BSA.

### **5.3 - California Endangered Species Act Consultation Summary**

Consultation with the California Department of Fish and Wildlife has not yet been conducted. Coordination may be required to review avoidance or minimization measures associated with the potential for Project-related impacts on migratory birds that have no other special-status.

### **5.4 - Wetlands and Other Waters Coordination Summary**

A Wetland Delineation was submitted to USACE on January 29, 2019 with a request for a Preliminary Jurisdictional Determination (PJD). The USACE issued the PJD on April 2, 2019. No other consultation has occurred.

### **5.5 - Invasive Species**

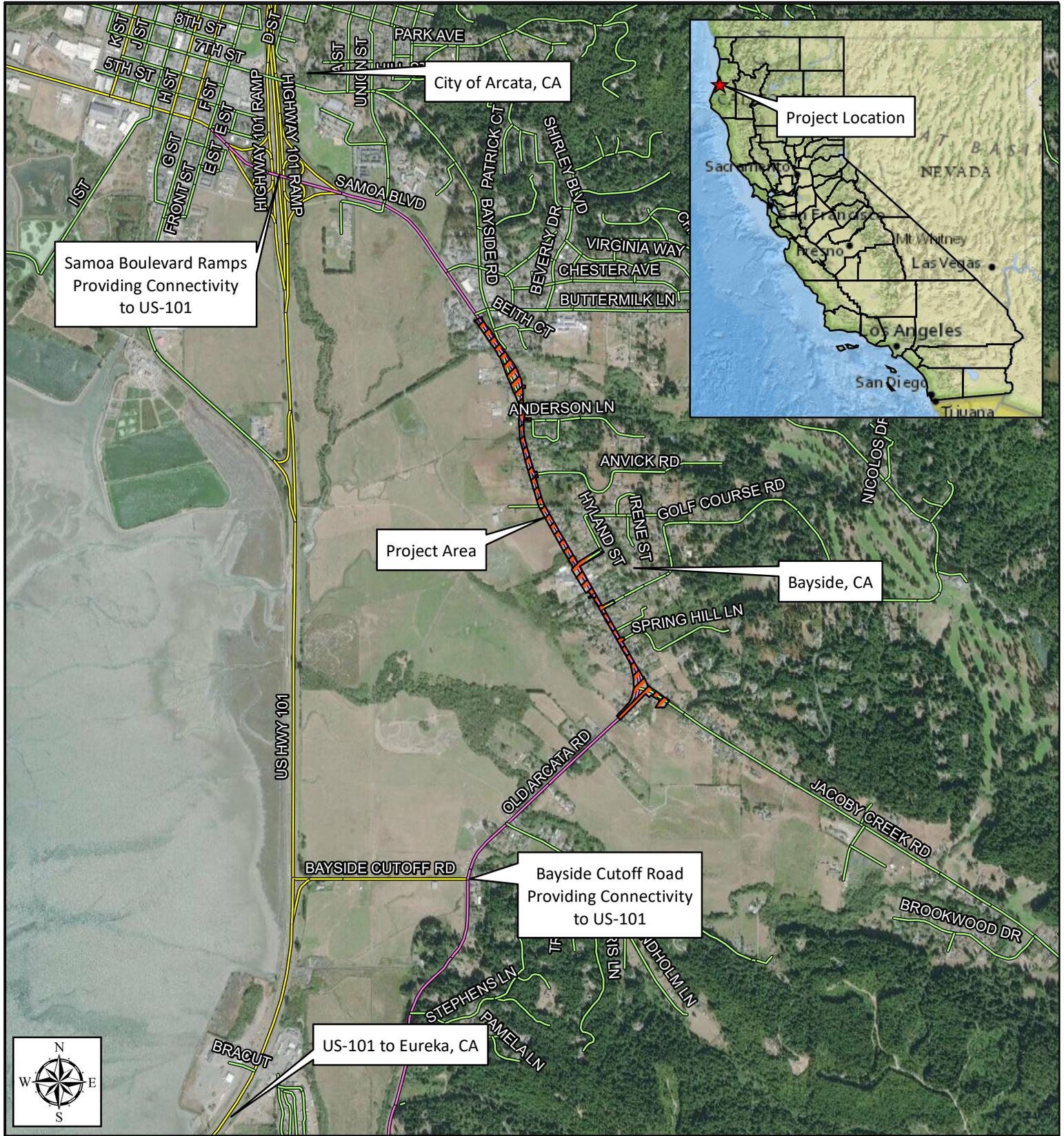
No survey of invasive species within the BSA was conducted in preparation for this Project. However, a number of invasive grass species were identified during the wetland delineation survey, including tall fescue (*Festuca arundinacea* synonym: *Schedonorus arundinaceus*), creeping bent (*Agrostis stolonifera*), and velvet grass (*Holcus lanatus*), all of which are rated as facultative species (GHD 2019a). As stated throughout Section 4.0, the use of BMPs will be implemented to prevent the spread of invasive species.

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## Appendix A – Project Maps



**Legend**

 Biological Study Area

Old Arcata Road Improvements  
Humboldt County, California

**Figure 1**  
**Project Location Map**

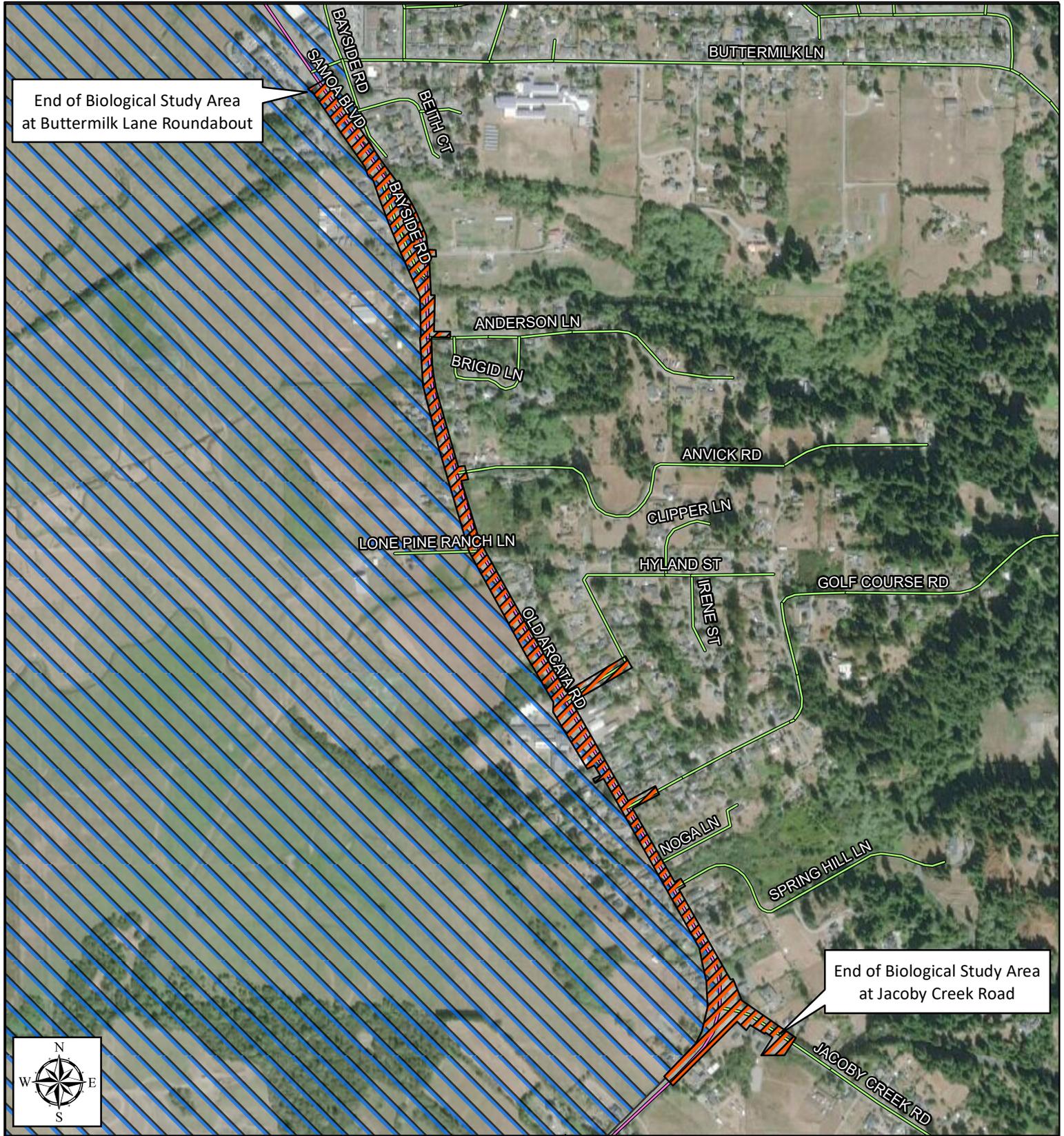


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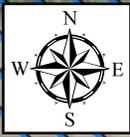
Drawn By: AWB

Checked By: GAV



End of Biological Study Area  
at Buttermilk Lane Roundabout

End of Biological Study Area  
at Jacoby Creek Road



**Legend**

-  Biological Study Area
-  California Coastal Zone

Old Arcata Road Improvements  
Humboldt County, California

**Figure 2**  
**Project Biological**  
**Study Area**

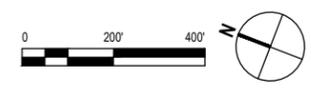


Scale: 1:12,000

Date: 12 Aug 2019

Drawn By: AWB

Checked By: GAV



Bar is one inch on original size sheet  
 0 1"

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Drawn	S. DAVIS	Designer	
Drafting Check	J. WOLF	Design Check	
Project Manager	J. WOLF	Date	JULY 2, 2019
This document shall not be used for construction unless signed and sealed for construction.		Scale	AS SHOWN

Client	CITY OF ARCATA
Project	OLD ARCATA ROAD IMPROVEMENTS
Title	PROJECT COMPONENTS
Project No.	11159130
Original Size	ANSI D

**FIGURE 3**

## **Appendix B – Preliminary Environmental Study**

**DEPARTMENT OF TRANSPORTATION**

DISTRICT 1, P. O. BOX 3700  
EUREKA, CA 95502-3700  
PHONE (707) 445-6410  
FAX (707) 441-2048  
TTY 711



*Making conservation  
a California Way of Life*

December 19, 2018

Netra Khatri  
Department of Public Works  
City of Arcata  
736 F Street  
Arcata, CA 95521

City of Arcata  
RPSTPL 5021(023)

**SUBJECT: Preliminary Environmental Study (PES) form for the Old Arcata Road Rehabilitation and Pedestrian/Bikeway Improvements from the Roundabout at Buttermilk Road to Jacoby Creek.**

Dear Mr. Khatri:

We have reviewed the revisions you submitted to the Preliminary Environmental Study (PES) form for the Old Arcata Road Rehabilitation and Pedestrian/Bikeway Improvements Project.

Based on the information provided with the PES, it appears the following studies will be required prior to NEPA approval:

- Initial Site Assessment (ISA) for Hazardous Waste – This will be sent to Caltrans for approval; if hazardous materials are found within the project limits additional studies may be required.
- Natural Environment Study (NES) – This will be reviewed and approved by a Caltrans biologist. Impacts to wetlands (wetland delineation required) and water quality should be addressed in this document as well. A Wetlands Only Practicable Alternatives Finding will also need to be prepared.
- Visual Memorandum – the VIA checklist score is 14.
- 4(f) - the project is potentially subject to 4(f) due to the following resources within or adjacent to the limits of the proposed project:
  - on the west side of Old Arcata Road, a “city trail” (existing) appears on City Land Use Maps – please indicate how the City considers the existing sidewalk and bicycle lane/shoulder on the west side of Old Arcata Road; indicate whether the primary purpose and use is for recreational purposes or transportation purposes;
  - Jacoby Creek School provides access to recreational fields on the school grounds – please work with the school administrators to determine whether the school yard is used for sport fields to practice and play; provide information about frequency of use for recreational purposes; describe the primary access to the recreational fields – how

do people get to the fields, where do they park;

- historic properties in an historic district;
- recorded cultural sites subject to SHPO consultation;

When the project design is developed in more detail, it will more clearly reveal whether there will be potential impacts to 4(f) resources and will be easier to discern the applicable documentation such as a *de minimis* finding or a temporary. As more details of the project are developed and designed, the need to consider 4(f) resource documentation will be revisited with a clear determination of the process to comply with 4(f).

- Cultural Resources – to be approved by Caltrans archaeologist. State Historic Preservation Officer (SHPO) concurrence will be necessary under Section 106 of the National Historic Preservation Act:
  - Area of Potential Effects (APE) Map – Attached as part of the PES.
  - Archaeological Survey Report (ASR)
  - Historic Property Survey Report (HPSR)
  - Finding of Effect
  - Historic Property Treatment Plan
  - Memorandum of Agreement
  - Depending on the ultimate scale and scope of the project, a Historic Resources Evaluation Report (HRER) may be necessary

Before construction begins, the City will be responsible for obtaining the following permits (if required):

- Coastal Development Permit from City of Arcata
- Regional Water Quality Control Board 401 Water Quality Certification
- US Army Corps of Engineers Section 404 Nationwide Permit

A copy of the permit(s) will need to be sent to Caltrans Local Assistance before construction begins.

If you have any questions regarding this letter, please call me at (707) 441-4566.

Sincerely,



Linda Evans  
Associate Environmental Planner (Retired Annuitant)  
Office of Local Assistance

Attachments

cc: STheiss  
JLarson  
MMueller  
DCardiff  
CUnger

**Rural Non-MPO - Federal Transportation Improvement Program  
(Dollars in Thousands)  
State Highway System**

DIST: 01	PPNO: 2509	EA: 130-0000-3102	CTIPS ID: 130-0000-3102	TITLE (DESCRIPTION): Old Arcata Road Rehabilitation & Pedestrian/Bikeway Improvements (Old Arcata Road/Samoa Blvd from the Buttermilk road Roundabout to Jacoby Creek Road. Rehabilitation and widening /improvement including Class 2 Bike lanes, pedestrian paths, and intersection safety improvements at Jacoby Creek Road. Roundabout / channelization.)	MPO Aprv: 05/04/2018
CT PROJECT ID:		MPO ID.:	State Aprv: 05/04/2018		
COUNTY: Humboldt County	ROUTE:	PM:	Federal Aprv: 05/24/2018		
					EPA TABLE II or III EXEMPT CATEGORY

IMPLEMENTING AGENCY: Arcata, City of  
PROJECT MANAGER: Netra Khatri

PHONE: (707) 825-2173

EMAIL: nkhatr@cityofarcata.org

**PROJECT VERSION HISTORY (Printed Version is Shaded)**

*Dollars in Thousands - Total For Project*

Version	Status	Date	Updated By	Change Reason	Amend No.	Prog Con	Prog RW	PE
1	Official	05/04/2018	MPOGREEN	Amendment - New Project	32	2,613		325

* RIP - Local Roads		PRIOR	16-17	17-18	18-19	19-20	20-21	21-22	BEYOND	TOTAL
* Fund Source 1 of 2	PE					150				150
* Fund Type: STIP Advance Construction	RW									
	CON						2,388			2,388
* Funding Agency: Humboldt County Association of Governments	Total:					150	2,388			2,538

* Local Funds - Locally Generated Funds		PRIOR	16-17	17-18	18-19	19-20	20-21	21-22	BEYOND	TOTAL
* Fund Source 2 of 2	PE				175					175
* Fund Type: Local Transportation Funds - Advance Construction	RW									
	CON						225			225
* Funding Agency: Arcata, City of	Total:				175		225			400

Project Total:		PRIOR	16-17	17-18	18-19	19-20	20-21	21-22	BEYOND	TOTAL
	PE				175	150				325
	RW									
	CON						2,613			2,613
	Total:				175	150	2,613			2,938

**Comments:**

\*\*\*\*\* Version 1 - 04/12/18 \*\*\*\*\*

Project data transferred from 2018 STIP 1. Program new project for PE only Program new project per the CTC Adopted 2018 STIP. -Igreen

**EXHIBIT 6-A PRELIMINARY ENVIRONMENTAL STUDY (PES)**

<b>Federal Project No.:</b> <u>RPSTPL-5021(023)</u> <small>(Federal Program Prefix-Project No., Agreement No.)</small>	<b>Final Design:</b> <u>07/01/2019</u> <small>(Expected Start Date)</small>
---	--

<b>To:</b> <u>Mark E. Mueller</u> <small>(District Local Assistance Engineer)</small> <u>District 1</u> <small>(District)</small> <u>P.O. Box 3700, Eureka, CA 95502</u> <small>(Address)</small> <u>mark.mueller@dot.ca.gov</u> <small>(Email Address)</small>	<b>From:</b> <u>City of Arcata</u> <small>(Local Agency)</small> <u>Netra Khatri, PE 707-825-2173</u> <small>(Project Manager's Name and Telephone No.)</small> <u>525 9th Street, Arcata, CA 95521</u> <small>(Address)</small> <u>nkhatr@cityofarcata.org</u> <small>(Email Address)</small>
--	---

**Is this Project "ON" the State Highway System?**     Yes     No    **IF YES, STOP HERE** and contact the District Local Assistance Engineer regarding the completion of other environmental documentation.

<b>Federal State Transportation Improvement Program (FSTIP)</b>	<u>2017</u> <small>(Currently Adopted Plan Date)</small>	<u>attached</u> <small>(Page No. ___ attach to this form)</small>
<a href="http://www.dot.ca.gov/hq/transprog/oftmp.htm">http://www.dot.ca.gov/hq/transprog/oftmp.htm</a>		

Programming for FSTIP:	Preliminary Engineering	Right of Way	Construction
<u>19/20</u> <small>(Fiscal Year)</small>	<u>\$ 150</u> <small>(Dollars)</small>	<u>--</u> <small>(Fiscal Year)</small>	<u>20-21</u> <small>(Fiscal Year)</small>
	<u>\$ 0</u> <small>(Dollars)</small>		<u>\$ 2,388</u> <small>(Dollars)</small>

**Project Description as Shown in RTP and FSTIP:**

Old Arcata Road Rehabilitation & Pedestrian/Bikeway Improvements

**Detailed Project Description:** *(Describe the following, as applicable: purpose and need, project location and limits, required right of way acquisition, proposed facilities, staging areas, disposal and borrow sites, construction activities, and construction access.)*

Old Arcata Road Rehabilitation & Pedestrian/Bikeway Improvements (Old Arcata Road/Samoa Blvd from the Buttermilk road Roundabout to Jacoby Creek Road. Rehabilitation and widening /improvement including Class 2 Bike lanes, pedestrian paths, and intersection safety improvements at Jacoby Creek Road. Roundabout / channelization.).  
(Continue description on "Notes" sheet, last page of this Exhibit, if necessary)

**Preliminary Design Information:**

Does the project involve any of the following? Please check the appropriate boxes and delineate on an attached map, plan, or layout including any additional pertinent information.

Yes	No	Yes	No	Yes	No
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

**Required Attachments:**

- Regional map                       Project location map                       Project footprint map (existing/proposed right of way)
- Engineering drawings (existing and proposed cross sections), if available    Borrow/disposal site location map, if applicable  
*(Note: all maps (except project location map and regional maps) should be consistent with the project description (minimum scale: 1" = 200').)*
- GeoTracker Printout for Hazardous Materials (<http://geotracker.waterboards.ca.gov/>).
- Federal Threatened and Endangered Species List from USFWS (<http://ecos.fws.gov/ipac/>).
- Federal Threatened and Endangered Species List from NMFS ([http://www.westcoast.fisheries.noaa.gov/maps/data/california species listtools.html](http://www.westcoast.fisheries.noaa.gov/maps/data/california_species_listtools.html)).
- Current Photos of Project Site    FEMA map    VIA Questionnaire

**Examine the project for potential effects on the environment, direct or indirect and answer the following questions. The "construction area," as specified below, includes all areas of ground disturbance associated with the project, including staging and stockpiling areas and temporary access roads.**

**Each answer must be briefly documented on the "Notes" pages at the end of the PES Form.**

A. Potential Environmental Effects	Yes	To Be Determined	No
<b>General</b>			
1. Will the project require future construction to fully utilize the design capabilities included in the proposed project?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
2. Will the project generate public controversy?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
<b>Noise</b>			
3. Is the project a Type I project as defined in 23 CFR 772.5(h); "construction on new location or the physical alteration of an existing highway, which significantly changes either the horizontal or vertical alignment or increases the number of through-traffic lanes"?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
4. Does the project have the potential for adverse construction-related noise impact (such as related to pile driving)?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
<b>Air Quality</b>			
5. Is the project in a NAAQS non-attainment or maintenance area?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
6. Is the project exempt from the requirement that a conformity determination be made? (If "Yes," state which conformity exemption in 40 CFR 93.126, Table 2 applies): <u>Safet</u>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7. Is the project exempt from regional conformity? (If "Yes," state which conformity exemption in 40 CFR 93.127, Table 3 applies): _____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
8. If project is not exempt from regional conformity, (If "No" on Question #7)			
Is project in a metropolitan non-attainment/maintenance area?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Is project in an isolated rural non-attainment area?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Is project in a CO, PM10 and/or PM2.5 non-attainment/maintenance area?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>Hazardous Materials/Hazardous Waste</b>			
9. Is there potential for hazardous materials (including underground or aboveground tanks, etc.) or hazardous waste (including oil/water separators, waste oil, asbestos-containing material, lead-based paint, ADL, etc.) within or immediately adjacent to the construction area?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
<b>Water Quality/Resources</b>			
10. Does the project have the potential to impact water resources (rivers, streams, bays, inlets, lakes, drainage sloughs) within or immediately adjacent to the project area?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
11. Is the project within a designated sole-source aquifer?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

**Coastal Zone**

12. Is the project within the State Coastal Zone, San Francisco Bay, or Suisun Marsh?

**Floodplain**

13. Is the construction area located within a regulatory floodway or within the base floodplain (100-year elevation of a watercourse or lake)?

**Wild and Scenic Rivers**

14. Is the project within or immediately adjacent to a Wild and Scenic River System?

**Biological Resources**

15. Is there a potential for federally listed threatened or endangered species, or their critical habitat or essential fish habitat to occur within or adjacent to the construction area?

16. Does the project have the potential to directly or indirectly affect migratory birds, or their nests or eggs (such as vegetation removal, box culvert replacement/repair, bridge work, etc.)?

17. Is there a potential for wetlands to occur within or adjacent to the construction area?

18. Is there a potential for agricultural wetlands to occur within or adjacent to the construction area?

19. Is there a potential for the introduction or spread of invasive plant species?

**Sections 4(f) and 6(f)**

20. Are there any historic sites or publicly owned public parks, recreation areas, wildlife or waterfowl refuges (Section 4[f]) within or immediately adjacent to the construction area?

21. Does the project have the potential to affect properties acquired or improved with Land and Water Conservation Fund Act (Section 6[f]) funds?

**Visual Resources**

22. Does the project have the potential to affect any visual or scenic resources?

**Relocation Impacts**

23. Will the project require the relocation of residential or business properties?

**Land Use, Community, and Farmland Impacts**

24. Will the project require any right of way, including partial or full takes? Consider construction easements and utility relocations.

25. Is the project inconsistent with plans and goals adopted by the community?

26. Does the project have the potential to divide or disrupt neighborhoods/communities?

27. Does the project have the potential to disproportionately affect low-income and minority populations?

28. Will the project require the relocation of public utilities?

29. Will the project affect access to properties or roadways?

30. Will the project involve changes in access control to the State Highway System (SHS)?

31. Will the project involve the use of a temporary road, detour, or ramp closure?

32. Will the project reduce available parking?

33. Will the project construction encroach on state or federal lands?

34. Will the project convert any farmland to a different use or impact any farmlands?

**Cultural Resources**

35. Is there National Register listed, or potentially eligible historic properties, or archaeological resources within or immediately adjacent to the construction area?  
(Note: Caltrans PQS answers question #35 )

36. Is the project adjacent to, or would it encroach on Tribal land?

For Sections B, C, and D, check appropriate box to indicate required technical studies, coordination, permits, or approvals.

B. Required Technical Studies and Analyses	C. Coordination	D. Anticipated Actions/Permits/Approvals
<input checked="" type="checkbox"/> <b>Traffic</b> <i>Check one:</i> <input type="checkbox"/> Traffic Study <input type="checkbox"/> Technical Memorandum <input checked="" type="checkbox"/> Discussion in ED Only	<input type="checkbox"/> Caltrans <input type="checkbox"/> Caltrans <input checked="" type="checkbox"/> Caltrans	<input type="checkbox"/> Approval <input type="checkbox"/> Approval <input checked="" type="checkbox"/> Approval
<input checked="" type="checkbox"/> <b>Noise</b> <i>Check as applicable:</i> <input type="checkbox"/> Traffic Related <input checked="" type="checkbox"/> Construction Related  <i>Check one:</i> <input type="checkbox"/> Noise Study Report <input type="checkbox"/> NADR <input type="checkbox"/> Technical Memorandum <input checked="" type="checkbox"/> Discussion in ED Only	<input type="checkbox"/> Caltrans <input type="checkbox"/> Caltrans <input type="checkbox"/> Caltrans <input checked="" type="checkbox"/> Caltrans	<input type="checkbox"/> Approval <input type="checkbox"/> Approval <input type="checkbox"/> Approval <input checked="" type="checkbox"/> Approval
<input type="checkbox"/> <b>Air Quality</b> <i>Check as applicable:</i> <input type="checkbox"/> Traffic Related <input type="checkbox"/> Construction Related <i>Check one:</i> <input type="checkbox"/> Air Quality Report <input type="checkbox"/> Technical Memorandum <input type="checkbox"/> Discussion in ED Only	<input type="checkbox"/> Caltrans <input type="checkbox"/> Caltrans <input type="checkbox"/> Caltrans <input type="checkbox"/> FHWA <input type="checkbox"/> Caltrans <input type="checkbox"/> Regional Agency	<input type="checkbox"/> Approval <input type="checkbox"/> Approval <input type="checkbox"/> Approval <input type="checkbox"/> Conformity Finding (23 USC 327 CE, EAs, EISs) <input type="checkbox"/> Conformity Finding ( 23 USC 326 CE) <input type="checkbox"/> PM10/PM2.5 Interagency Consultation
<input checked="" type="checkbox"/> <b>Hazardous Materials/ Hazardous Waste</b> <i>Check as applicable:</i> <input checked="" type="checkbox"/> Initial Site Assessment (Phase 1) <input type="checkbox"/> Preliminary Site Assessment (Phase 2) <input type="checkbox"/> Discussion in ED Only	<input checked="" type="checkbox"/> Caltrans <input type="checkbox"/> Caltrans <input type="checkbox"/> Caltrans <input type="checkbox"/> Cal EPA DTSC <input type="checkbox"/> Local Agency	<input checked="" type="checkbox"/> Approval <input type="checkbox"/> Approval <input type="checkbox"/> Approval <input type="checkbox"/> Review Database <input type="checkbox"/> Review Database
<input checked="" type="checkbox"/> <b>Water Quality/Resources</b> <i>Check as applicable:</i> <input type="checkbox"/> Water Quality Assess. Report <input type="checkbox"/> Technical Memorandum <input checked="" type="checkbox"/> Discussion in ED Only	<input type="checkbox"/> Caltrans <input type="checkbox"/> Caltrans <input checked="" type="checkbox"/> Caltrans	<input type="checkbox"/> Approval <input type="checkbox"/> Approval <input checked="" type="checkbox"/> Approval
<input type="checkbox"/> <b>Sole-Source Aquifer (Districts 5, 6 and 11)</b>	<input type="checkbox"/> EPA (S.F. Regional Office)	<input type="checkbox"/> Approval of Analysis in ED
<input checked="" type="checkbox"/> <b>Coastal Zone</b>	<input type="checkbox"/> CCC <input checked="" type="checkbox"/> City of Arcata <input type="checkbox"/> County of Humboldt	<input type="checkbox"/> Coastal Zone Consistency Determination

B. Required Technical Studies and Analyses	C. Coordination	D. Anticipated Actions/Permits/Approvals
<input type="checkbox"/> <b>Floodplain</b>		
<i>Check as applicable:</i>		
<input type="checkbox"/> Location Hydraulic Study	<input type="checkbox"/> Caltrans	<input type="checkbox"/> Approval
<input type="checkbox"/> Floodplain Evaluation Report	<input type="checkbox"/> Caltrans	<input type="checkbox"/> Approval
<input type="checkbox"/> Summary Floodplain Encroachment Report	<input type="checkbox"/> Caltrans	<input type="checkbox"/> Approval
	<input type="checkbox"/> Caltrans	<input type="checkbox"/> Only Practicable Alternative Finding
	<input type="checkbox"/> FHWA	<input type="checkbox"/> Approves significant encroachments and concurs in Only Practicable Alternative Findings
<input type="checkbox"/> <b>Wild and Scenic Rivers</b>	<input type="checkbox"/> River Managing Agency	<input type="checkbox"/> Wild and Scenic Rivers Determination
<input checked="" type="checkbox"/> <b>Biological Resources</b>		
<i>Check as applicable:</i>		
<input type="checkbox"/> NES, Minimal Impact	<input checked="" type="checkbox"/> Caltrans	<input checked="" type="checkbox"/> Approval
<input checked="" type="checkbox"/> NES		
<input type="checkbox"/> BA	<input type="checkbox"/> Caltrans	<input type="checkbox"/> Approves for Consultation
	<input type="checkbox"/> USFWS	<input type="checkbox"/> Section 7 Informal/Formal Consultation
	<input type="checkbox"/> NOAA Fisheries	
<input type="checkbox"/> EFH Evaluation	<input type="checkbox"/> NOAA Fisheries	<input type="checkbox"/> MSA Consultation
<input type="checkbox"/> Bio-Acoustic Evaluation	<input type="checkbox"/> NOAA Fisheries	<input type="checkbox"/> Approval
<input type="checkbox"/> Technical Memorandum	<input type="checkbox"/> Caltrans	<input type="checkbox"/> Approval
<input checked="" type="checkbox"/> <b>Wetlands</b>		
<i>Check as applicable:</i>		
<input checked="" type="checkbox"/> WD and Assessment	<input checked="" type="checkbox"/> Caltrans	<input checked="" type="checkbox"/> Approval
	<input checked="" type="checkbox"/> ACOE	<input checked="" type="checkbox"/> Wetland Verification
	<input type="checkbox"/> NRCS	<input type="checkbox"/> Agricultural Wetland Verification
	<input type="checkbox"/> Caltrans	<input type="checkbox"/> Wetlands Only Practicable Alternative Finding
<input checked="" type="checkbox"/> <b>Invasive Plants</b>		
<input checked="" type="checkbox"/> Discussion in ED Only	<input checked="" type="checkbox"/> Caltrans	<input checked="" type="checkbox"/> Approval
<input checked="" type="checkbox"/> <b>Section 4(f)</b>		
<i>Check as applicable:</i>		
	<input checked="" type="checkbox"/> Caltrans	<input checked="" type="checkbox"/> Determine Temporary Occupancy
<input checked="" type="checkbox"/> De minimis	<input checked="" type="checkbox"/> Caltrans	<input checked="" type="checkbox"/> De minimis finding
<input type="checkbox"/> Programmatic 4(f) Evaluation Type: _____	<input type="checkbox"/> Caltrans	<input type="checkbox"/> Approval
<input type="checkbox"/> Individual 4(f) Evaluation	<input type="checkbox"/> Caltrans	<input type="checkbox"/> Approval
	<input type="checkbox"/> Agency with Jurisdiction	
	<input type="checkbox"/> SHPO	
	<input type="checkbox"/> DOI	
	<input type="checkbox"/> HUD	
	<input type="checkbox"/> USDA	

B. Required Technical Studies and Analyses	C. Coordination	D. Anticipated Actions/Permits/Approvals
<input type="checkbox"/> <b>Section 6(f)</b>	<input type="checkbox"/> Agency with Jurisdiction <input type="checkbox"/> NPS	<input type="checkbox"/> Determines Consistency with Long-Term Management Plan
	<input type="checkbox"/> NPS	<input type="checkbox"/> Approves Conversion
<input checked="" type="checkbox"/> <b>Visual Resources</b>		
<input checked="" type="checkbox"/> Technical Memorandum	<input checked="" type="checkbox"/> Caltrans	<input checked="" type="checkbox"/> Approval
<input type="checkbox"/> Minor VIA	<input type="checkbox"/> Caltrans	<input type="checkbox"/> Approval
<input type="checkbox"/> Moderate VIA	<input type="checkbox"/> Caltrans	<input type="checkbox"/> Approval
<input type="checkbox"/> Advance/Complex VIA	<input type="checkbox"/> Caltrans	<input type="checkbox"/> Approval
<input type="checkbox"/> <b>Relocation Impacts</b>		
<i>Check one:</i>		
<input type="checkbox"/> Relocation Impact Memo	<input type="checkbox"/> Caltrans	<input type="checkbox"/> Approval
<input type="checkbox"/> Relocation Impact Study	<input type="checkbox"/> Caltrans	<input type="checkbox"/> Approval
<input type="checkbox"/> Relocation Impact Report	<input type="checkbox"/> Caltrans	<input type="checkbox"/> Approval
<input type="checkbox"/> <b>Land Use and Community Impacts</b>		
<i>Check one:</i>		
<input type="checkbox"/> CIA	<input type="checkbox"/> Caltrans	<input type="checkbox"/> Approval
<input type="checkbox"/> Technical Memorandum	<input type="checkbox"/> Caltrans	<input type="checkbox"/> Approval
<input type="checkbox"/> Discussion in ED Only	<input type="checkbox"/> Caltrans	<input type="checkbox"/> Approval
<input type="checkbox"/> <b>Construction/Encroachment on State Lands</b>		
<i>Check as applicable:</i>		
<input type="checkbox"/> SLC Jurisdiction	<input type="checkbox"/> SLC	<input type="checkbox"/> SLC Lease
<input type="checkbox"/> Caltrans Jurisdiction	<input type="checkbox"/> Caltrans	<input type="checkbox"/> Encroachment Permit
<input type="checkbox"/> SP Jurisdiction	<input type="checkbox"/> SP	<input type="checkbox"/> Encroachment Permit
<input type="checkbox"/> <b>Construction/Encroachment on Federal Lands</b>		
	<input type="checkbox"/> Federal Agency with Jurisdiction	<input type="checkbox"/> Encroachment Permit
<input type="checkbox"/> <b>Construction/Encroachment On Indian Trust Lands</b>	<input type="checkbox"/> Bureau of Indian Affairs	<input type="checkbox"/> Right of Way Permit
<input type="checkbox"/> <b>Farmlands</b>		
<i>Check one:</i>		
<input type="checkbox"/> CIA	<input type="checkbox"/> Caltrans	<input type="checkbox"/> Approval
<input type="checkbox"/> Technical Memorandum	<input type="checkbox"/> Caltrans	<input type="checkbox"/> Approval
<input type="checkbox"/> Discussion in ED Only	<input type="checkbox"/> Caltrans	<input type="checkbox"/> Approval
<i>Check as applicable:</i>		
<input type="checkbox"/> Form AD 1006	<input type="checkbox"/> NRCS	<input type="checkbox"/> Approves Conversion
	<input type="checkbox"/> CDOC	<input type="checkbox"/> Approves Conversion
<input type="checkbox"/> Conversion to Non-Agri Use	<input type="checkbox"/> ACOE	

B. Required Technical Studies and Analyses	C. Coordination	D. Anticipated Actions/Permits/ Approvals
<input checked="" type="checkbox"/> <b>Cultural Resources</b> (PQS completes this section)		
	<input type="checkbox"/> Caltrans PQS	<input type="checkbox"/> Screened Undertaking
<input checked="" type="checkbox"/> APE Map	<input checked="" type="checkbox"/> Caltrans PQS and DLAE	<input checked="" type="checkbox"/> Approves APE Map
<input checked="" type="checkbox"/> HPSR <input checked="" type="checkbox"/> ASR <input checked="" type="checkbox"/> HRER	<input checked="" type="checkbox"/> Local Preservation Groups and/or Native American Tribes  <input checked="" type="checkbox"/> Caltrans	<input checked="" type="checkbox"/> Provides Comments Regarding Concerns with Project  <input checked="" type="checkbox"/> Approves for Consultation
<input checked="" type="checkbox"/> Finding of Effect Report	<input checked="" type="checkbox"/> Caltrans	<input type="checkbox"/> Concurs on No Effect, No Adverse Effect with Standard Conditions
	<input checked="" type="checkbox"/> SHPO	<input checked="" type="checkbox"/> Letter of Concurrence on Eligibility, No Adverse Effect without Standard
<input checked="" type="checkbox"/> MOA	<input checked="" type="checkbox"/> Caltrans <input checked="" type="checkbox"/> SHPO <input type="checkbox"/> ACHP (if requested)	<input checked="" type="checkbox"/> Approves MOA <input checked="" type="checkbox"/> Approves MOA <input type="checkbox"/> Approves MOA
<input checked="" type="checkbox"/> <b>Permits</b> Copies of permits and a list of mitigation commitments are mandatory submittals following NEPA approval.	<input checked="" type="checkbox"/> ACOE <input type="checkbox"/> ACOE <input type="checkbox"/> Caltrans/ACOE/EPA <input type="checkbox"/> USFWS <input type="checkbox"/> NOAA Fisheries <input type="checkbox"/> ACOE <input type="checkbox"/> USCG <input checked="" type="checkbox"/> RWQCB <input type="checkbox"/> CDFW <input type="checkbox"/> RWQCB <input type="checkbox"/> CCC <input checked="" type="checkbox"/> Local Agency <input type="checkbox"/> BCDC	<input checked="" type="checkbox"/> Section 404 Nationwide Permit <input type="checkbox"/> Section 404 Individual Permit <input type="checkbox"/> NEPA/404 Integration MOU <input type="checkbox"/> Rivers and Harbors Act Section 10 Permit <input type="checkbox"/> USCG Bridge Permit <input checked="" type="checkbox"/> Section 401 Water Quality Certification <input type="checkbox"/> Section 1602 Streambed Alteration Agreement <input type="checkbox"/> NPDES Permit <input checked="" type="checkbox"/> Coastal Zone Permit <input type="checkbox"/> BCDC Permit

**Notes:** Additional studies may be required for other federal agencies.

ACHP	=	Advisory Council on Historic Preservation	HRER	=	Historical Resources Evaluation Report
ACOE	=	U.S. Army Corps of Engineers	HUD	=	U.S. Housing and Urban Development
ADL	=	Aerially Deposited Lead	MOA	=	Memorandum of Agreement
APE	=	Area of Potential Effect	MSA	=	Magnuson-Stevens Fishery Conservation and Management Act
APN	=	Assessor Parcel Number	NEPA	=	National Environmental Policy Act
ASR	=	Archaeological Survey Report	NADR	=	Noise Abatement Decision Report
BA	=	Biological Assessment	NES	=	Natural Environment Study
BCDC	=	Bay Conservation and Development Commission	NHPA	=	National Historic Preservation Act
BE	=	Biological Evaluation	NOAA	=	National Oceanic and Atmospheric Administration
BO	=	Biological Opinion	NMFS	=	National Marine Fisheries Service
Cal EPA	=	California Environmental Protection Agency	NPDES	=	National Pollutant Discharge Elimination System
CCC	=	California Coastal Commission	NPS	=	National Park Service
CDFW	=	California Department of Fish and Wildlife	NRCS	=	Natural Resources Conservation Service
CDOC	=	California Department of Conservation	PM10	=	Particulate Matter 10 Microns in Diameter or Less
CE	=	Categorical Exclusion	PM2.5	=	Particulate Matter 2.5 Microns in Diameter or Less
CIA	=	Community Impact Assessment	PMP	=	Project Management Plan
CWA	=	Clean Water Act	PQS	=	Professionally Qualified Staff
DLAE	=	District Local Assistance Engineer	ROD	=	Record of Decision
DOI	=	U.S. Department of Interior	RTIP	=	Regional Transportation Improvement Program
DTSC	=	Department of Toxic Substances Control	RTP	=	Regional Transportation Plan
EA	=	Environmental Assessment	RWQCB	=	Regional Water Quality Control Board
ED	=	Environmental Document	SER	=	Standard Environmental Reference
EFH	=	Essential Fish Habitat	SEP	=	Senior Environmental Planner
EIS	=	Environmental Impact Statement	SHPO	=	State Historic Preservation Officer
EPA	=	U.S. Environmental Protection Agency	SLC	=	State Lands Commission
FEMA	=	Federal Emergency Management Agency	SP	=	State Parks
FHWA	=	Federal Highway Administration	TIP	=	Transportation Improvement Program
FONSI	=	Finding of No Significant Impacted	USCG	=	U.S. Coast Guard
FTIP	=	Federal Transportation Improvement Program	USDA	=	U.S. Department of Agriculture
HPSR	=	Historic Property Survey Report	USFWS	=	U.S. Fish and Wildlife Service
			WD	=	Wetland Delineation

**E. Preliminary Environmental Document Classification (NEPA)**

Based on the evaluation of the project, the environmental document to be developed should be:

Check one:

- Environmental Impact Statement (*Note: Engagement with participating agencies in accordance with 23 USC 139 required*)
  - Compliance with 23 USC 139 regarding Participating Agencies required
- Complex Environmental Assessment
- Routine Environmental Assessment
- Categorical Exclusion without required technical studies.
- Categorical Exclusion with required technical studies

(if Categorical Exclusion is selected, check one of the following):

- Section 23 USC 326
  - 23 CFR 771 activity (c)(3)
  - 23 CFR 771 activity (d) ( )
  - Activity \_\_\_\_\_ listed in the Section 23 USC 326
- Section 23 USC 327

**F. Public Availability and Public Hearing**

Check as applicable:

- Not Required
- Notice of Availability of Environmental Document
- Public Meeting
- Notice of Opportunity for a Public Hearing
- Public Hearing Required

**G. Signatures**

**Local Agency Staff and/or Consultant Signature**

  
 \_\_\_\_\_  
 (Signature of Preparer)

\_\_\_\_\_  
 (Date)

\_\_\_\_\_  
 (Telephone No.)

Josh Wolf  
 \_\_\_\_\_  
 (Name)

**Local Agency Project Engineer Signature**

This document was prepared under my supervision, according to the *Local Assistance Procedures Manual*, Exhibit 6-B, "Instructions for Completing the Preliminary Environmental Study Form."

  
 \_\_\_\_\_  
 (Signature of Local Agency)

\_\_\_\_\_  
 (Date)

\_\_\_\_\_  
 (Telephone No.)

**Caltrans District Professionally Qualified Staff (PQS) Signature**

- Project does not meet definition of an "undertaking"; no further review is necessary under Section 106 ("No" Section A, #35).
- Project is limited to the type of activity listed in Attachment 2 of the Section 106 PA and based on the information provided in the PES Form, the project does not have the potential to affect historic properties ("No" Section A, #35).
- Project is limited to the type of activity listed in Attachment 2 of the Section 106 PA, but the following additional procedures or information is needed to determine the potential for effect ("To Be Determined" Section A, #35):
  - Records Search     ASR     HPSR     FOE X MOA
- Project meets the definition of an "undertaking"; all properties in the project area are exempt from evaluation per Attachment 4 of the Section 106 PA ("No" Section A, #35).
- The proposed undertaking is considered to have the potential to affect historic properties; further studies for 106 compliance are indicated in Sections B, C, and D of this PES Form ("Yes" Section A, #35).

*Daniel Luff*

(Signature of Professionally Qualified Staff)

08/31/2018

(Date)

707-445-5335

(Telephone No.)

The following signatures are required for all CEs, routine and complex EAs, and EISs:

**Caltrans District Senior Environmental Planner (or Designee) and DLAE Signatures**

I have reviewed this Preliminary Environmental Study (PES) Form and determined that the submittal is complete and sufficient. I concur with the studies to be performed and the recommended NEPA Class of Action.

*Jenna Larson*

(Signature of Senior Environmental Planner or Designee) Acting

12/19/18

(Date)

707-445-6410

(Telephone No.)

Jenna Larson

(Name)

*Suzanne Thaiss*

(Signature of District Local Assistance Engineer or Designee)

12/20/18

(Date)

707/445-6399

(Telephone No.)

Suzanne Thaiss

(Name)

HQ DEA Environmental Coordinator concurrence \_\_\_\_\_ . Email concurrence attached.  
(date)

**Preliminary Environmental Investigation**  
**Notes to Support the Conclusions of the PES Form**  
**(May Also Include Continuation of Detailed Project Description)**

**Brief Explanation of How Project Complies, or Will Comply with Applicable Federal Mandate (Part A):**

1. The project will be implemented in one construction season, and will not require future construction to fully utilize the design capabilities included in the proposed project.
2. It is unlikely that the project will generate public controversy, as the project will improve road conditions and safety for motorists, pedestrians and bicyclists. Substantial public outreach has already occurred for the project.
3. The project is not a Type I project as defined in 23 CFR 772.5(h) because it does not contain any of the eight components representative of a Type I project.
4. The project will involve some construction-related noise, however the volume and amplitude of noise impacts is uncertain at this point due to pending design finalization. The construction-related noise is not anticipated to be
5. The project is not in an National Ambient Air Quality Standards (NAAQS) non-attainment or maintenance area. However, the project is located in a non-attainment area for PM10 by State Ambient Air Quality Standards.
6. The project is exempt from the requirement that a conformity determination be made due to the Safety exemption within 40 CFR 93.126, Table 2, specifically: Projects that correct, improve or eliminate a hazardous location or
7. The project may be exempt from regional conformity and requires further assistance from CalTrans to make the determination. The roundabout feature at the south end of the project area may trigger the exemption.
8. The project is not in a metropolitan area; the project is located in a rural area that is in attainment by NAAQS standards, however is in non-attainment for PM 10 by State Ambient Air Quality Standards (SAAQS).
9. The project area may contain hazardous materials or hazardous waste within or immediately adjacent to the construction area. A preliminary investigation utilizing the GeoTracker database yields three records of hazardous
10. The project has the potential to impact water resources adjacent to the project area, however construction BMPs will be implemented to avoid impacts to water resources.
11. The project is not within a designated sole-source aquifer.
12. The project is within the CA Coastal Zone.
13. According to FEMA's Flood Insurance Rate Map, the project is not located within a floodway or 100-year floodplain.
14. The project is not within or adjacent to a Wild and Scenic River System.
15. It is not anticipated that the project will contain any habitat for federally listed threatened or endangered species, however creeks that are potential habitat for federally threatened Coho salmon juxtapose the project.
16. The project has the potential to directly or indirectly affect migratory birds or their nests due to vegetation modifications associated with the project.
17. There is potential for wetlands to occur within or adjacent to the construction area.
18. There is potential for agricultural wetlands to occur within or adjacent to the construction area.
19. There is potential for the introduction or spread of invasive plant species, especially Himalayan blackberry.

20. Caltrans District 1 Local Assistance will be consulted to determine the applicability of a de minimis technical finding. Potential historic or archaeological sites may exist in the project site area; further investigations are necessary. A
21. The project will not affect properties acquired or improved with Land and Water Conservation Fund Act funds because there are no projects funded through the Land and Water Conservation Act in the Project vicinity.
22. The project may affect visual or scenic resources.
23. The project will not relocate any residential or business properties.
24. The project may require right of way, partial takes or temporary construction easements. Further investigation and finalization of project designs are necessary.
25. The project is not inconsistent with plans and goals adopted by the community. The project is consistent with goals listed in the Humboldt County General Plan Circulation Element: C-G1: Circulation System Safety and Functionality;
26. The project does not have the potential to divide or disrupt neighborhoods or communities because no significant changes to the current road is expected to take place.
27. The project will not disproportionately affect low-income and minority populations, as this project is an improvement to current road conditions and pedestrian transportation opportunities for all community members.
28. The project may require the relocation of public utilities.
29. The project may affect access to properties or roadways.
30. The project does not involve a state highway and therefore will not affect access control to the State Highway System (SHS).
31. The project will not involve the use of a temporary road, detour, or ramp closure.
32. The project may reduce available parking although further design and analysis is required.
33. The project construction will not encroach on state or federal lands.
34. The project will not convert any farmland to different uses, nor will the project impact any farmlands.
35. Caltrans to answer.
36. The project is not adjacent to or would encroach on Tribal land.

Continuation of Detailed Project Description:

The Old Arcata Road Improvements project (project) will improve the roadway, make the corridor pedestrian and bicyclist friendly and construct a roundabout that will aid in traffic flow. The City of Arcata Engineering Department has completed the preliminary design for the project which will rehabilitate a portion of Old Arcata Rd, widen Class 2 bike lanes, improve pedestrian paths, and add a traffic calming feature at the Jacoby Creek Road intersection. There is a need for improvements along Old Arcata Road to promote pedestrian, bicyclist, and motorist safety. Currently the road experiences motorists traveling at high speeds and provides limited pedestrian/bicycle facilities. The road condition varies throughout the project area but a large amount scored "poor" for pavement condition index (PCI) (NCE, 2017). The project includes approximately 6,000 feet of Old Arcata Road. from the Buttermilk Road roundabout to Jacoby Creek Road. The project also includes widening and improvements to Class 2 bike lanes, improvement of pedestrian paths, and intersection safety improvements at Jacoby Creek Road through the implementation of a roundabout or channelization work. Right of way acquisition may be necessary to accommodate the roundabout at Jacoby Creek Road; no other right of way acquisitions are anticipated for the project. Staging area locations for project-related equipment and materials is to be determined, however it is anticipated that a portion of land owned by the City of Arcata along Old Arcata Road will be designated as the staging area. Fill sourced from the project may be utilized in other City of Arcata projects, and conversely any fill required for the project may be sourced from other City projects taking place concurrently. Construction activities include removal or milling of failed asphalt sections of road, excavation and grading, treating and compacting base fill material, installing new asphalt and/or concrete pavements and surfacing roadways, painting road markings, signage, and final stabilization.

# **Appendix C – DRAFT Special Status Plant Survey and ESHA Evaluation**



# Memorandum

October 8, 2018

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To: City of Arcata Ref. No.: 11159130

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From: Amy Livingston, GHD Botanist Tel: 707-443-8326

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cc: Josh Wolf (GHD Project Manager)

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**Subject: DRAFT Special Status Plant Survey and ESHA Evaluation for the Old Arcata Road Improvement Project**

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## 1 Introduction

This Technical Memorandum reports results of the 2018 special status plant surveys and screening for Environmentally Sensitive Habitat Areas (ESHA) in the area of the Old Arcata Road Improvement Project in Humboldt County, CA (Figure 1, Attachment 1). The area covered by the surveys is presented in Figures 2:1-5, Attachment 1. The special status plant surveys and screening for Environmentally Sensitive Habitat Areas (ESHA) were performed by GHD botanist Amy Livingston on behalf of the City of Arcata. Special status plant surveys were performed on June 18 and July 31, 2018. Vegetation mapping to screen for Environmentally Sensitive Habitat Areas (ESHA) was performed by Amy Livingston on August 31, 2018 and on September 20, 2018 concurrent with fieldwork for the wetland delineation.

### 1.1 Purpose

The purpose of this evaluation was to conduct seasonally appropriate surveys for state, federal, and other sensitive listed plant species in the proposed project area as well to assess the potential for upland Environmentally Sensitive Habitat Areas (ESHA) to conform with the Coastal Act, and Humboldt County and the City of Arcata's Local Coastal Programs. The surveys were conducted within the Project Study Boundary (PSB), as shown on Figures 2:1-5. The special status plant surveys attempted to identify all vascular plants within the study area to the taxonomic level necessary to determine rarity and listing status, and to document the presence of special status plants within the project footprint, immediately adjacent to, and within temporary construction impact areas. The results of the wetland delineation and mapping of one and three parameter wetlands are presented in a separate wetland delineation report (GHD 2018). Projects affecting wetlands must conform to Section 30233 of the Coastal Act, while projects affecting ESHA must conform to Section 30240 of the Coastal Act. The results may be used for planning, design, and to avoid or mitigate impacts associated with project construction, and to guide future management decisions.

### 1.2 Location

The Project Study Boundary (PSB) for the Old Arcata Road Improvement Project includes Old Arcata Road and adjacent roadsides through the community of Bayside, between the intersections with Buttermilk Road and Jacoby Creek Road, as well as short sections of adjacent roads and roadsides (Figure 1). The PSB is primarily within the Coastal Zone, and primarily within jurisdiction of the City of Arcata, and within the appeal



zone of the California Coastal Commission. A section of the PSB (a portion of the intersection with Jacoby Creek Road) is located in Humboldt County primary jurisdiction, within the appeal zone of the Coastal Commission.

### **1.3 Project Summary**

The Old Arcata Road Improvement Project is intended to provide roadway improvements to Old Arcata Road through the community of Bayside, between the Buttermilk Road Roundabout and Jacoby Creek Road. The project will improve safety for non-motorized and motorized users, increase the use of active modes of transportation, and rehabilitate the failed roadway pavement. The Project will have additional benefits including enhanced and heightened driver awareness of the community, and filling the gap for non-motorized travel between the Jacoby Creek School and Jacoby Creek Road.

## **2 Regulatory Setting**

### **2.1 State Jurisdiction**

#### **2.1.1 State Listed Special Status Plant Species**

Special status plant species under State jurisdiction include those listed as endangered, threatened, or as candidate species by the California Department of Fish and Wildlife (CDFW) under the California Endangered Species Act (CESA). Plant species on California Native Plant Society's (CNPS) California Rare Plant Ranking (CRPR) Lists 1A, 1B and 2 are considered eligible for state listing as Endangered or Threatened pursuant to the California Fish and Game Code and CDFW has oversight of these special status plant species as a trustee agency. As part of the CEQA process, such species should be considered as they meet the definition of Threatened or Endangered under Sections 2062 and 2067 of the California Fish and Game Code. CRPR List 3 and 4 plants do not have formal protection under CEQA. CDFW publishes and periodically updates lists of special status species which include, for the most part, the above categories. Additionally, there are 64 plant species designated as "rare" which is a special designation created before plants were rolled into CESA in the 1980s (CDFW 2018a). A project is required to have a "Scientific, Educational, or Management Permit" from CDFW for activities that would result in "take," possession, import, or export of state-listed plant species including research, seed banking, reintroduction efforts, habitat restoration, and other activities relating to any plant designated SE (State endangered), ST (State threatened), SR (State rare), or SC (State candidate for listing).

### **2.2 Federal Jurisdiction**

#### **2.2.1 Federal Listed Species**

Special status plant species under Federal jurisdiction include those listed as endangered, threatened, or as candidate species by the Fish and Wildlife Service (USFWS) under the U.S. Endangered Species Act (ESA).



### **2.2.2 Critical Habitat**

Critical Habitat is defined by the ESA as a specific geographic area containing features essential for the conservation of an endangered or threatened species. The ESA requires consultation with USFWS by federal lead agencies for activities they carry out, authorize, or fund. Under Section 7 of the ESA, critical habitat federally designated for a listed or proposed species that may be present in project Action Area should be evaluated.

### **2.2.3 California Coastal Act and Local Coastal Programs**

The California Coastal Commission (CCC) through the Coastal Act, and the City of Arcata and the County of Humboldt through their Local Coastal Programs are the jurisdictional agencies that exert authority in identifying and protecting ESHA for projects. Section 30107.5 of the Coastal Act defines ESHA as: “*Any area in which plant or animal life or their habitats are either rare or especially valuable because of their special nature or role in an ecosystem and which could be easily disturbed or degraded by human activities and developments.*”

## **3 Methods**

### **3.1 Project Study Boundary / Action Area**

Prior to conducting environmental fieldwork, the project scientist worked in coordination with the project manager and the applicant to develop the limits of the Project Study Boundary (PSB). The PSB is a terminology adopted from definitions and permit procedures promulgated by the U.S. Army Corps of Engineers (USACE). The PSB is designated on a project specific basis, and as feasible, to take into consideration potential alternate layouts of project, fill/cut slopes, temporary impact areas and/or adjacent areas if feasible, access, new or modified utilities and right of ways, and adjacent areas that may be feasibly included in the study. The PSB may be modified on a project-specific basis according to such issues as private property ownerships, access constraints, and areas excluded from project use. The PSB for the Old Arcata Road improvement Project is shown in Figures 2:1-5.

### **3.2 Pre-Survey Research**

Prior to field surveys, a scoping list of CRPR plant species and habitats with recorded occurrences in the project vicinity was compiled by consulting the *California Natural Diversity Database* (CNDDDB) [CDFW 2018b], the CNPS *Inventory of Rare and Endangered Vascular Plants* (CNPS 2018), and the list of Federally listed plant species maintained by the U.S. Fish and Wildlife Service (USFWS 2018). The CNDDDB database was consulted for rare plant occurrences documented in the project vicinity.

The scoping list includes special-status plants that occur in habitat similar to the project area with documented occurrences on the Arcata South USGS quadrangle or adjacent quadrangles. CDFW and CNPS recommend the assessment area be a minimum of nine USGS quadrangles with the survey area located in the central quad. The scoping list also contains other taxa that may occur in the project area whose habitat is suitable if the project is within or near the known range of the species. The assessment



area was defined as the nine USGS 7.5' minute quadrangles centered around the Arcata South quadrangle (Tyee City, Arcata North, Blue Lake, Eureka, Korbel, Cannibal Island, Fields Landing, and McWhinney Creek USGS 7.5' quadrangles). The queries yielded 55 sensitive species previously documented in the assessment area. Due to the highly altered condition of the potential habitat contained within the PSB none of the plant species were thought to have a high probability of occurring within the study area. (Table 1, Attachment 2). Within the assessment area, three sensitive plant communities are documented according to the CNDDDB (2018b).

Vegetation assessment or screening for ESHA occurring within the PSB began with research to determine what areas might be considered ESHA that may occur within the PSB. No comprehensive list of ESHA for the state, Humboldt County, or the City of Arcata exists. However, the CCC, County of Humboldt, and City of Arcata rely on the *Hierarchical list of Natural Communities* developed by the California Department of Fish and Wildlife (CDFW 2010) for guidance on what constitutes ESHA. The Hierarchical list of Natural Communities coincides with the classification system presented in *A Manual of California Vegetation Second Edition* (Sawyer et al. 2009) which defines vegetation communities based on a system of alliances. Natural communities are further broken down to association level for vegetation types affiliated with ecological sections in California. The Hierarchical list of Natural Communities also identifies Natural Communities as "high priority" based on global or state rarity rankings. CDFW tracks data on Natural Communities through the California Natural Diversity Database (CDFW 2018a). Thus, the initial analysis of whether ESHA might occur within the APE began with a review of CNDDDB for the Arcata South USGS 7.5' quadrangles and eight adjacent quadrangles, as well as a review of community descriptions of potential Natural Communities as defined in *A Manual of California Vegetation Second Edition* (Sawyer et al. 2009).

The vegetation groupings discussed in this report are Alliances based on dominant characteristic plants whose presence was constant within the observed groupings. *A Manual of California Vegetation Second Edition* defines alliance as "A classification unit of vegetation, containing one or more associations and defined by one or more diagnostic species often of high cover, in the uppermost layer or the layers with the highest canopy cover" (Sawyer et al. 2009). The alliances described in *A Manual of California Vegetation* are the California expression of the National Vegetation Classification (CDFW 2017). The rankings for these communities are defined as follows according to the NatureServe's Heritage Program methodology defined for Natural Community Conservation Ranks and outlined in *A Manual of California Vegetation, Second Edition* (Sawyer et al. 2009).

- G3: 21-100 viable occurrences worldwide and/or more than 2,590-12,950 hectares;
- G4: Greater than 100 viable occurrences worldwide and/or greater than 12,950 hectares;
- G5: Demonstrably secure because of its worldwide abundance
- S3: 21-100 viable occurrences statewide and/or more than 2,590-12,950 hectares



### 3.3 Survey Procedures and Mapping Methods

Surveys to determine the presence of special status plant species (listed as rare, threatened, endangered, or candidate under the State or Federal Endangered Species Acts, CNPS, or species of local importance) were timed to coordinate with the blooming period for the majority of the species thought to possibly occur within the project area. After a review of the scoping list it was determined that two surveys, an early season survey and a late season survey, would be necessary to capture the blooming period for the majority of target species (species thought to have some potential to occur within the project area).

The surveys were floristic in nature following *Protocols for Surveying and Evaluating Impacts to Special Status Native Plant Populations and Natural Communities* by the California Natural Resource Agency (CDFW 2018c) and *General Rare Plant Survey Guidelines by the Endangered Species Recovery Program* (USFWS 2002). An intuitively controlled survey was conducted that sampled and identified potential habitat(s). Plants were identified to the lowest taxonomic level (genus or species) necessary for rare plant identification. Nomenclature follows *The Jepson Manual* (Baldwin et al 2012). Surveys were conducted by walking the site looking for the presence of target species and habitats identified on the scoping list, as well as presence of any other incidental sensitive-listed plant species. In total, approximately six field person hours were spent surveying the PSB specifically for special status plants over both the early season and late season survey dates.

Assessment of potential ESHA within the PSB was conducted by using the resources outlined above including identification of Sensitive community alliances as defined by the *Hierarchical list of Natural Communities* (CDFW 2018d) and by *A Manual of California Vegetation Second Edition* (Sawyer et al. 2009). Mapping of individual trees during the assessment of potential ESHA was completed with a GeoPro 6H global positioning system (GPS) receiver connected to a Motion F5v Tablet running ArcPad geographic information system (GIS) software.

## 4 Results

On June 18 and July 31, 2018 the PSB was surveyed in an effort to identify if federal, state and/or CNPS listed plant species are present. No special status species were observed during the protocol level surveys in 2018. Vegetation mapping to screen for Environmentally Sensitive Habitat Areas (ESHA) occurred on August 31, 2018 and September 20, 2018. Within the assessment area, three sensitive plant communities are documented according to the CNDDDB, upland Douglas-fir forest, northern coastal salt marsh, and northern foredune grassland (CNDDDB 2018b). None of these communities were observed within the PSB. Palustrine emergent persistent wetlands, palustrine broad-leaved deciduous scrub-shrub wetlands, and 1-parameter wetlands occur within the PSB. The 1-parameter wetlands meet the Coastal Commission requirements based on dominance of wetland (FAC or wetter) vegetation, in this case willows (*Salix* spp.). All wetlands occurring within the PSB and are addressed in a separate wetland delineation report (GHD 2018).

No sensitive vegetation alliances were identified within the PSB based on CDFW's Hierarchical List of Natural Communities (CDFW 2018d). Some individual redwood trees (*Sequoia sempervirens*) occur within the PSB. On the northern end of the PSB near the Buttermilk Road roundabout, there are a few young



redwood trees that appear to have been planted. North of Jacoby Creek School, between a fence line and the sidewalk, there are two mature redwood trees and a small (<5 ft. tall) sapling located between the two larger trees. The *Sequoia sempervirens* Forest Alliance has a Global listing of G3 and State Ranking of S3 (CDFW 2018d), None of the redwood trees within the PSB are connected to a forest and therefore they do not constitute a Forest Alliance. Redwood trees are not considered special-status plant species as individuals and are not considered ESHA. Figures showing the location of the redwood trees are provided in Figures 2:1-5.

## 5 Conclusion

The purpose of this survey was to identify and map special status plants within the project study boundary. No Special status plant species were observed within the PSB. No Critical Habitat for plants occurs within the project study boundary. Although individual redwood trees occur within the PSB, these individual trees do not constitute a forest community and are not considered Environmentally Sensitive Habitat Areas.

## 6 References

- Baldwin, B. D. 2012. *The Jepson Manual: Second Edition*. University of California Press. Berkeley, CA.
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- CDFW 2018a. *State and Federally Listed Endangered, Threatened, and Rare Plants of California*. State of California, The Resources Agency, Department of Fish and Wildlife (CDFW), Biogeographic Data Branch. Accessed: <https://nrm.dfg.ca.gov/FileHandler.ashx?DocumentID=109390&inline>. Accessed June 1, 2018.
- CDFW 2018b. California Natural Diversity Database (CNDDDB). USGS 7.5 Minute Quadrangles: Arcata South, Tyee City, Arcata North, Blue Lake, Eureka, Korbel, Cannibal Island, Fields Landing, and McWhinney Creek. California Department of Fish and Wildlife (CDFW). Sacramento, California. Accessed June 1, 2018.
- CDFW 2018c. *Protocols for Surveying and Evaluating Impacts to Special Status Native Plant Populations and Sensitive Natural Communities*. Sacramento, CA.
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- CNPS 2018. Inventory of Rare and Endangered Plants (online edition, v8-01a). California Native Plant Society (CNPS). Sacramento, CA. Accessed: June 1, 2018.
- GHD 2018. Draft Wetland Delineation Report for the Old Arcata Road Proposed Project, City of Arcata, Arcata, California, USA.
- Sawyer, J.O., T. Keeler-Wolf, and J.M. Evans. 2009. *A Manual of California Vegetation, Second Edition*. California Native Plant Society. Sacramento, CA.



USFWS 2002. General Rare Plant Survey Guidelines by the Endangered Species Recovery Program.

USFWS, 2018. *U.S. Fish and Wildlife Service IPaC Resources List*. Arcata Field Station, U. S. Fish and Wildlife Service (USFWS). Accessed: June 1, 2018.



## Attachments

### **1. Figures**

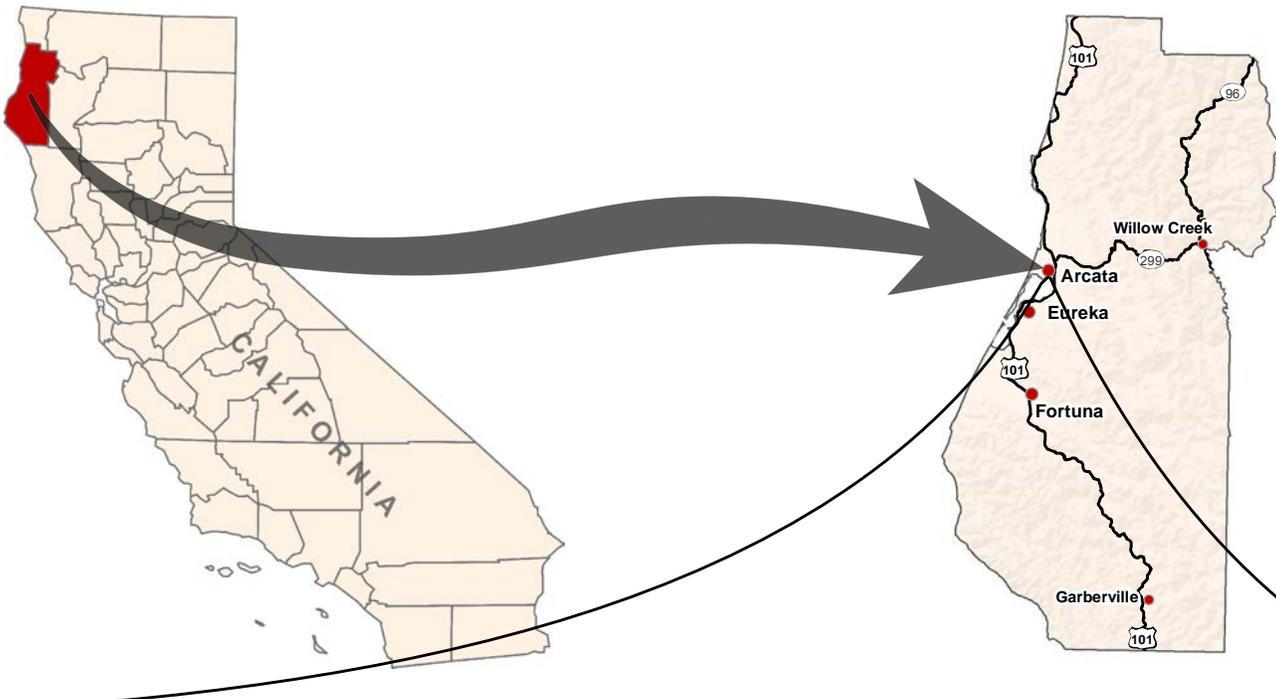
Figure 1: Regional and Location Map

Figure 2: ESHA Evaluation

### **2. Tables**

Table 1: Special status plant species with potential to occur in the PSB

Table 2: Species list of plants observed within the PSB



-  City Limits
-  Project Area

Paper Size 8.5" x 11" (ANSI A)

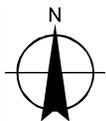
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Map Projection: Lambert Conformal Conic

Horizontal Datum: North American 1983

Grid: NAD 1983 StatePlane California I FIPS 0401 Feet



City of Arcata  
Old Arcata Road Improvements

Job Number | 11159130  
Revision | A  
Date | 22 Aug 2018

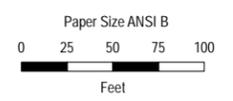
### Vicinity and Project Location Map

Figure 1



**Legend**

-  Project Study Boundary
-  Individual Redwood Trees (non ESHA)



Map Projection: Lambert Conformal Conic  
 Horizontal Datum: North American 1983  
 Grid: NAD 1983 StatePlane California I FIPS 0401 Feet



City of Arcata  
 Old Arcata Road Improvements

**Special Status Plant Survey  
 and Environmentally Sensitive  
 Habitat Screening**

Project No. 11159130  
 Revision No. A  
 Date 10/8/2018

**FIGURE 2- 1**

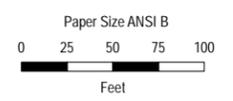
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Data source: Created by: ghd\jason



**Legend**

-  Project Study Boundary
-  Individual Redwood Trees (non ESHA)



Map Projection: Lambert Conformal Conic  
 Horizontal Datum: North American 1983  
 Grid: NAD 1983 StatePlane California I FIPS 0401 Feet



City of Arcata  
 Old Arcata Road Improvements  
 Special Status Plant Survey  
 and Environmentally Sensitive  
 Habitat Screening

Project No. 11159130  
 Revision No. A  
 Date 10/8/2018

**FIGURE 2-2**

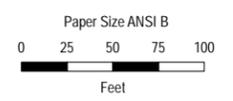
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**Legend**

-  Project Study Boundary
-  Individual Redwood Trees (non ESHA)



Map Projection: Lambert Conformal Conic  
Horizontal Datum: North American 1983  
Grid: NAD 1983 StatePlane California I FIPS 0401 Feet



City of Arcata  
Old Arcata Road Improvements

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and Environmentally Sensitive  
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Project No. 11159130  
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Date 10/8/2018

**FIGURE 2- 3**

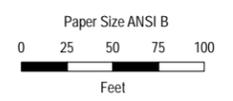
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Print date: 08 Oct 2018 - 08:37

Data source: Created by: gldavidson



**Legend**

-  Project Study Boundary
-  Individual Redwood Trees (non ESHA)



Map Projection: Lambert Conformal Conic  
Horizontal Datum: North American 1983  
Grid: NAD 1983 StatePlane California I FIPS 0401 Feet



City of Arcata  
Old Arcata Road Improvements

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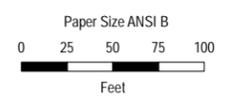
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Legend

-  Project Study Boundary
-  Individual Redwood Trees (non ESHA)



Map Projection: Lambert Conformal Conic  
Horizontal Datum: North American 1983  
Grid: NAD 1983 StatePlane California I FIPS 0401 Feet



City of Arcata  
Old Arcata Road Improvements

**Special Status Plant Survey  
and Environmentally Sensitive  
Habitat Screening**

Project No. 11159130  
Revision No. A  
Date 10/8/2018

**FIGURE 2- 5**  
Data source: . Created by: gldavidson

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Print date: 08 Oct 2018 - 08:39



# Memorandum

Table 1 Special status plant species with potential to occur in the PSB

Taxa	Common Name	Listing Status	Typical Habitat	
<i>Abronia umbellata</i> var. <i>breviflora</i>	pink sand-verbena	1B.1	Coastal dunes	No Potential.
<i>Angelica lucida</i>	sea-watch	4.2	Coastal bluff scrub, coastal dunes, coastal scrub, marshes and swamps (coastal salt)	No Potential.
<i>Astragalus pycnostachyus</i> var. <i>pycnostachyus</i>	coastal marsh milk-vetch	1B.2	Coastal dunes (mesic), Coastal scrub, Marshes and swamps (coastal salt, streamsides)	No Potential.
<i>Astragalus rattanii</i> var. <i>rattanii</i>	Rattan's milk-vetch	4.3	Chaparral, Cismontane woodland, Lower montane coniferous forest	No Potential.
<i>Astragalus umbraticus</i>	Bald Mountain milk-vetch	2B.3	Cismontane woodland   Lower montane coniferous forest	No Potential.
<i>Bryoria pseudocapillaris</i>	false gray horsehair lichen	3.2	Coastal dunes (SLO Co.), North Coast coniferous forest (immediate coast)	No Potential.
<i>Bryoria spiralifera</i>	twisted horsehair lichen	1B.1	North Coast coniferous forest (immediate coast)	No Potential.
<i>Cardamine angulata</i>	seaside bittercress	2B.1	Lower montane & North coast (NC) coniferous forest   Wetland	No Potential.
<i>Carex arcta</i>	northern clustered sedge	2B.2	Bogs and fens, North Coast coniferous forest (mesic)	Low Potential.
<i>Carex leptalea</i>	bristle-stalked sedge	2B.2	Bog, fen, freshwater marsh, Wetland, swamp, Meadow & seep	Low Potential.
<i>Carex lyngbyei</i>	Lyngbye's sedge	2B.2	Marshes and swamps (brackish or freshwater)	Low Potential.



Taxa	Common Name	Listing Status	Typical Habitat	
<i>Carex praticola</i>	northern meadow sedge	2B.2	Meadow & seep   Wetland	No Potential.
<i>Castilleja ambigua</i> var. <i>humboldtiensis</i>	Humboldt Bay owl's-clover	1B.2	Marsh & swamp   Salt marsh   Wetland	No Potential.
<i>Castilleja littoralis</i>	Oregon coast paintbrush	2B.2	Coastal bluff scrub   Coastal dunes   Coastal scrub	No Potential.
<i>Chloropyron maritimum</i> ssp. <i>palustre</i>	Point Reyes bird's-beak	2B.2	Coastal bluff scrub, Coastal dunes, Coastal scrub	No Potential.
<i>Chrysosplenium glechomifolium</i>	Pacific golden saxifrage	4.3	Streambanks, sometimes seeps, sometimes roadsides. NC coniferous forest. Riparian forest	Low Potential.
<i>Collinsia corymbosa</i>	round-headed Chinese-houses	1B.2	Coastal dunes	No Potential.
<i>Coptis laciniata</i>	Oregon goldthread	4.2	Meadow & seep   North coast coniferous forest   Wetland	No Potential.
<i>Epilobium oregonum</i>	Oregon fireweed	1B.2	Bogs and fens, Lower montane coniferous forest, Meadows and seeps, Upper montane coniferous forest	No Potential.
<i>Epilobium septentrionale</i>	Humboldt County fuchsia	4.3	Broadleaved upland forest, North Coast coniferous forest	No Potential.
<i>Erysimum menziesii</i>	Menzies wallflower	FE, SE, 1B.1	Coastal dunes	No Potential.
<i>Erythronium oregonum</i>	giant fawn lily	2B.2	Cismontane woodland, Meadows and seeps	No Potential.
<i>Erythronium revolutum</i>	coast fawn lily	2B.2	Bog & fen   broadleaved upland forest   North Coast coniferous   Wetland	No Potential.



Taxa	Common Name	Listing Status	Typical Habitat	
<i>Fissidens pauperculus</i>	minute pocket moss	1B.2	North Coast coniferous forest (damp coastal soil)	No Potential.
<i>Gilia capitata ssp. pacifica</i>	Pacific gilia	1B.2	Coastal bluff scrub, Chaparral (openings), Coastal prairie, Valley and foothill grassland	No Potential.
<i>Gilia millefoliata</i>	dark-eyed gilia	1B.2	Coastal dunes	No Potential.
<i>Glehnia littoralis ssp. leiocarpa</i>	American glehnia	4.2	Coastal dunes	No Potential.
<i>Hesperevax sparsiflora</i> <i>var. brevifolia</i>	short-leaved evax	1B.2	Coastal bluff scrub (sandy), Coastal dunes, Coastal prairie	No Potential.
<i>Iliamna latibracteata</i>	California globe mallow	1B.2	Chaparral   Lower montane coniferous forest   North coast coniferous forest   Riparian scrub	No Potential.
<i>Lasthenia californica ssp. macrantha</i>	perennial goldfields	1B.2	Coastal bluff scrub, Coastal dunes, Coastal scrub	No Potential.
<i>Lathyrus japonicus</i>	seaside pea	2B.1	Coastal dunes	No Potential.
<i>Lathyrus palustris</i>	marsh pea	2B.2	Bog, fen, marsh, swamp   coastal prairie & scrub   lower montane & NC coniferous forest	Low Potential.
<i>Layia carnosa</i>	beach layia	FE, SE, 1B.1	Coastal dunes   coastal scrub	No Potential.
<i>Lilium occidentale</i>	Western lily	FE, SE, 1B.1	Bogs and fens, Coastal bluff scrub, Coastal prairie, Coastal scrub, Marshes and swamps (freshwater), North Coast coniferous forest (openings)	No Potential.



Taxa	Common Name	Listing Status	Typical Habitat	
<i>Lilium kelloggii</i>	Kellogg's lily	4.3	Lower montane coniferous forest, North Coast coniferous forest	No Potential.
<i>Listera cordata</i>	heart-leaved twayblade	4.2	Bogs and fens   lower montane & NC coniferous forest	Low Potential.
<i>Lycopodium clavatum</i>	running-pine	4.1	Lower montane & NC coniferous forest   marsh & swamp	No Potential.
<i>Mitellastra caulescens</i>	leafy-stemmed mitrewort	4.2	Broadleaved upland forest   lower montane & NC coniferous forest   meadow & seep	Low Potential.
<i>Monotropa uniflora</i>	ghost-pipe	2B.2	Broadleaved upland forest   NC coniferous forest	No Potential.
<i>Montia howellii</i>	Howell's montia	2B.2	Meadow, seep, wetland & vernal pool   NC coniferous	No Potential.
<i>Noccaea fendleri ssp. californica</i>	Kneeland Prairie pennycress	FE, 1B.1	Coastal prairie (serpentinite)	No Potential.
<i>Oenothera wolfii</i>	Wolf's evening-primrose	1B.1	Coastal bluff scrub   coastal dunes   coastal prairie	No Potential.
<i>Packera bolanderi var. bolanderi</i>	seacoast ragwort	2B.2	Coastal scrub, North Coast coniferous forest	No Potential.
<i>Piperia candida</i>	white-flowered rein orchid	1B.2	Broadleaved upland forest   Lower montane coniferous forest   North coast coniferous forest   Ultramafic	No Potential.
<i>Pityopus californicus</i>	California pinefoot	4.2	Mesic. Broadleaved upland forest. Lower montane/Upper montane / NC coniferous forest	No Potential.
<i>Pleuropogon refractus</i>	nodding semaphore grass	4.2	Mesic. Lower montane & NC coniferous forest. Meadows and seeps. Riparian	Low Potential.
<i>Ribes laxiflorum</i>	trailing black currant	4.3	Sometimes roadside. NC coniferous forest	No Potential.



Taxa	Common Name	Listing Status	Typical Habitat	
<i>Sidalcea malachroides</i>	maple-leaved checkerbloom	4.2	Broadleaved upland forest   coastal prairie & scrub   NC coniferous & riparian forest	No Potetial.
<i>Sidalcea malviflora ssp. patula</i>	Siskiyou checkerbloom	1B.2	Coastal bluff scrub   Coastal prairie   North coast coniferous forest	No Potential.
<i>Sidalcea oregana ssp. eximia</i>	coast checkerbloom	1B.2	Lower montane coniferous forest, Meadows and seeps, North Coast coniferous forest	No Potential.
<i>Spergularia canadensis var. occidentalis</i>	western sand-spurrey	2B.1	Marshes and swamps (coastal salt)	No Potential.
<i>Tiarella trifoliata var. trifoliata</i>	trifoliolate laceflower	3.2	Lower montane coniferous forest, North Coast coniferous forest	No Potential.
<i>Trichodon cylindricus</i>	cylindrical trichodon	2B.2	Broadleaved upland forest   upper montane coniferous forest	No Potential.
<i>Usnea longissima</i>	long-beard lichen	4.2	Broadleaved upland forest   north coast coniferous forest   old growth   redwood	No Potential.
<i>Viola palustris</i>	alpine marsh violet	2B.2	Bogs and fens (coastal), Coastal scrub (mesic)	Low Potential.
<b>Terrestrial Communities</b>				
Upland Douglas-Fir Forest		None	North coast coniferous forest	Not Present.
Northern Coastal Salt Marsh		None	Marsh & swamp   wetland	Not Present.
Northern Foredune Grassland		None	Coastal dunes	Not Present.

Source: CNDDB and CNPS accessed 6/1/18. Assessment area consists of USGS 7.5 minute quadrangles: Tyee City, Arcata North, Blue Lake, Eureka, Arcata South, Korbek, Fields Landing, McWhinney Creek, Cannibal Island

Note: small font size in table above denotes List 3 or 4 plant species which are provided herein for informational purposes



Taxa	Common Name	Listing Status	Typical Habitat
FEDERAL--U.S. Fish and Wildlife Service (USFWS)			
FE - Federal Endangered			
FT - Federal Threatened			
FC - Federal Candidate for listing			
FSC - United States Fish and Wildlife Service Federal Species of Special Concern			
STATE--California Department of Fish and Wildlife (CDFW)			
SE - State Endangered			
ST - State Threatened			
SR - State Rare			
CSC - CDFW Species of Special Concern			
SLC - Species of Local Concern			
CFP - California Fully Protected Species			
California Native Plant Society Rare Plant Ranks (CRPR)			
1A- Presumed Extirpated in California and either Rare or extinct elsewhere			
1B - Rare, Threatened, or Endangered in California and elsewhere			
2 - Rare, Threatened or Endangered in California, but more common elsewhere			
2A- Plants Presumed Extirpated in California, but more common elsewhere			
2B- Plants Rare, Threatened, or Endangered in California, but more common elsewhere			
3 - Review List ( more information needed)			
4 - Watch List (limited distribution in California)			
Threat Ranks:			
_0.1 Seriously threatened in California			
_0.2 Moderately threatened in California			
0.3 Not very threatened in California			
POTENTIAL TO OCCUR			
No Potential	Habitat on and adjacent to the site is clearly unsuitable for the species requirements (cover, substrate, elevation, hydrology, plant community, site history, disturbance regime)		
Low Potential	Few of the habitat components meeting the species requirements are present, and/or the majority of habitat on and adjacent to the site is unsuitable or of very poor quality. The species is not likely to be found on the site.		
Moderate Potential	Some of the habitat components meeting the species requirements are present, and/or only some of the habitat on or adjacent to the site is unsuitable. The species has a moderate probability of being found on the site.		
High Potential	All of the habitat components meeting the species requirements are present and/or most of the habitat on or adjacent to the site is highly suitable. The species has a high probability of being found on the site.		



# Memorandum

Table 2 Species list of plants observed within the PSB by GHD

Scientific Name	Common Name
<i>Agrostis stolonifera</i>	creeping bent
<i>Alnus rubra</i>	red alder
<i>Anthoxanthum odoratum</i>	sweet vernal grass
<i>Arctotheca sp.</i>	cape weed
<i>Arrhenatherum elatius</i>	tall oatgrass
<i>Athyrium filix-femina</i>	common ladyfern
<i>Avena sp.</i>	oats
<i>Baccharis pilularis</i>	coyote brush
<i>Bellis perennis</i>	English daisy
<i>Brassica nigra</i>	black mustard
<i>Briza minor</i>	annual quacking grass
<i>Bromus carinatus</i>	California brome
<i>Bromus hordeaceus</i>	soft chess brome
<i>Buddleja sp.</i>	butterfly bush
<i>Carex obnupta</i>	slough sedge
<i>Carpobrotus edulis</i>	iceplant
<i>Cerastium glomeratum</i>	mouse-eared chickweed
<i>Conium maculatum</i>	poison hemlock
<i>Corylus cornuta var. californica</i>	California hazelnut
<i>Cotoneaster sp.</i>	contoneaster
<i>Cyperus eragrostis</i>	tall nutsedge
<i>Dactylis glomerata</i>	orchard grass
<i>Daucus carota</i>	queen ann's lace
<i>Dipsacus fullonum</i>	wild teasel
<i>Epilobium ciliatum</i>	
<i>Equisetum arvense</i>	common horsetail
<i>Equisetum telmateia subsp. braunii</i>	giant horsetail
<i>Eschscholzia californica</i>	California poppy
<i>Festuca arundinacea</i>	tall fescue
<i>Festuca perennis</i>	meadow fescue
<i>Foeniculum vulgare</i>	fennel
<i>Frangula purshiana subsp. purshiana</i>	casara
<i>Galium aparine</i>	goose grass
<i>Geranium dissectum</i>	
<i>Geranium molle</i>	cranesbill
<i>Glyceria x occidentalis</i>	western manna grass



Scientific Name	Common Name
<i>Hedera helix</i>	English ivy
<i>Helminthotheca echioides</i>	bristly ox-tongue
<i>Holcus lanatus</i>	velvet grass
<i>Hordeum marinum subsp. gussoneanum</i>	
<i>Hypochaeris radicata</i>	rough cats-ear
<i>Juncus effusus</i>	common rush
<i>Juncus hesperius</i>	coast or bog rush
<i>Juncus patens</i>	spreading rush
<i>Lapsana communis</i>	common nipplewort
<i>Lathyrus vestitus</i>	common pacific pea
<i>Leucanthemum vulgare</i>	ox-eye daisy
<i>Linum bienne</i>	
<i>Lonicera involucrata</i>	twinberry
<i>Lotus corniculatus</i>	bird's-foot trefoil
<i>Lychnis coronaria</i>	rose campion
<i>Lysimachia arvensis</i>	scarlet pimpernel
<i>Lythrum hyssopifolia</i>	hyssop loosestrife
<i>Malus sp.</i>	
<i>Matricaria discoidea</i>	pineapple weed
<i>Medicago polymorpha</i>	California burclover
<i>Mentha pulegium</i>	pennyroyal
<i>Nasturtium officinale</i>	water cress
<i>Oenanthe sarmentosa</i>	
<i>Parentucellia viscosa</i>	yellow glandweed
<i>Phleum pratense</i>	common timothy
<i>Pinus contorta subsp. contorta</i>	shore pine
<i>Pinus radiata</i>	Monterey pine
<i>Plantago lanceolata</i>	English plantain
<i>Plantago major</i>	common plantain
<i>Poa annua</i>	annual blue grass
<i>Poa pratensis ssp. pratensis</i>	Kentucky blue grass
<i>Polystichum munitum</i>	western sword fern
<i>Prunella vulgare</i>	selfheal
<i>Ranunculus repens</i>	creeping buttercup
<i>Raphanus sativus</i>	radish
<i>Rosa sp.</i>	
<i>Rubus armeniacus</i>	Himalayan blackberry
<i>Rubus ursinus</i>	California blackberry



Scientific Name	Common Name
<i>Rumex acetosella</i>	common sheep sorrel
<i>Rumex crispus</i>	curly dock
<i>Salix lasiandra</i> var. <i>lasiandra</i>	Pacific willow
<i>Salix hookeriana</i>	coastal willow
<i>Salix</i> sp.	willow
<i>Scirpus microcarpus</i>	bulrush
<i>Senecio minimus</i>	coastal burnweed
<i>Sequoia sempervirens</i>	redwood
<i>Sonchus</i> sp.	sow thistle
<i>Spiraea douglasii</i>	Douglas spirea
<i>Stachys ajugoides</i>	hedge-nettle
<i>Stachys chamissonis</i>	
<i>Symphotrichum chilensis</i>	Pacific aster
<i>Tragopogon dubius</i>	goat's beard
<i>Trifolium dubium</i>	little hop clover
<i>Trifolium fragiferum</i>	strawberry clover
<i>Typha</i> sp.	cattail
<i>Veronica</i> sp.	
<i>Vicia sativa</i> subsp. <i>nigra</i>	
<i>Vicia tetrasperma</i>	four seeded vetch
<i>Vicia villosa</i> ssp. <i>varia</i>	smooth vetch
<i>Vinca major</i>	greater periwinkle

Source: Old Arcata Road botanical survey dates – June 18, 2018 and July 31, 2018 (GHD botanist Amy Livingston)

## Appendix D – Wetland Delineation Report



City of Arcata  
Old Arcata Road Proposed Project  
**Wetland Delineation Report**

January 2019



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# Attachments

Appendix A – Figures

Appendix B – Data Sheets



# 1. Introduction

On behalf of the City of Arcata, GHD prepared this wetland delineation report, and accompanying appendices (figures and data sheets), in support of the proposed road improvement project along Old Arcata Road. This report supports the project's environmental documentation, permitting, and construction planning as deemed appropriate. The proposed project includes Old Arcata Road and adjacent roadsides through the community of Bayside, between the intersections with Buttermilk Road and Jacoby Creek Road, as well as short sections of adjacent roads and roadsides (Figure 1). This report is subject to, and must be read in conjunction with, the limitations set out in Section 5, Special Terms and Conditions, and the assumptions and qualifications contained throughout the Report.

The wetland delineation fieldwork was conducted by GHD on August 28 and 29, and September 20, 2018 at the request of and under contract with the City of Arcata. The delineation was conducted within the Project Study Boundary (PSB), as shown on Figure 2:1-5. The Coastal Zone boundary is located along Old Arcata Road throughout the extent of the PSB. Given the possibility that the Coastal Commission will claim jurisdiction of the entire Old Arcata Road right-of-way, the extent of wetland-type vegetation (based on one parameter) was mapped in accordance with the California Coastal Commission requirements. The extent of wetlands having wetland-type vegetation, hydric soils, and wetland hydrology (based on three parameters) per the U.S. Army Corps of Engineers (USACE) was also mapped. The City of Arcata requires that only two of the USACE parameters occur in order to define a wetland, however no 2-parameter wetlands were identified.

The wetland delineation determined that two types of presumed USACE jurisdictional wetlands occur within the PSB, Palustrine Emergent Persistent Wetlands and Palustrine Broad-leaved Deciduous Scrub-Shrub Wetlands. The PSB also contains 1-parameter wetlands meeting Coastal Commission requirements based only on wetland (FAC or wetter) vegetation. These wetlands were mapped at dripline, based on the dominant native vegetation as 1-Parameter Willow Series. Figures presenting results of the 2018 investigation are provided in Appendix A. Data sheets documenting conditions observed during the 2018 investigation are included in Appendix B.

## 2. Methodology

### 2.1 Wetland delineation approach

The wetland delineation was conducted by a GHD botanist and soil scientist. The wetlands occurring within the road median, southwest of Old Arcata Road, on the northern side of the PSB, were also reviewed by a GHD senior Certified Professional Wetland and Certified Professional Soil Scientist. To define a wetland, the USACE requires that all three parameters (vegetation, soil, and hydrology) show wetland attributes (USACE 1987; USACE 2010). The City of Arcata requires that only two parameters are present in order to define a wetland. The California Coastal Commission requires only one parameter to be present in order to define the site as a wetland (14 CCR 13577). The wetland delineation used USACE criteria from the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Western Mountains, Valleys and Coast Region* (USACE 2010). The current standard forms provided by the USACE (2010) were used for botany/soils/hydrology data collection.

Vegetation and soil data were collected at transects across the upland/wetland boundary with two plots (upland/wetland) per transect. The naming convention used on data sheets to designate upland or wetland plots associated with a transect was –U or –W, respectively. The wetland/upland boundary was recorded with a GPS device, individual wetland and upland plots were not. The distance to the wetland/upland boundary from the individual wetland and upland plots was recorded on each respective datasheet.

Intermediate GPS points were collected without the collection of data (soils, vegetation, or hydrology) as appropriate, and are shown without labels on the figures. In addition to the paired transect plots, one wetland test pit and one upland test pit were described that were not part of paired transects. These were labeled “WTP7” or “UTP8” respectively. In the case of the wetland test pit “WTP7”, a paired upland test pit was not dug due to the presence of underground utilities. The upland test pit “UTP8” was completed to confirm the presence of 1-parameter wetland based of vegetation, and the lack of soil and hydrology indicators.

During the delineation mapping, each section of wetland was designated with a number e.g. “W1”. Wetland transects were labeled with a respective wetland number. Some wetland sections were mapped from intermediate points only, with no transects completed for these sections. For this reason, two wetland identification numbers are missing from the sequence of the transect datasheets (3 and 4). In addition, GHD revisited the road median on the northeast side of the PSB, which is why it contains non-sequential transects. All data collected during the delineation is included in Appendix B.

Field mapping of 1-parameter and 3-parameter wetlands was completed with a GeoPro 6H global positioning system (GPS) receiver with sub-meter accuracy, connected to a Motion F5v Tablet running ArcPad geographic information system (GIS) software on August 28 and August 29, 2018. Field mapping on September 20, 2018 was completed with a Trimble GeoExplorer GPS unit with sub-meter accuracy running ArcPad (GIS) software with a Trimble Tornado antenna. Data was post-processed using GPS Pathfinder office which referenced UNAVCO base stations. The points were then connected using ArcGIS for map preparation.

## 2.2 Botanical methodology

Vegetation data collection consisted of listing the dominant species in the herbaceous, shrub, and tree layer within a standard sized plot depending on layer. The species listed for each plot were classified as to whether or not they were wetland or upland indicators, using the standard reference for plant wetlands indicators: *State of California 2016 Wetland Plant List* (Lichvar et al. 2016). Plants were classified based on the probability that they would be found in wetlands (USACE 1987), ranging from Obligate (almost always in wetlands) [OBL], Facultative/wet (67% to 99% in wetlands) [FACW], Facultative (34% to 66% in wetlands) [FAC], Facultative/up (1% to 33% in wetlands) [FACU], or Uplands (less than 1% in wetlands) [UP]. Plants not listed in the manual were considered to be in the upland category (Lichvar et al. 2016). Standard procedures for documenting hydrophytic vegetation indicators were used per the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual* (USACE 2010).

## 2.3 Soils methodology

The *Regional Supplement to the Corps of Engineers Wetland Delineation Manual* (USACE 2010) procedures were combined with the Natural Resources Conservation Service’s (NRCS) definition of hydric soils presented in *Field Indicators of Hydric Soils in the United States* (USDA/NRCS 2016).

Soil pits were dug to an approximate depth of 16 inches. Data on soil color, texture and redoximorphic features were collected. Any observed redoximorphic features (iron concentrations) were noted along with their percentage within the soil matrix, and care was taken to distinguish chromas of 1 and 2 indicative of an iron-depleted soil within 12 inches of the soil surface (USACE 2010; USDA/NRCS 2016).

Colors were described for the entire depth of the test pit and colors were determined on moist natural soil aggregate (ped) surfaces, which had not been crushed, using the Munsell Color Chart (COLOR, M. 2000). Soils with low chromas were verified as being hydric or upland with Field Indicators of Hydric Soils in the United States (Version 8.0, 2016).

## 2.4 Hydrology methodology

The delineation was performed in late August and September, towards the end of the dry season. Although some standing water was observed in a few sections of roadside ditch, near the PSB and also outside of the PSB on the northeast side of Old Arcata Road, standing water was not present in wetland test pits which were dug closer to the wetland boundary. In general, two secondary indicators were identified to meet the wetland hydrology parameter per the USACE criteria.

# 3. Results

The PSB consists of two types of presumed USACE jurisdictional wetlands that were classified using Cowardin nomenclature from *Classification of Wetlands and Deepwater Habitats of the United States* (Federal Geographic Data Committee 2013), Palustrine Emergent Persistent Wetlands and Palustrine Broad-leaved Deciduous Scrub-Shrub Wetlands. The PSB also contains 1-parameter wetlands meeting Coastal Commission requirements based only on wetland (FAC or wetter) vegetation. These wetlands were mapped based on dominant native vegetation as 1-Parameter Willow Series. The 1-Parameter Willow Series was mapped to the willow canopy dripline. Areas where the canopy extends over pavement were also mapped. No 2-parameter wetlands were identified. Figure 2:1-5 in Appendix A shows the results of the wetland delineation. In Summary, 0.158 acres of 3-parameter Palustrine Emergent Persistent Wetlands, 0.239 acres of 3-parameter Palustrine Broad-leaved Deciduous Scrub-Shrub Wetlands, and 0.082 acres of 1-Parameter Willow Series were identified within the PSB (not including the area where the willow canopy dripline extended over pavement).

The Palustrine Emergent Persistent Wetland and the Palustrine Scrub-Shrub, Broad leaved Deciduous Wetlands occurred primarily within roadside ditches along the northeast side of Old Arcata Road. The Palustrine Emergent Persistent Wetland consisted primarily of an herbaceous layer and the Palustrine Scrub-Shrub, Broad leaved Deciduous Wetlands consisted of tree, shrub, and herbaceous vegetation layers. Willow species (*Salix* spp.) were the dominant trees in the shrub-scrub wetlands often occurring with Himalayan blackberry (*Rubus armeniacus*) and California blackberry (*Rubus ursinus*) in the shrub layer. Hydrophytic vegetation was dominant within all wetland areas.

The majority of upland plots also contained hydrophytic vegetation, dominated by non-native, invasive grass species such as tall fescue (*Festuca arundinacea* synonym: *Schedonorus arundinaceus*), creeping bent (*Agrostis stolonifera*), and velvet grass (*Holcus lanatus*) all of which are rated as facultative species. It is likely that roadside mowing is favoring these invasive grass species. As defined by Lichvar (2016) facultative species have a 36% to 66% probability of

occurring in wetlands, making these species statistically equally likely to occur in wetlands or uplands. Field inspections to determine the presence of hydric soil conditions and/or wetland hydrology can alleviate potential technical misinterpretation of facultative species. Considering that wetland hydrology and hydric soils were not present in the upland plots, and given that these non-native species are favored by disturbance and are located in the mowed roadside corridor, we determined these species are not growing as hydrophytes and are not 1-parameter wetlands.

Soils in the delineated wetlands were generally silt loam, silty clay loam, and silty clay in texture containing various amounts of gravel. An exception to this is the road median area on the north side of the PSB which is discussed separately. Wetland soils exhibited redoximorphic features typically found in hydric soils including low chromas with redoximorphic (iron concentrations) at or above 10 inches from the soil surface. Representative wetland (hydric) soils had matrix colors of 2.5YR 3/1, 2.5YR 4/1, 2.5Y 4/1, 2.5Y 2/1, with iron concentrations of 10 YR 5/6 and 7.5 Y 4/6. The hydric soil indicators observed included redox dark surface (F6) and depleted matrix (F3).

Representative upland soils were generally silty loam, silty clay loam, or silt clay. Representative upland soils had matrix colors of 2.5Y 3/3, 2.5Y 4/3. Upland soil colors were with either no redoximorphic features observed, or very small percentages of redox features observed and thus the soils did not meet field indicators for hydric soils.

The delineation was performed in late August and September of 2018 at the end of the dry season. No water was observed in the test pits. The most frequent secondary indicators of hydrology observed were geomorphic position and passing the FAC-neutral test.

The road median on the northern side of the PSB contained a drainage ditch that parallels Old Arcata Road with a smaller drainage ditch perpendicular to the longer one. Soils were disturbed and most likely human placed, and contained a high percentage of gravel. The vegetation had recently been cut and the ground was covered with straw. Within this road median two, 3-Parameter Palustrine Emergent Wetlands were mapped, and one, 1-Parameter Willow Series wetland was mapped based on the dominance of hydrophytic vegetation.

## 4. Conclusions

The wetland delineation completed in August and September of 2018 for the proposed project determined the extent of wetlands based on wetland-type vegetation, hydric soils, and wetland hydrology (three parameter approach). The area of investigation was determined to consist of two types of 3-parameter wetlands. The delineation also determined the extent of 1-parameter wetlands based only on wetland (FAC or wetter) vegetation, based on the Coastal Commission definition. No 2-parameter wetlands were identified. The wetland delineation results are provided in map format in Appendix A. The field data sheets from the delineation area are included in Appendix B.

## 5. Special Terms and Conditions

### 5.1 Purpose of this Report

This report has been prepared by GHD for the City of Arcata and may only be used and relied on by the City of Arcata for the purpose agreed upon between GHD and the City of Arcata as set out in the scope and contract for work effort reported herein. GHD Inc. is not liable for any action arising out of the reliance of any third party on the information contained within this report. GHD otherwise

disclaims responsibility to any person other than City of Arcata arising in connection with this report. GHD also excludes implied warranties and conditions, to the extent legally permissible.

## 5.1 Scope and Limitations

This report does not authorize any individuals to develop, fill or alter the delineated wetlands. Verification of the delineation by jurisdictional agencies is necessary prior to the use of this report for planning and development purposes. A USACE agency stamped delineation map and jurisdictional approval letter is required to signify confirmation of delineation results. In situations where a field investigation determines that no jurisdictional wetlands occur, jurisdictional concurrence with these findings is recommended.

To achieve the delineation objectives stated in this report, conclusions of the delineation were based on the information available during the period of the investigation, which took place on August 28 and August 29, 2018 and September 20, 2018. The opinions, conclusions and any recommendations in this report are based on conditions encountered and information reviewed by the date of preparation of the report. Site conditions may change after the date of this report. GHD does not accept responsibility arising from, or in connection with, any change to the site conditions. GHD is also not responsible for updating this report if the site conditions change, unless contracted to do so.

The services undertaken by GHD in connection with preparing this report were limited to those specifically detailed in the report and are subject to the scope limitations set out in the report.

The opinions, conclusions and any recommendations in this report are based on information obtained from, and testing undertaken at or in connection with, specific sample points. Site conditions at other parts of the site may be different from the site conditions found at the specific sample points. Investigations undertaken in respect of this report are constrained by the particular site conditions, such as the location of buildings, services and vegetation. As a result, not all relevant site features and conditions may have been identified in this report.

## 6. References

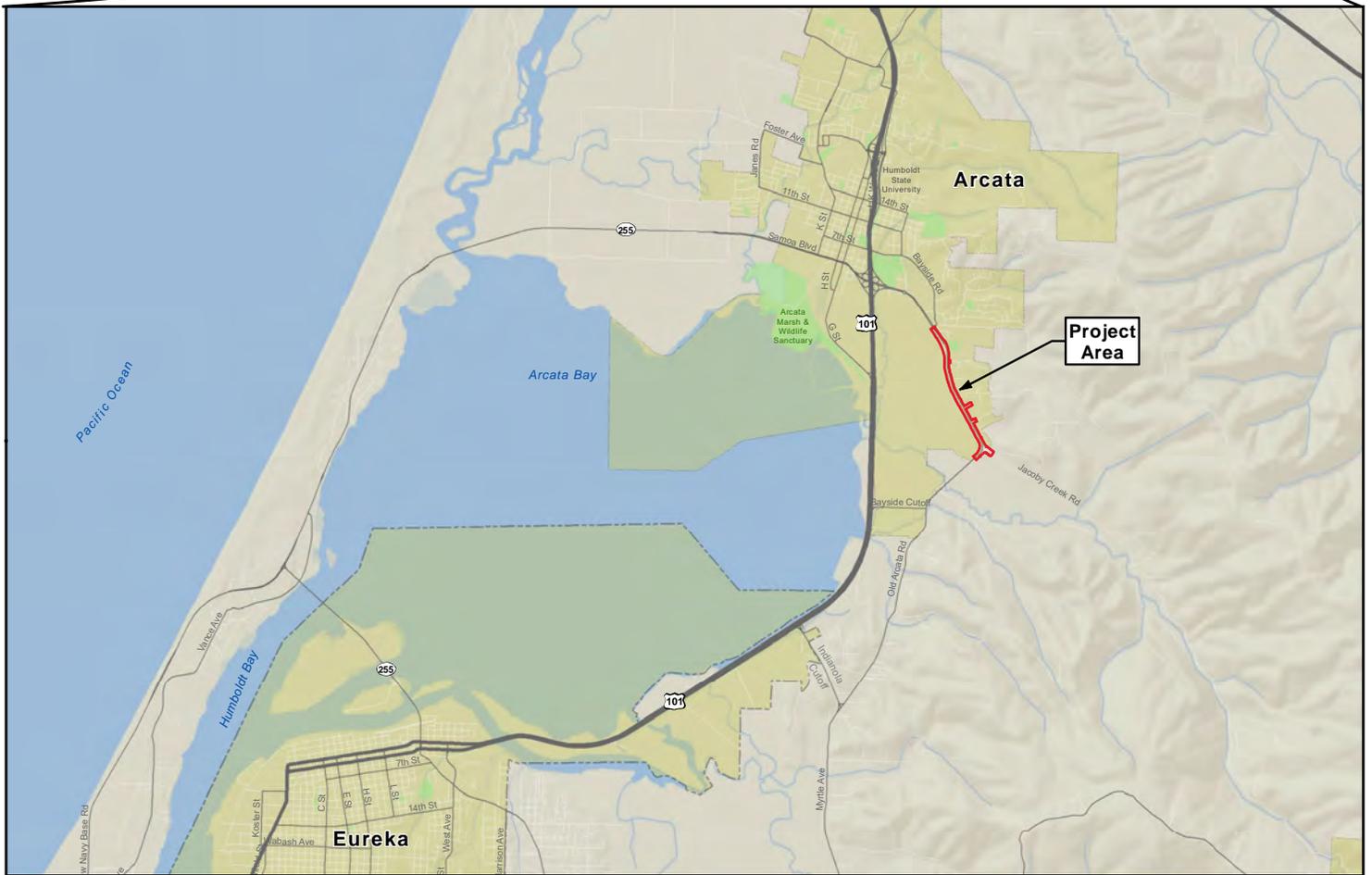
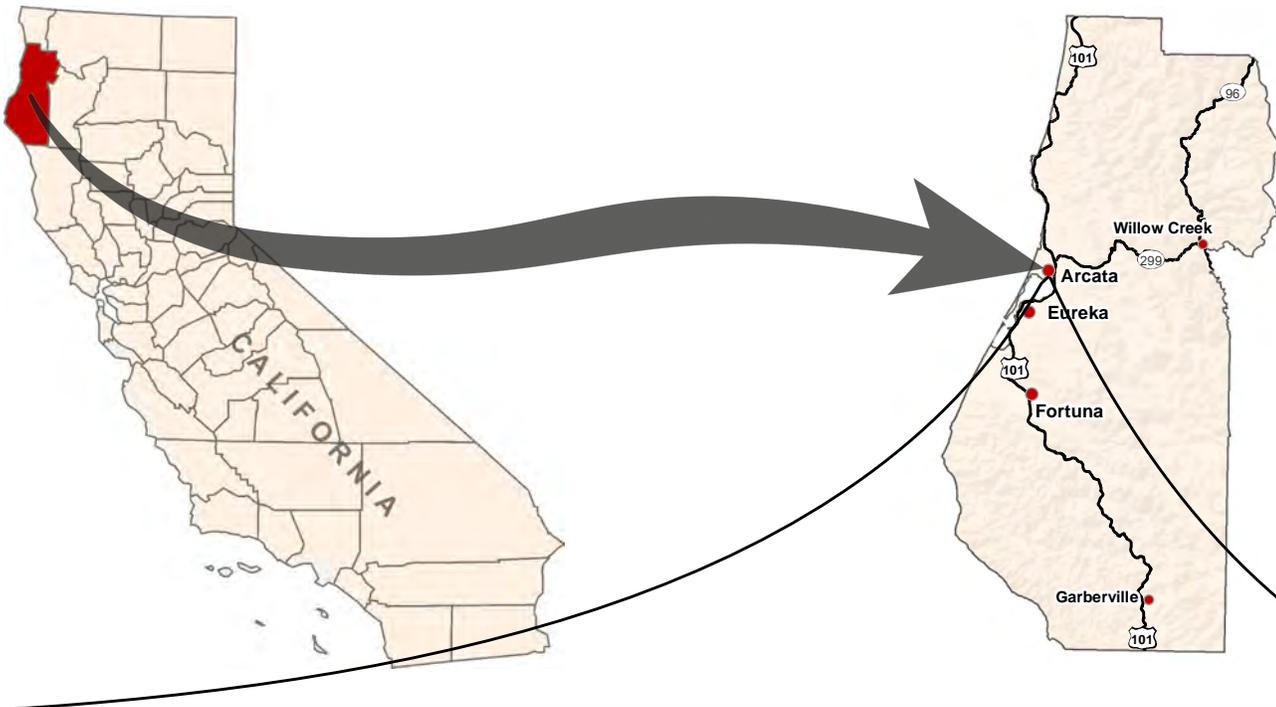
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Natural Resources Conservation Service (NRCS) in cooperation with the National Technical Committee for Hydric Soils.

USDA, 1995. *Changes in Hydric Soils of the United States*, Federal Register, Vol. 60, No. 37, United States Department of Agriculture (USDA), February 24, 1995.

# Appendices

# Appendix A – Figures



-  City Limits
-  Project Area

Paper Size 8.5" x 11" (ANSI A)  
 0 0.5 1 1.5  
 Miles  
 Map Projection: Lambert Conformal Conic  
 Horizontal Datum: North American 1983  
 Grid: NAD 1983 StatePlane California I FIPS 0401 Feet



City of Arcata  
 Old Arcata Road Improvements

Job Number 11159130  
 Revision A  
 Date 03 Oct 2018

### Vicinity and Project Location Map

Figure 1





Legend

	Project Study Boundary		1-Parameter Willow Series, Dripline
<b>Wetland Survey</b>			
	CC upland test pit		1-Parameter Willow Series, Dripline over Pavement
	USACE wetland test pit		Palustrine Emergent Persistent 3-Parameter Wetland
	USACE wetland transect point		Palustrine Scrub-Shrub 3-Parameter Wetland Broad leaved Deciduous
	Intermediate Point		
	Upland Ditch		

<p>Paper Size ANSI B</p> <p>0 25 50 75 100 Feet</p>			<p>City of Arcata Old Arcata Road Improvements</p>	<p>Project No. 11159130 Revision No. D Date 10/4/2018</p>
<p>Map Projection: Lambert Conformal Conic Horizontal Datum: North American 1983 Grid: NAD 1983 StatePlane California I FIPS 0401 Feet</p>			<p>Wetland Delineation</p>	<p><b>FIGURE 2- 1</b></p> <p><small>Data source: . Created by: gldawson</small></p>
<p>G:\1111159130 Arcata Old Arcata Road Improvements\08 GIS\Maps\Deliverables\11159130_02_WetDeli_RevD.mxd Print date: 04 Oct 2018 - 16:01</p>				



Legend

Project Study Boundary	1-Parameter Willow Series, Dripline
<b>Wetland Survey</b>	1-Parameter Willow Series, Dripline over Pavement
CC upland test pit	Palustrine Emergent Persistent 3-Parameter Wetland
USACE wetland test pit	Palustrine Scrub-Shrub 3-Parameter Wetland Broad leaved Deciduous
USACE wetland transect point	
Intermediate Point	
Upland Ditch	

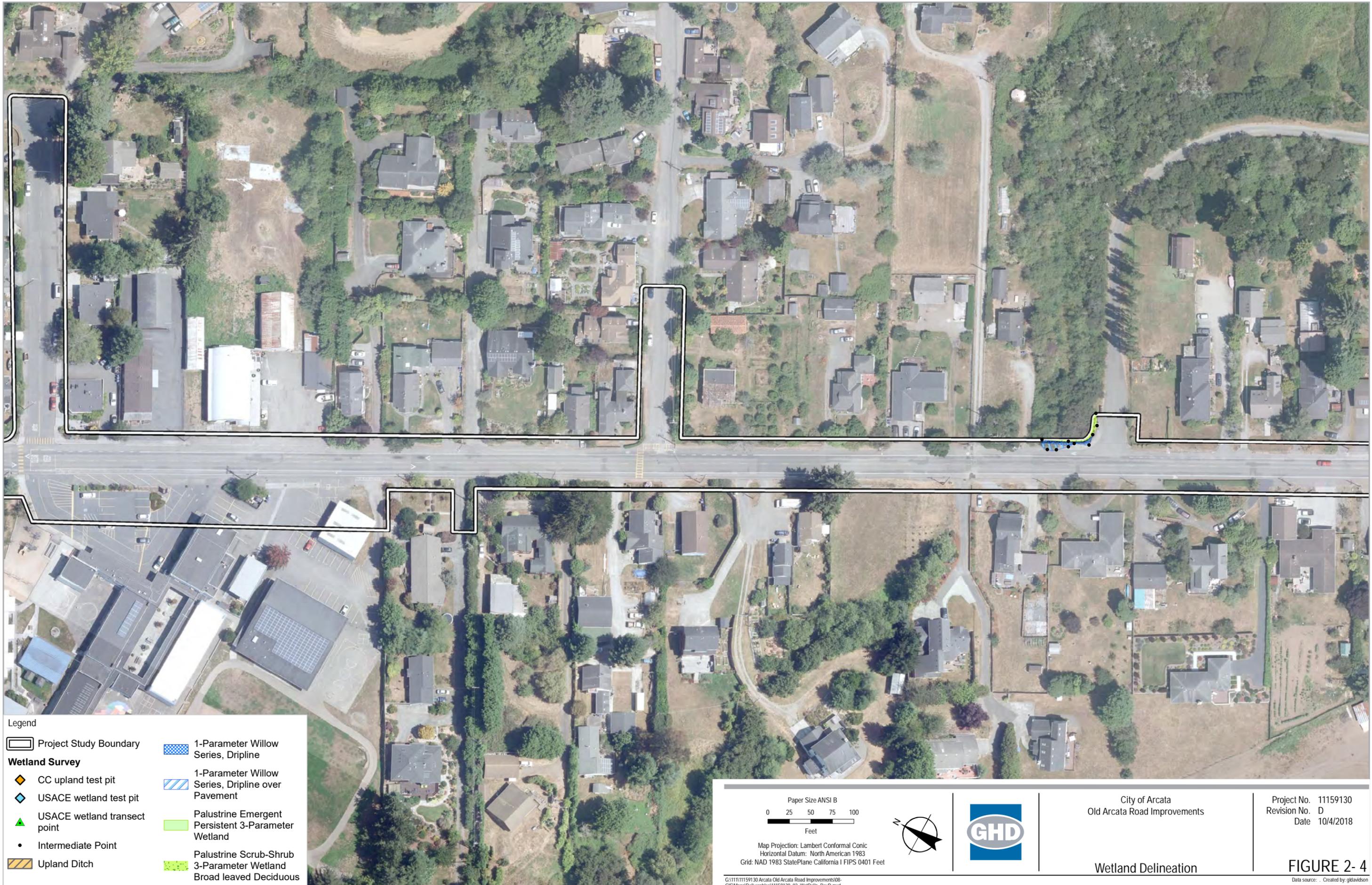
<p>Paper Size ANSI B</p> <p>0 25 50 75 100</p> <p>Feet</p> <p>Map Projection: Lambert Conformal Conic Horizontal Datum: North American 1983 Grid: NAD 1983 StatePlane California I FIPS 0401 Feet</p>			<p>City of Arcata Old Arcata Road Improvements</p>	<p>Project No. 11159130 Revision No. D Date 10/4/2018</p>
<p>Wetland Delineation</p>			<p><b>FIGURE 2-2</b></p> <p><small>Data source: . Created by: ghd\jackson</small></p>	



Legend

	Project Study Boundary		1-Parameter Willow Series, Dripline
<b>Wetland Survey</b>			
	CC upland test pit		1-Parameter Willow Series, Dripline over Pavement
	USACE wetland test pit		Palustrine Emergent Persistent 3-Parameter Wetland
	USACE wetland transect point		Palustrine Scrub-Shrub 3-Parameter Wetland Broad leaved Deciduous
	Intermediate Point		
	Upland Ditch		

<p>Paper Size ANSI B</p> <p>Feet</p>			<p>City of Arcata Old Arcata Road Improvements</p>	<p>Project No. 11159130 Revision No. D Date 10/4/2018</p>
<p>Map Projection: Lambert Conformal Conic Horizontal Datum: North American 1983 Grid: NAD 1983 StatePlane California I FIPS 0401 Feet</p>			<p>Wetland Delineation</p>	<p><b>FIGURE 2- 3</b></p> <p><small>Data source: . Created by: ghd\jackson</small></p>
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Legend

Project Study Boundary	1-Parameter Willow Series, Dripline
<b>Wetland Survey</b>	1-Parameter Willow Series, Dripline over Pavement
CC upland test pit	Palustrine Emergent Persistent 3-Parameter Wetland
USACE wetland test pit	Palustrine Scrub-Shrub 3-Parameter Wetland Broad leaved Deciduous
USACE wetland transect point	
Intermediate Point	
Upland Ditch	

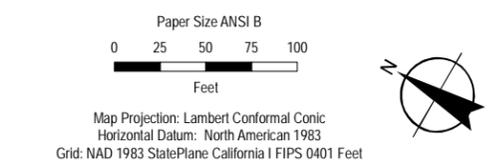
<p>Paper Size ANSI B</p> <p>0 25 50 75 100</p> <p>Feet</p> <p>Map Projection: Lambert Conformal Conic Horizontal Datum: North American 1983 Grid: NAD 1983 StatePlane California I FIPS 0401 Feet</p>			<p>City of Arcata Old Arcata Road Improvements</p>	<p>Project No. 11159130 Revision No. D Date 10/4/2018</p>
<p>Wetland Delineation</p>			<p><b>FIGURE 2- 4</b></p> <p><small>Data source: . Created by: ghd\jackson</small></p>	

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Legend

Project Study Boundary	1-Parameter Willow Series, Dripline
<b>Wetland Survey</b>	1-Parameter Willow Series, Dripline over Pavement
CC upland test pit	Palustrine Emergent Persistent 3-Parameter Wetland
USACE wetland test pit	Palustrine Scrub-Shrub 3-Parameter Wetland Broad leaved Deciduous
USACE wetland transect point	
Intermediate Point	
Upland Ditch	



City of Arcata  
 Old Arcata Road Improvements

Project No. 11159130  
 Revision No. D  
 Date 10/4/2018

Wetland Delineation

FIGURE 2- 5

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 Print date: 04 Oct 2018 - 16:05

Data source: . Created by: gldavison



# Appendix B – Data Sheets

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

Project/Site Old Arcata Road City/County Arcata / Humboldt Sampling Date 8/28/18  
 Applicant/Owner City of Arcata State CA Sampling Point W1-T1-W  
 Investigator(s) AL, MT Section, Township, Range \_\_\_\_\_  
 Landform (hillslope terrace etc.) \_\_\_\_\_ Local relief (concave, convex, none): Concave Slope (%) \_\_\_\_\_  
 Subregion (LRR) \_\_\_\_\_ Lat: \_\_\_\_\_ Long: \_\_\_\_\_ Datum: \_\_\_\_\_  
 Soil Map Unit Name \_\_\_\_\_ NWI classification: \_\_\_\_\_

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

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

Hydrophytic Vegetation Present?	Yes <input checked="" type="checkbox"/>	No _____	Is the Sampled Area within a Wetland?	Yes <input checked="" type="checkbox"/>	No _____
Hydric Soil Present?	Yes <input checked="" type="checkbox"/>	No _____			
Wetland Hydrology Present?	Yes <input checked="" type="checkbox"/>	No _____			

Remarks Vegetation is mowed. Veg plot is rectangular to match narrow roadside ditch (8' x 2'6") Wetland soil pit is 2 1/2 feet from mapped wetland boundary.

**VEGETATION – Use scientific names of plants.**

Tree Stratum (Plot size _____)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:	
1 _____				Number of Dominant Species That Are OBL, FACW, or FAC	<u>2</u> (A)
2 _____				Total Number of Dominant Species Across All Strata	<u>2</u> (B)
3 _____				Percent of Dominant Species That Are OBL, FACW, or FAC	<u>100%</u> (A/B)
4 _____				<b>Prevalence Index worksheet:</b>	
				Total % Cover of	Multiply by
				OBL species _____	x 1 = _____
				FACW species _____	x 2 = _____
				FAC species _____	x 3 = _____
				FACU species _____	x 4 = _____
				UPL species _____	x 5 = _____
				Column Totals _____	(A) _____ (B) _____
				Prevalence Index = B/A = _____	
				<b>Hydrophytic Vegetation Indicators:</b>	
				___ 1 - Rapid Test for Hydrophytic Vegetation	
				<input checked="" type="checkbox"/> 2 - Dominance Test is >50%	
				___ 3 - Prevalence Index is ≤3.0	
				___ 4 - Morphological Adaptations <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet)	
				___ 5 - Wetland Non-Vascular Plants <sup>1</sup>	
				___ Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)	
				<sup>1</sup> Indicators of hydric soil and wetland hydrology must be present unless disturbed or problematic.	
				<b>Hydrophytic Vegetation Present?</b> Yes <input checked="" type="checkbox"/> No _____	
				___ % Bare Ground in Herb Stratum <u>~3%</u>	

Remarks Rubus armeniacus included in herbaceous stratum since less than 5% cover for shrub layer. Plot is w/in a roadside ditch.

**SOIL**

Sampling Point: W1-T1-W

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

Depth (Inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-6"	2.5-3/1	100	10YR 5/6	100	C	M	SILT/LOAM	MED GRAIN < 15
6-12"	2.5-4/1	85%	10YR 5/6	15	C	M	SILT/CLAY	SM < 10
12-16"	2.5-3/1	80	10YR 5/6	20	C	M	SILT/CLAY	SM GRAIN < 5

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

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

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

Restrictive Layer (if present):  
 Type: NONE  
 Depth (inches): GRAVEL @ 4" BGS

Hydric Soil Present? Yes  No

Remarks:  
 HYDRIC SOILS PRESENT DUE TO LOW CHROMA VALUES (3/1, 4/1) AND REDOX SOILS BELOW 6" GROUND SURFACE.

**HYDROLOGY**

Wetland Hydrology Indicators:

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

Field Observations:

Surface Water Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Depth (inches): _____	Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
Water Table Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Depth (inches): _____	
Saturation Present? (includes capillary fringe) Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Depth (inches): _____	

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

Remarks:  
 TWO SECONDARY INDICATORS MET:  
 (D2) - GEOMORPHIC POSITION - DITCH LOCATION  
 (D5) - FAC-NEUTRAL TEST PASSED.

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

Project/Site Old Arcata Rd City/County Arcata / Humboldt Sampling Date 8/28/18  
 Applicant/Owner City of Arcata State CA Sampling Point WI-TI-U  
 Investigator(s) A.L., M.T. Section, Township, Range \_\_\_\_\_  
 Landform (hillslope, terrace, etc.) \_\_\_\_\_ Local relief (concave, convex, none) \_\_\_\_\_ Slope (%) \_\_\_\_\_  
 Subregion (LRR) \_\_\_\_\_ Lat \_\_\_\_\_ Long \_\_\_\_\_ Datum \_\_\_\_\_  
 Soil Map Unit Name \_\_\_\_\_ NWI classification: \_\_\_\_\_

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

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

Hydrophytic Vegetation Present?	Yes _____ No <u>X</u>	Is the Sampled Area within a Wetland? Yes _____ No <u>X</u>
Hydric Soil Present?	Yes _____ No <u>X</u>	
Wetland Hydrology Present?	Yes _____ No <u>X</u>	
Remarks <u>From mapped transect point, distance to upland pit is 2'.</u>		

**VEGETATION – Use scientific names of plants.**

Tree Stratum (Plot size <u>20' radius</u> )	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet: Number of Dominant Species that Are OBL, FACW, or FAC _____ (A) Total Number of Dominant Species Across All Strata _____ (B) Percent of Dominant Species That Are OBL, FACW, or FAC <u>33.3%</u> (A/B)
→ <u>Pinus radiata</u>	<u>25%</u>	<u>X</u>	<u>NL(U)</u>	
2 _____				Prevalence Index worksheet: Total % Cover of _____ Multiply by _____ OBL species _____ x 1 = _____ FACW species _____ x 2 = _____ FAC species _____ x 3 = _____ FACU species _____ x 4 = _____ UPL species _____ x 5 = _____ Column Totals _____ (A) _____ (B) Prevalence Index = B/A = _____
3 _____				
4 _____				
Sapling/Shrub Stratum (Plot size <u>7' radius</u> ) _____ = Total Cover				
1 _____				
2 _____				Hydrophytic Vegetation Indicators: ___ 1 - Rapid Test for Hydrophytic Vegetation ___ 2 - Dominance Test is >50% ___ 3 - Prevalence Index is ≤3.0 <sup>1</sup> ___ 4 - Morphological Adaptations <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet) ___ 5 - Wetland Non-Vascular Plants <sup>1</sup> ___ Problematic Hydrophytic Vegetation <sup>1</sup> (Explain) <sup>1</sup> Indicators of hydric soil and wetland hydrology must be present unless disturbed or problematic.
3 _____				
4 _____				
5 _____				
Herb Stratum (Plot size: <u>See note</u> ) _____ = Total Cover				
1 <u>Festuca arundinacea</u>	<u>15</u>		<u>FAC</u>	
2 <u>Lotus corniculatus</u>	<u>10</u>		<u>FAC</u>	
3 <u>Hypochaeris radicata</u>	<u>20</u>	<u>X</u>	<u>FACU</u>	
4 <u>Prunella vulgaris</u>	<u>5</u>		<u>FACU</u>	
5 <u>Agrostis stolonifera</u>	<u>35</u>	<u>X</u>	<u>FAC</u>	
6 <u>Ranunculus repens</u>	<u>15</u>		<u>FAC</u>	
7 _____				
8 _____				
9 _____				
10 _____				
11 _____				
Woody Vine Stratum (Plot size _____) _____ = Total Cover				
1 _____				Hydrophytic Vegetation Present? Yes _____ No <u>X</u>
2 _____				
% Bare Ground in Herb Stratum <u>0</u> _____ = Total Cover				

Remarks Upland herbaceous plot is a 5' radius on uphill side and to sides of pit, does not include wetland side since plot is so close to boundary.

**SOIL**

Sampling Point: W1-T1-U

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

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-6"	2.5y 3/3	100			C	M	Silt/Loam	VEGETATION MATTER
6-11"	2.5y 4/3	98	10y2 5/6	2%	C	M	Silt/Loam	
11-16"	2.5y 4/4	95	7.5y2 5/6	5%	C	M	Silt/Loam	

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

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

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

**Restrictive Layer (if present):**

Type: NONE

Depth (inches): NONE

Hydric Soil Present? Yes  No

Remarks:  
DOES NOT MEET HYDRIC SOIL INDICATORS

**HYDROLOGY**

**Wetland Hydrology Indicators:**

Primary Indicators (minimum of one required; check all that apply)

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

**Field Observations:**

Surface Water Present? Yes  No  Depth (inches): \_\_\_\_\_

Water Table Present? Yes  No  Depth (inches): \_\_\_\_\_

Saturation Present? Yes  No  Depth (inches): \_\_\_\_\_

(includes capillary fringe)

Wetland Hydrology Present? Yes  No

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:  
NONE

Remarks:  
WETLAND HYDROLOGY INDICATORS MET.

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

Project/Site Old Arcata Rd City/County Arcata/Humboldt Sampling Date 8/28/18  
 Applicant/Owner City of Arcata State CA Sampling Point W2T2-W  
 Investigator(s) A.L. and M.T. Section Township Range \_\_\_\_\_  
 Landform (hillslope terrace etc) \_\_\_\_\_ Local relief (concave convex none) concave Slope (%) \_\_\_\_\_  
 Subregion (LRR) \_\_\_\_\_ Lat: \_\_\_\_\_ Long \_\_\_\_\_ Datum \_\_\_\_\_  
 Soil Map Unit Name \_\_\_\_\_ NWI classification \_\_\_\_\_

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

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

Hydrophytic Vegetation Present?	Yes <input checked="" type="checkbox"/>	No _____	Is the Sampled Area within a Wetland? Yes <input checked="" type="checkbox"/> No _____
Hydric Soil Present?	Yes <input checked="" type="checkbox"/>	No _____	
Wetland Hydrology Present?	Yes <input checked="" type="checkbox"/>	No _____	
Remarks <u>Vegetation plots were radial plots facing away from wetland/upland boundary towards</u>			

**VEGETATION – Use scientific names of plants. Wetland plot is 5 1/2 feet away from mapped point**

Tree Stratum (Plot size <u>15' Radius</u> )	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:
1 <u>Salix hookeriana</u>	<u>95%</u>	<input checked="" type="checkbox"/>	<u>FACW</u>	Number of Dominant Species That Are OBL, FACW, or FAC <u>3</u> (A)
2 _____				Total Number of Dominant Species Across All Strata <u>3</u> (B)
3 _____				Percent of Dominant Species That Are OBL, FACW, or FAC <u>100%</u> (A/B)
4 _____				<b>Prevalence Index worksheet:</b> Total % Cover of: _____ Multiply by _____ OBL species _____ x 1 = _____ FACW species _____ x 2 = _____ FAC species _____ x 3 = _____ FACU species _____ x 4 = _____ UPL species _____ x 5 = _____ Column Totals _____ (A) _____ (B) Prevalence Index = B/A = _____
Sapling/Shrub Stratum (Plot size <u>12'</u> )				
1 <u>Rubus armeniacus</u>	<u>50%</u>	<input checked="" type="checkbox"/>	<u>FAC</u>	
2 _____				
3 _____				
Herb Stratum (Plot size <u>5'</u> )				
1 <u>Ranunculus repens</u>	<u>3%</u>	<input checked="" type="checkbox"/>	<u>FAC</u>	
2 _____				
3 _____				
4 _____				
5 _____				
6 _____				
7 _____				
8 _____				
9 _____				
10 _____				
11 _____				
Woody Vine Stratum (Plot size _____)				
1 _____				
2 _____				
% Bare Ground in Herb Stratum <u>(97% covered by duff and small wood)</u> = Total Cover				

- Hydrophytic Vegetation Indicators:**
- 1 - Rapid Test for Hydrophytic Vegetation
  - 2 - Dominance Test is >50%
  - 3 - Prevalence Index is ≤3.0
  - 4 - Morphological Adaptations (Provide supporting data in Remarks or on a separate sheet)
  - 5 - Wetland Non-Vascular Plants
- Problematic Hydrophytic Vegetation (Explain)  
 Indicators of hydric soil and wetland hydrology must be present unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes  No \_\_\_\_\_

Remarks Herbaceous cover is sparse due to branches and small wood on ground and dense canopy from willows and Himalyan blackberry.



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

Project/Site Old Arcade City/County \_\_\_\_\_ Sampling Date 8/28/18  
 Applicant/Owner \_\_\_\_\_ State \_\_\_\_\_ Sampling Point W2-T2-U  
 Investigator(s) A.L., M.T. Section Township Range \_\_\_\_\_  
 Landform (hillslope terrace etc) \_\_\_\_\_ Local relief (concave, convex, none) \_\_\_\_\_ Slope (%) \_\_\_\_\_  
 Subregion (LRR) \_\_\_\_\_ Lat \_\_\_\_\_ Long \_\_\_\_\_ Datum \_\_\_\_\_  
 Soil Map Unit Name \_\_\_\_\_ NWI classification \_\_\_\_\_

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

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

Hydrophytic Vegetation Present?	Yes <input checked="" type="checkbox"/>	No _____	Is the Sampled Area within a Wetland? Yes _____ No <input checked="" type="checkbox"/>
Hydric Soil Present?	Yes _____	No <input checked="" type="checkbox"/>	
Wetland Hydrology Present?	Yes _____	No <input checked="" type="checkbox"/>	
Remarks <u>Plot is 6' away from mapped boundary of Wetland 2.</u>			

**VEGETATION – Use scientific names of plants.**

Tree Stratum (Plot size _____)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:	
1 _____				Number of Dominant Species That Are OBL, FACW, or FAC	<u>3</u> (A)
2 _____				Total Number of Dominant Species Across All Strata	<u>4</u> (B)
3 _____				Percent of Dominant Species That Are OBL, FACW, or FAC	<u>75%</u> (A/B)
4 _____				= Total Cover	
<b>Sapling/Shrub Stratum (Plot size <u>10'</u>)</b>				<b>Prevalence Index worksheet:</b>	
1 <u>Rubus ursinus</u>	<u>10</u>	<input checked="" type="checkbox"/>	<u>FACU</u>	Total % Cover of _____	Multiply by _____
2 <u>Rubus armeniacus</u>	<u>20</u>	<input checked="" type="checkbox"/>	<u>FAC</u>	OBL species _____ x 1 = _____	
3 _____				FACW species _____ x 2 = _____	
4 _____				FAC species _____ x 3 = _____	
5 _____				FACU species _____ x 4 = _____	
	<u>30</u>			UPL species _____ x 5 = _____	
= Total Cover <u>15%</u>				Column Totals _____ (A) _____ (B)	
<b>Herb Stratum (Plot size <u>5'</u>)</b>				Prevalence Index = B/A = _____	
1 <u>Agrostis stolonifera</u>	<u>5.0</u>	<input checked="" type="checkbox"/>	<u>FAC</u>	<b>Hydrophytic Vegetation Indicators:</b> ___ 1 - Rapid Test for Hydrophytic Vegetation ___ 2 - Dominance Test is >50% ___ 3 - Prevalence Index is ≤3.0 ___ 4 - Morphological Adaptations* (Provide supporting data in Remarks or on a separate sheet) ___ 5 - Wetland Non-Vascular Plants* ___ Problematic Hydrophytic Vegetation* (Explain) *Indicators of hydric soil and wetland hydrology must be present unless disturbed or problematic	
2 <u>Astura palmeri</u>	<u>5</u>		<u>FAC</u>		
3 <u>Ranunculus repens</u>	<u>7</u>		<u>FAC</u>		
4 <u>Holcus lanatus</u>	<u>2.0</u>	<input checked="" type="checkbox"/>	<u>FAC</u>		
5 <u>Geranium dissectum</u>	<u>3</u>		<u>NL (UPL)</u>		
6 <u>Lapsana communis</u>	<u>7</u>		<u>FACU</u>		
7 <u>Equisetum telmateia</u>	<u>3</u>		<u>FACW</u>		
8 _____					
9 _____					
10 _____					
11 _____					
= Total Cover <u>47.5%</u>					
<b>Woody Vine Stratum (Plot size _____)</b>				<b>Hydrophytic Vegetation Present?</b> Yes <input checked="" type="checkbox"/> No _____	
1 _____					
2 _____					
= Total Cover _____					
% Bare Ground in Herb Stratum _____					

Remarks Radial plot facing away from wetland. Mowed area probably contributes to dominance by Holcus lanatus + Agrostis stolonifera. RUBARM is invasive and dominant along roadsides.

**SOIL**

Sampling Point: WZ-T2-U

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

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
1-8"	2.5-3/3	100%					SILT LOAM	25% SU ORANGE
8"-16"	2.5-4/2	100%					SILT LOAM	

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

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

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

**Restrictive Layer (if present):**

Type: NONE

Depth (inches): NONE

Hydric Soil Present? Yes  No

Remarks:  
HIGH CROMA, NO REDOX SOILS INDICATORS UPLAND.

**HYDROLOGY**

**Wetland Hydrology Indicators:**

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

**Field Observations:**

Surface Water Present? Yes  No  Depth (inches): \_\_\_\_\_

Water Table Present? Yes  No  Depth (inches): \_\_\_\_\_

Saturation Present? (includes capillary fringe) Yes  No  Depth (inches): \_\_\_\_\_

Wetland Hydrology Present? Yes  No

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

Remarks: NO SIGNS OF SURFACE HYDROLOGY OR INDICATORS MET



**SOIL**

Sampling Point **WS-T1-W**

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

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-6"	2.5Y 4/1	98	10Y 5/6	3	C	h <sub>1</sub>	Silt-clay Loam	> 20% Charcoal
6-10"	2.5Y 4/2	100			C	h <sub>2</sub>	Clay-loam	< 15% "
10-14"	5Y 4/1	100			C	h <sub>3</sub>	Clay-loam	< 15% "

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

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

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

**Restrictive Layer (if present):**

Type: None

Depth (inches): NU

Hydric Soil Present? Yes  No

Remarks:  
GRAVEL & HAIR AT SURFACE. HYDRIC SOIL INDICATOR (F3) - DEPLETED MATRIX AND REDOX SOIL w/in 6" BGS.

**HYDROLOGY**

**Wetland Hydrology Indicators:**

<b>Primary Indicators (minimum of one required; check all that apply)</b>		<b>Secondary Indicators (2 or more required)</b>
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Water-Stained Leaves (B9) (except MLRA 1, 2, 4A, and 4B)	<input type="checkbox"/> Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Salt Crust (B11)	<input type="checkbox"/> Drainage Patterns (B10)
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Aquatic Invertebrates (B13)	<input type="checkbox"/> Dry-Season Water Table (C2)
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)	<input checked="" type="checkbox"/> Geomorphic Position (D2)
<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Shallow Aquitard (D3)
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)	<input checked="" type="checkbox"/> FAC-Neutral Test (D5) 3:1
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Stunted or Stressed Plants (D1) (LRR A)	<input type="checkbox"/> Raised Ant Mounds (D6) (LRR A)
<input type="checkbox"/> Surface Soil Cracks (B6)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> Frost-Heave Hummocks (D7)
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)		
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)		

**Field Observations:**

Surface Water Present? Yes  No  Depth (inches): \_\_\_\_\_

Water Table Present? Yes  No  Depth (inches): \_\_\_\_\_

Saturation Present? (includes capillary fringe) Yes  No  Depth (inches): \_\_\_\_\_

Wetland Hydrology Present? Yes  No

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

Remarks:  
V- PIT LOCATED AT PERIMETER OF MAIN CANAL DITCH. HYDRO MET TWO SECONDARY INDICATORS  
- D2 - GEOMORPHIC POSITION  
- D5 - FAC NEUTRAL TEST PASSED.

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

Project/Site Old Arcata Road City/County Arcata, Humboldt Sampling Date 8/29/18  
 Applicant/Owner City of Arcata State CA Sampling Point WSTI-U  
 Investigator(s) A.L., M.T. Section, Township, Range \_\_\_\_\_  
 Landform (hillslope terrace etc) \_\_\_\_\_ Local relief (concave convex none) \_\_\_\_\_ Slope (%) \_\_\_\_\_  
 Subregion (LRR) \_\_\_\_\_ Lat: \_\_\_\_\_ Long: \_\_\_\_\_ Datum \_\_\_\_\_  
 Soil Map Unit Name \_\_\_\_\_ NWI classification \_\_\_\_\_

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

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

Hydrophytic Vegetation Present?	Yes <input checked="" type="checkbox"/> No _____	Is the Sampled Area within a Wetland? Yes _____ No <input checked="" type="checkbox"/>
Hydric Soil Present?	Yes _____ No <input checked="" type="checkbox"/>	
Wetland Hydrology Present?	Yes _____ No <input checked="" type="checkbox"/>	

Remarks Upland plot is located outside of area excavated for ditch. Soil is covered w/ straw and there is almost no remaining vegetation from excavation work.

**VEGETATION - Use scientific names of plants. Very disturbed vegetation makes plant ID and cover estimates very difficult.**

Tree Stratum (Plot size _____)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:
1 _____				Number of Dominant Species That Are OBL, FACW, or FAC <u>6</u> (A)
2 _____				Total Number of Dominant Species Across All Strata <u>7</u> (B)
3 _____				Percent of Dominant Species That Are OBL, FACW, or FAC <u>86%</u> (A/B)
4 _____				Prevalence Index worksheet:
= Total Cover				Total % Cover of
= Total Cover				Multiply by
= Total Cover				OBL species _____ x 1 = _____
= Total Cover				FACW species _____ x 2 = _____
= Total Cover				FAC species _____ x 3 = _____
= Total Cover				FACU species _____ x 4 = _____
= Total Cover				UPL species _____ x 5 = _____
= Total Cover				Column Totals (A) _____ (B) _____
= Total Cover				Prevalence Index = B/A = _____
= Total Cover				Hydrophytic Vegetation Indicators:
= Total Cover				1 - Rapid Test for Hydrophytic Vegetation _____
= Total Cover				<input checked="" type="checkbox"/> 2 - Dominance Test is >50% _____
= Total Cover				3 - Prevalence Index is ≤ 3.0 _____
= Total Cover				4 - Morphological Adaptations (Provide supporting data in Remarks or on a separate sheet) _____
= Total Cover				5 - Wetland Non-Vascular Plants _____
= Total Cover				Problematic Hydrophytic Vegetation (Explain) _____
= Total Cover				Indicators of hydric soil and wetland hydrology must be present unless disturbed or problematic
= Total Cover				Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No _____
= Total Cover				

Remarks Rectangular herbaceous plot 3m x 1m around upland soil pit. Fill material has been deposited on soil surface from excavation of ditch.

Very low total veg cover. No hydrology or soil indicators.

Wetland boundary is 1' as mapped from upland pit. Did not mean ne 1' boundary based on ditch...

**SOIL**

Sampling Point: WS-T1-U

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

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-9"	2.5Y 3/3	100			C	M	granitic CLAY - 1 mm	MILD VEGETATION @ SURFACE
9-16"	10YR 5/6	76	10YR 5/6	2	C	M	VERY GRAVELLY LOAM - CLAY	

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

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

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

**Restrictive Layer (if present):**  
 Type: NJ  
 Depth (inches): \_\_\_\_\_

**Hydric Soil Present?** Yes \_\_\_\_\_ No

Remarks: INCREASE IN DRAGON CONCENTRATIONS AT 10" BGS.  
 THROUGH SOME REDOX SOILS ≤ 2% AT 9" BGS, NOT SUFFICIENT FOR HYDRIC SOIL.

**HYDROLOGY**

**Wetland Hydrology Indicators:**

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

**Field Observations:**

Surface Water Present? Yes \_\_\_\_\_ No  Depth (inches): \_\_\_\_\_

Water Table Present? Yes \_\_\_\_\_ No  Depth (inches): \_\_\_\_\_

Saturation Present? (includes capillary fringe) Yes \_\_\_\_\_ No  Depth (inches): \_\_\_\_\_

**Wetland Hydrology Present?** Yes \_\_\_\_\_ No

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:  
NONE

Remarks: NO HYDROLOGICAL EVIDENCE AT TIME OF DELINEATION.

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

Project/Site Old Arcata Road City/County Arcata, Humboldt Sampling Date 8/29/18  
 Applicant/Owner City of Arcata State CA Sampling Point W5T2-W  
 Investigator(s) A.L., M.T. Section, Township, Range \_\_\_\_\_  
 Landform (hillslope terrace etc) \_\_\_\_\_ Local relief (concave, convex, none) \_\_\_\_\_ Slope (%) \_\_\_\_\_  
 Subregion (LRR) \_\_\_\_\_ Lat \_\_\_\_\_ Long \_\_\_\_\_ Datum \_\_\_\_\_  
 Soil Map Unit Name \_\_\_\_\_ NWI classification \_\_\_\_\_

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

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

Hydrophytic Vegetation Present?	Yes <input checked="" type="checkbox"/>	No _____	Is the Sampled Area within a Wetland? Yes <input checked="" type="checkbox"/> No _____
Hydric Soil Present?	Yes <input checked="" type="checkbox"/>	No _____	
Wetland Hydrology Present?	Yes <input checked="" type="checkbox"/>	No _____	
Remarks <u>Area has been mowed recently and covered in rice straw. There is very little vegetation present and mowing complicates describing plot</u>			

**VEGETATION – Use scientific names of plants.**

Tree Stratum (Plot size _____)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:	
1 _____				Number of Dominant Species That Are OBL, FACW, or FAC	<u>2</u> (A)
2 _____				Total Number of Dominant Species Across All Strata	<u>2</u> (B)
3 _____				Percent of Dominant Species That Are OBL, FACW, or FAC	<u>100%</u> (A/B)
4 _____					
_____ = Total Cover					
Sapling/Shrub Stratum (Plot size _____)	Absolute % Cover	Dominant Species?	Indicator Status	Prevalence Index worksheet:	
1 _____				Total % Cover of	Multiply by
2 _____				OBL species _____	x 1 = _____
3 _____				FACW species _____	x 2 = _____
4 _____				FAC species _____	x 3 = _____
5 _____				FACU species _____	x 4 = _____
6 _____				UPL species _____	x 5 = _____
_____ = Total Cover				Column Totals:	(A) _____ (B) _____
				Prevalence Index = B/A = _____	
Herb Stratum (Plot size <u>5x2m, rectangle</u> )	Absolute % Cover	Dominant Species?	Indicator Status	Hydrophytic Vegetation Indicators:	
1 <u>Cyperus eragioides</u>	<u>3</u>	<input checked="" type="checkbox"/>	<u>FAC</u>	1 - Rapid Test for Hydrophytic Vegetation	
2 <u>Festuca arundinacea</u>	<u>6</u>	<input checked="" type="checkbox"/>	<u>FAC</u>	2 - Dominance Test is >50%	
3 <u>Ranunculus repens</u>	<u>1</u>		<u>FAC</u>	3 - Prevalence Index is ≤3.0	
4 <u>Juncus effusus</u>	<u>2</u>		<u>FACW</u>	4 - Morphological Adaptations* (Provide supporting data in Remarks or on a separate sheet)	
5 <u>Rubus ursinus</u>	<u>1</u>		<u>FACU</u>	5 - Wetland Non-Vascular Plants*	
6 _____				Problematic Hydrophytic Vegetation* (Explain)	
7 _____				*Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.	
8 _____					
9 _____					
10 _____					
11 _____					
<u>13</u> = Total Cover					
Woody Vine Stratum (Plot size _____)	Absolute % Cover	Dominant Species?	Indicator Status	Hydrophytic Vegetation Present?	
1 _____				Yes <input checked="" type="checkbox"/> No _____	
2 _____					
<u>6.5</u> = Total Cover					
<u>2.6</u>					
_____ = Total Cover					
% Bare Ground in Herb Stratum _____					

Remarks Rubus ursinus included in herbaceous stratum since less than 5%.  
Wetland pit is 2' from mapped wetland boundary.

**SOIL**

Sampling Point: WS-T2-W

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

Depth (inches)	Matrix		Redox Features				Type <sup>1</sup>	Loc <sup>2</sup>	Texture	Remarks
	Color (moist)	%	Color (moist)	%						
0-6"	2.5y 4/1	90	10-1h 5/6	10	c	m		gravelly - silty clay loam w/ u/c		
6"-14"	2.5y 3/1	95	10-1h 5/6	5	c	lms		gravelly - silty clay loam		

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

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

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

**Restrictive Layer (if present):**  
 Type: NONE  
 Depth (inches):  

Hydric Soil Present? Yes  No

Remarks:  
 F-3. Depleted Matrix due to low chroma & values of 4 or less.

**HYDROLOGY**

**Wetland Hydrology Indicators:**

<b>Primary Indicators (minimum of one required; check all that apply)</b>		<b>Secondary Indicators (2 or more required)</b>
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Water-Stained Leaves (B9) (except MLRA 1, 2, 4A, and 4B)	<input type="checkbox"/> Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Salt Crust (B11)	<input checked="" type="checkbox"/> Drainage Patterns (B10)
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Aquatic Invertebrates (B13)	<input type="checkbox"/> Dry-Season Water Table (C2)
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)	<input checked="" type="checkbox"/> Geomorphic Position (D2)
<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Presence of Reduced Iron (C4) <i>not test</i>	<input type="checkbox"/> Shallow Aquitard (D3)
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)	<input type="checkbox"/> FAC-Neutral Test (D5) <i>not tie</i>
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Stunted or Stressed Plants (D1) (LRR A)	<input type="checkbox"/> Raised Ant Mounds (D6) (LRR A)
<input type="checkbox"/> Surface Soil Cracks (B6)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> Frost-Heave Hummocks (D7)
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)		
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)		

**Field Observations:**

Surface Water Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Depth (inches): <u> </u>	Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
Water Table Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Depth (inches): <u> </u>	
Saturation Present? (includes capillary fringe) Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Depth (inches): <u> </u>	

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

Remarks:  
 - Topographic depressions indicate drainage hydrology potential.  
 Two secondary hydro indicators met:  
 (B10) - visible drainage pattern  
 (D2) - geomorphic position adjacent to swale.

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

Project/Site Old Arcata Road City/County Arcata, Humboldt Sampling Date 8/29/18  
 Applicant/Owner City of Arcata State CA Sampling Point W5T2-U  
 Investigator(s) A. Livingston and M. Tolley Section, Township, Range \_\_\_\_\_  
 Landform (hillslope, terrace, etc.) \_\_\_\_\_ Local relief (concave, convex, none) \_\_\_\_\_ Slope (%) \_\_\_\_\_  
 Subregion (LRR) \_\_\_\_\_ Lat. \_\_\_\_\_ Long \_\_\_\_\_ Datum \_\_\_\_\_  
 Soil Map Unit Name \_\_\_\_\_ NWI classification \_\_\_\_\_

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

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

Hydrophytic Vegetation Present?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	Is the Sampled Area within a Wetland?	Yes _____	No <input checked="" type="checkbox"/>
Hydric Soil Present?	Yes _____	No <input checked="" type="checkbox"/>			
Wetland Hydrology Present?	Yes _____	No <input checked="" type="checkbox"/>			

Remarks: Vegetation is very sparse. It has been mowed and is mostly covered with rice straw. Mowing of vegetation on this road side island likely favors dominance of tall fescue.

**VEGETATION - Use scientific names of plants.**

Tree Stratum (Plot size _____)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:	
1 _____				Number of Dominant Species That Are OBL, FACW, or FAC	<u>1</u> (A)
2 _____				Total Number of Dominant Species Across All Strata	<u>3</u> (B)
3 _____				Percent of Dominant Species That Are OBL, FACW, or FAC	<u>33.3%</u> (A/B)
4 _____				Prevalence Index worksheet:	
_____ = Total Cover				Total % Cover of	Multiply by
OBL species _____				x 1 = _____	
FACW species _____				x 2 = _____	
FAC species _____				x 3 = _____	
FACU species _____				x 4 = _____	
UPL species _____				x 5 = _____	
_____ = Total Cover				Column Totals	(A) _____ (B) _____
Prevalence Index = B/A = _____				Hydrophytic Vegetation Indicators:	
1 - Rapid Test for Hydrophytic Vegetation				_____	
2 - Dominance Test is >50%				_____	
3 - Prevalence Index is ≤3.0 <sup>1</sup>				_____	
4 - Morphological Adaptations <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet)				_____	
5 - Wetland Non-Vascular Plants <sup>1</sup>				_____	
Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)				_____	
<sup>1</sup> Indicators of hydric soil and wetland hydrology must be present unless disturbed or problematic.					
Hydrophytic Vegetation Present?				Yes <input checked="" type="checkbox"/>	No _____

Remarks: Upland pit is 2' from mapped wetland boundary. Although tall fescue is dominant, Trifolium fragiferum (FACU) present in plot and becomes more dominant farther into upland. Vegetation is disturbed and sparse.

**SOIL**

Sampling Point: WS-TL-U

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

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-6"	2.5 + 4/5	100					GRAVELLY SILTY LOAM	
6-14"	2.5 + 3/3	100					VERY GRAVELLY SILTY LOAM	

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

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

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

**Restrictive Layer (if present):**

Type: \_\_\_\_\_

Depth (inches): \_\_\_\_\_

Hydric Soil Present? Yes \_\_\_\_\_ No

Remarks:  
upland p.t. High Crown (3)

**HYDROLOGY**

**Wetland Hydrology Indicators:**

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

**Field Observations:**

Surface Water Present? Yes \_\_\_\_\_ No  Depth (inches): \_\_\_\_\_

Water Table Present? Yes \_\_\_\_\_ No  Depth (inches): \_\_\_\_\_

Saturation Present? Yes \_\_\_\_\_ No  Depth (inches): \_\_\_\_\_ (includes capillary fringe)

Wetland Hydrology Present? Yes \_\_\_\_\_ No

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

Remarks:  
upland, no hydro indicators met

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

Project/Site Old Arcata Road City/County Arcata, Humboldt Sampling Date 8/29/18  
 Applicant/Owner City of Arcata State CA Sampling Point WS-T3-W  
 Investigator(s) AL, M.T. Section, Township, Range \_\_\_\_\_  
 Landform (hillslope terrace etc) \_\_\_\_\_ Local relief (concave, convex, none) concave Slope (%) \_\_\_\_\_  
 Subregion (LRR): \_\_\_\_\_ Lat: \_\_\_\_\_ Long: \_\_\_\_\_ Datum \_\_\_\_\_  
 Soil Map Unit Name \_\_\_\_\_ NWI classification \_\_\_\_\_

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

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

Hydrophytic Vegetation Present?	Yes <input checked="" type="checkbox"/> No _____	Is the Sampled Area within a Wetland? Yes <input checked="" type="checkbox"/> No _____
Hydric Soil Present?	Yes <input checked="" type="checkbox"/> No _____	
Wetland Hydrology Present?	Yes <input checked="" type="checkbox"/> No _____	
Remarks <u>Excavated ditch covered w/ rice straw and mowed vegetation complicate describing veg plot. Unsure of willow species between <i>S. scouleriana</i> (FAC) or <i>S. sitchensis</i> (FACW)</u>		

**VEGETATION – Use scientific names of plants. *S. sitchensis* (FACW)**

Tree Stratum (Plot size <u>6m x 3m rectangle</u> )	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:
1 <u><i>Salix</i> sp. (likely either <i>S. scouleriana</i> or <i>S. sitchensis</i>)</u>	<u>30%</u>	<input checked="" type="checkbox"/>	<u>FAC or FACW</u>	Number of Dominant Species That Are OBL, FACW, or FAC <u>3</u> (A)
2 _____	_____	_____	_____	Total Number of Dominant Species Across All Strata <u>3</u> (B)
3 _____	_____	_____	_____	Percent of Dominant Species That Are OBL, FACW, or FAC <u>100%</u> (A/B)
4 _____	_____	_____	_____	Prevalence Index worksheet: Total % Cover of: Multiply by OBL species _____ x 1 = _____ FACW species _____ x 2 = _____ FAC species _____ x 3 = _____ FACU species _____ x 4 = _____ UPL species _____ x 5 = _____ Column Totals: _____ (A) _____ (B) Prevalence Index = B/A = _____
= Total Cover				
Sampling/Shrub Stratum (Plot size <u>3m x 1m</u> )				
1 <u>Included in herbaceous plot</u>	_____	_____	_____	
2 <u>due to &lt; 5% cover</u>	_____	_____	_____	
= Total Cover				
Herb Stratum (Plot size <u>rectangle 3x1m</u> )				
1 <u><i>Alopecurus lanatus</i></u>	<u>3%</u>	<input checked="" type="checkbox"/>	<u>FA</u>	
2 <u><i>Rubus armeniacus</i></u>	<u>2%</u>	<input checked="" type="checkbox"/>	<u>FAC</u>	
3 _____	_____	_____	_____	
4 _____	_____	_____	_____	
5 _____	_____	_____	_____	
6 _____	_____	_____	_____	
7 _____	_____	_____	_____	
8 _____	_____	_____	_____	
9 _____	_____	_____	_____	
10 _____	_____	_____	_____	
11 _____	_____	_____	_____	
= Total Cover				
Woody Vine Stratum (Plot size _____)				
1 _____	_____	_____	_____	
2 _____	_____	_____	_____	
= Total Cover				
% Bare Ground in Herb Stratum _____				

Remarks Very little herbaceous veg because of ~~the~~ mowing and fresh rice straw.

**SOIL**

Sampling Point: WS-T3-L

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)								
Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-6"	2.5Y 3/1	95	10Yn 5/6	5	C	M		GRAVELLY
6-10"	2.5Y 3/2	95%	2.5Yn 4/6	5%	C	L		" "
10-16"	2.5Y 4/2	98%	2.5Yn 4/6	2%	C	L		" "
<sup>1</sup> Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. <sup>2</sup> Location: PL=Pore Lining, M=Matrix.								
Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)						Indicators for Problematic Hydric Soils <sup>3</sup> :		
<input type="checkbox"/> Histosol (A1)			<input type="checkbox"/> Sandy Redox (S5)			<input type="checkbox"/> 2 cm Muck (A10)		
<input type="checkbox"/> Histic Epipedon (A2)			<input type="checkbox"/> Stripped Matrix (S6)			<input type="checkbox"/> Red Parent Material (TF2)		
<input type="checkbox"/> Black Histic (A3)			<input type="checkbox"/> Loamy Mucky Mineral (F1) (except MLRA 1)			<input type="checkbox"/> Very Shallow Dark Surface (TF12)		
<input type="checkbox"/> Hydrogen Sulfide (A4)			<input type="checkbox"/> Loamy Gleyed Matrix (F2)			<input type="checkbox"/> Other (Explain in Remarks)		
<input type="checkbox"/> Depleted Below Dark Surface (A11)			<input type="checkbox"/> Depleted Matrix (F3)			<sup>3</sup> Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.		
<input type="checkbox"/> Thick Dark Surface (A12)			<input checked="" type="checkbox"/> Redox Dark Surface (F6)					
<input type="checkbox"/> Sandy Mucky Mineral (S1)			<input type="checkbox"/> Depleted Dark Surface (F7)					
<input type="checkbox"/> Sandy Gleyed Matrix (S4)			<input type="checkbox"/> Redox Depressions (F8)					
Restrictive Layer (if present):						Hydric Soil Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>		
Type: <u>None</u>								
Depth (inches): <u>NA</u>								
Remarks: (ADDITIONAL OF 2 CM LESS, 10" bgs. EVIDENCE OF REDOX SOILS UP TO 16" PGS.)								

**HYDROLOGY**

Wetland Hydrology Indicators:		
Primary Indicators (minimum of one required; check all that apply)	Secondary Indicators (2 or more required)	
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Water-Stained Leaves (B9) (except MLRA 1, 2, 4A, and 4B)	<input type="checkbox"/> Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Salt Crust (B11)	<input type="checkbox"/> Drainage Patterns (B10)
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Aquatic Invertebrates (B13)	<input type="checkbox"/> Dry-Season Water Table (C2)
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)	<input checked="" type="checkbox"/> Geomorphic Position (D2)
<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Presence of Reduced Iron (C4) <u>PAH TEST</u>	<input type="checkbox"/> Shallow Aquitard (D3)
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)	<input checked="" type="checkbox"/> FAC-Neutral Test (D5)
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Stunted or Stressed Plants (D1) (LRR A)	<input type="checkbox"/> Raised Ant Mounds (D6) (LRR A)
<input type="checkbox"/> Surface Soil Cracks (B6)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> Frost-Heave Hummocks (D7)
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)		
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)		
Field Observations:		
Surface Water Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Depth (inches): _____	Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
Water Table Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Depth (inches): _____	
Saturation Present? (includes capillary fringe) Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Depth (inches): _____	
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:		
Remarks: HYDROLOGY   TWO SECONDARY INDICATORS MET. (D2) - GEOMORPHIC POSITION AS THIS WAS ADJACENT TO MAN MADE DITCH (D5) - PASSED FAC NEUTRAL TEST.		

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

Project/Site Old Arcata Road City/County Arcata, Humboldt Sampling Date 8/29/18  
 Applicant/Owner City of Arcata State CA Sampling Point WS-T3-U  
 Investigator(s) A.L., M.T. Section Township Range \_\_\_\_\_  
 Landform (hillslope terrace etc) \_\_\_\_\_ Local relief (concave convex none) \_\_\_\_\_ Slope (%) \_\_\_\_\_  
 Subregion (LRR) \_\_\_\_\_ Lat: \_\_\_\_\_ Long \_\_\_\_\_ Datum \_\_\_\_\_  
 Soil Map Unit Name \_\_\_\_\_ NWI classification \_\_\_\_\_

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

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

Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No _____	Is the Sampled Area within a Wetland? Yes _____ No <input checked="" type="checkbox"/>
Hydric Soil Present? Yes _____ No <input checked="" type="checkbox"/>	
Wetland Hydrology Present? Yes _____ No <input checked="" type="checkbox"/>	

Remarks Site is mowed which likely promotes the dominance of velvet grass here which is invasive and FAC status. Rice straw and mowing contribute to sparse veg. cover.

**VEGETATION – Use scientific names of plants. Four other FACU or UPL species present in herb stratum**

Tree Stratum (Plot size _____)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:
1 _____				Number of Dominant Species That Are OBL, FACW, or FAC <u>1</u> (A)
2 _____				Total Number of Dominant Species Across All Strata <u>2</u> (B)
3 _____				Percent of Dominant Species That Are OBL, FACW, or FAC <u>50%</u> (A/B)
4 _____				
= Total Cover				
Sapling/Shrub Stratum (Plot size _____)	Absolute % Cover	Dominant Species?	Indicator Status	Prevalence Index worksheet:
1 _____				Total % Cover of _____ Multiply by _____
2 _____				OBL species _____ x 1 = _____
3 _____				FACW species _____ x 2 = _____
4 _____				FAC species _____ x 3 = _____
5 _____				FACU species _____ x 4 = _____
= Total Cover				UPL species _____ x 5 = _____
= Total Cover				Column Totals: _____ (A) _____ (B)
= Total Cover				Prevalence Index = B/A = _____
Herb Stratum (Plot size <u>6m x 2m</u> )	Absolute % Cover	Dominant Species?	Indicator Status	Hydrophytic Vegetation Indicators:
1 <u>Holcus lanatus</u>	<u>30</u>	<input checked="" type="checkbox"/>	<u>FAC</u>	1 - Rapid Test for Hydrophytic Vegetation _____
2 <u>Rubus armeniacus</u>	<u>2</u>	<input checked="" type="checkbox"/>	<u>FACW</u>	<input checked="" type="checkbox"/> 2 - Dominance Test is >50%
3 <u>Rubus ursinus</u>	<u>2</u>		<u>FACU</u>	3 - Prevalence Index is ≤3.0 _____
4 <u>Plantago lanceolata</u>	<u>1</u>		<u>FACU</u>	4 - Morphological Adaptations <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet) _____
5 <u>Vicia sativa ssp. nigra</u>	<u>1</u>		<u>UPL</u>	5 - Wetland Non-Vascular Plants <sup>2</sup> _____
6 <u>Ranunculus repens</u>	<u>2</u>		<u>FAC</u>	Problematic Hydrophytic Vegetation <sup>3</sup> (Explain) _____
7 <u>Anthraxanthum odoratum</u>	<u>10</u>	<input checked="" type="checkbox"/>	<u>FACU</u>	<sup>1</sup> Indicators of hydric soil and wetland hydrology must be present unless disturbed or problematic.
8 _____				
9 _____				
10 _____				
11 _____				
<u>48</u> = Total Cover <u>24</u> <u>9.6</u>				
Woody Vine Stratum (Plot size _____)	Absolute % Cover	Dominant Species?	Indicator Status	Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No _____
1 _____				
2 _____				
= Total Cover				
% Bare Ground in Herb Stratum _____				

Remarks Shrubs included in herbaceous strata since less than 5t. for shrub layer.

**SOIL**

Sampling Point: LS-13U

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

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-16"	2.5Y 2/3	100	—	—	C	M	VERY GRAVELLY SILTY-SAND CLAY	

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

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

<input type="checkbox"/> Histosol (A1)	<input type="checkbox"/> Sandy Redox (S5)	<input type="checkbox"/> 2 cm Muck (A10)
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Stripped Matrix (S6)	<input type="checkbox"/> Red Parent Material (TF2)
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Loamy Mucky Mineral (F1) (except MLRA 1)	<input type="checkbox"/> Very Shallow Dark Surface (TF12)
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Loamy Gleyed Matrix (F2)	<input type="checkbox"/> Other (Explain in Remarks)
<input type="checkbox"/> Depleted Below Dark Surface (A11)	<input type="checkbox"/> Depleted Matrix (F3)	
<input type="checkbox"/> Thick Dark Surface (A12)	<input type="checkbox"/> Redox Dark Surface (F6)	
<input type="checkbox"/> Sandy Mucky Mineral (S1)	<input type="checkbox"/> Depleted Dark Surface (F7)	
<input type="checkbox"/> Sandy Gleyed Matrix (S4)	<input type="checkbox"/> Redox Depressions (F8)	

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

**Restrictive Layer (if present):**

Type: NONE

Depth (inches): NONE

Hydric Soil Present? Yes  No

**Remarks:**

NO EVIDENCE OF REDOX CONDITIONS, PRIMARILY MIXED FILL w/ SOME DEBRIS  
- SOME VEGETATION ROOTS w/in TOP 4" BGS.

**HYDROLOGY**

**Wetland Hydrology Indicators:**

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

**Field Observations:**

Surface Water Present? Yes  No  Depth (inches): \_\_\_\_\_

Water Table Present? Yes  No  Depth (inches): \_\_\_\_\_

Saturation Present? Yes  No  Depth (inches): \_\_\_\_\_  
(includes capillary fringe)

Wetland Hydrology Present? Yes  No

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

NONE

**Remarks:**

NO EVIDENCE OF HYDROLOGY ASSOC w/ wetland

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

Project/Site: Old Arcata Road City/County: Arcata, Humboldt Sampling Date: 9/20/18  
 Applicant/Owner: City of Arcata State: CA Sampling Point: W6T1-W  
 Investigator(s): A.L., M.T. Section, Township, Range: \_\_\_\_\_  
 Landform (hillslope, terrace, etc.): \_\_\_\_\_ Local relief (concave, convex, none): concave Slope (%): \_\_\_\_\_  
 Subregion (LRR): \_\_\_\_\_ Lat: \_\_\_\_\_ Long: \_\_\_\_\_ Datum: \_\_\_\_\_  
 Soil Map Unit Name: \_\_\_\_\_ NWI classification: \_\_\_\_\_

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

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

Hydrophytic Vegetation Present?	Yes <input checked="" type="checkbox"/>	No _____	Is the Sampled Area within a Wetland?	Yes <input checked="" type="checkbox"/>	No _____
Hydric Soil Present?	Yes <input checked="" type="checkbox"/>	No _____			
Wetland Hydrology Present?	Yes <input checked="" type="checkbox"/>	No _____			

Remarks: Wetland 6 is roadside ditch. Dominant overstory vegetation are willows between this transect and Buttermilk Lane

**VEGETATION – Use scientific names of plants.**

Tree Stratum (Plot size: <u>Radial 3m</u> )	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:	
1. <u>Salix hookeriana</u>	<u>85%</u>	<input checked="" type="checkbox"/>	<u>FACW</u>	Number of Dominant Species That Are OBL, FACW, or FAC	<u>4</u> (A)
2. _____				Total Number of Dominant Species Across All Strata	<u>5</u> (B)
3. _____				Percent of Dominant Species That Are OBL, FACW, or FAC	<u>80%</u> (A/B)
4. _____				Prevalence Index worksheet:	
<u>85%</u> = Total Cover				Total % Cover of:	Multiply by
Sapling/Shrub Stratum (Plot size: <u>2m</u> )				OBL species	x 1 = _____
1. <u>Rubus arcticus</u>	<u>25%</u>	<input checked="" type="checkbox"/>	<u>FAC</u>	FACW species	x 2 = _____
2. <u>Rubus ursinus</u>	<u>15%</u>	<input checked="" type="checkbox"/>	<u>FACU</u>	FAC species	x 3 = _____
3. _____				FACU species	x 4 = _____
4. _____				UPL species	x 5 = _____
5. _____				Column Totals:	(A) _____ (B) _____
<u>40%</u> = Total Cover				Prevalence Index = B/A = _____	
Herb Stratum (Plot size: <u>2m</u> )				Hydrophytic Vegetation Indicators:	
1. <u>Juncus effusus</u>	<u>15%</u>	<input checked="" type="checkbox"/>	<u>FACW</u>	<input type="checkbox"/> 1 - Rapid Test for Hydrophytic Vegetation <input checked="" type="checkbox"/> 2 - Dominance Test is >50% <input type="checkbox"/> 3 - Prevalence Index is ≤3.0' <input type="checkbox"/> 4 - Morphological Adaptations <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet) <input type="checkbox"/> 5 - Wetland Non-Vascular Plants <sup>1</sup> <input type="checkbox"/> Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)	
2. <u>Oenanthe sarmentosa</u>	<u>20%</u>	<input checked="" type="checkbox"/>	<u>OBL</u>	<sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic	
3. _____					
4. _____					
5. _____					
6. _____					
7. _____					
8. _____					
9. _____					
10. _____					
11. _____					
<u>35%</u> = Total Cover				Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No _____	
Woody Vine Stratum (Plot size: _____)					
1. _____					
2. _____					
_____ = Total Cover					
% Bare Ground in Herb Stratum _____					

Remarks: Wetland veg plots are radial plots facing toward wetland, not including upland side. Soil test pit is 1 ft west from mapped transect point.

SOIL

Sampling Point: W6-T1-W

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

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-2"	2.5Y 3/1	100			C	M	Silt-CLAY	VEGETATION MATTER
2"-6"	2.5Y 2/1	100					SILT-LOAM	INCREASE IN SOIL COLOR
6"-12"	2.5Y 2/1	95	7.5Y 4/6	5			SEMI-SILT-LOAM	INCREASE IN GRAVEL CONC.
12"-16"	2.5Y 2/1	92	7.5Y 4/6	8			SI 4% SAND	

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

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

Indicators for Problematic Hydric Soils<sup>3</sup>:

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

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

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

Restrictive Layer (if present):

Type: NA  
Depth (inches): NA

Hydric Soil Present? Yes  No

Remarks:

- FG CONDITIONS MET W/ MATRIX VALUE OF 3 IN LERS ± CHROMA VALUE 2 ON LERS AND 5% DISTINCT REDOX CONCENTRATIONS

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

Secondary Indicators (2 or more required)

- |  |   |  |
|--|---|--|
| <input type="checkbox"/> Surface Water (A1)                        | <input type="checkbox"/> Water-Stained Leaves (B9) (except MLRA 1, 2, 4A, and 4B) | <input type="checkbox"/> Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B) |
| <input type="checkbox"/> High Water Table (A2)                     | <input type="checkbox"/> Salt Crust (B11)   | <input checked="" type="checkbox"/> Drainage Patterns (B10)                |
| <input type="checkbox"/> Saturation (A3)                           | <input type="checkbox"/> Aquatic Invertebrates (B13)                              | <input type="checkbox"/> Dry-Season Water Table (C2)                       |
| <input type="checkbox"/> Water Marks (B1)                          | <input type="checkbox"/> Hydrogen Sulfide Odor (C1)                               | <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)         |
| <input type="checkbox"/> Sediment Deposits (B2)                    | <input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)            | <input checked="" type="checkbox"/> Geomorphic Position (D2)               |
| <input type="checkbox"/> Drift Deposits (B3)                       | <input type="checkbox"/> Presence of Reduced Iron (C4)                            | <input type="checkbox"/> Shallow Aquitard (D3)                             |
| <input type="checkbox"/> Algal Mat or Crust (B4)                   | <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)               | <input checked="" type="checkbox"/> FAC-Neutral Test (D5) 3:1              |
| <input type="checkbox"/> Iron Deposits (B5)                        | <input type="checkbox"/> Stunted or Stressed Plants (D1) (LRR A)                  | <input type="checkbox"/> Raised Ant Mounds (D6) (LRR A)                    |
| <input type="checkbox"/> Surface Soil Cracks (B6)                  | <input type="checkbox"/> Other (Explain in Remarks)                               | <input type="checkbox"/> Frost-Heave Hummocks (D7)                         |
| <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) |   |  |
| <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)   |   |  |

Field Observations:

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

Wetland Hydrology Present? Yes  No

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

NA

Remarks:

MET THREE SECONDARY INDICATORS:  
 - B10 - DRAINAGE PATTERNS - D5 - FAC NEUTRAL TEST PASSED  
 - D2 - GEOMORPHIC POSITION

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

Project/Site Old Arcata Road City/County Arcata, Humboldt Sampling Date 9/20/18  
 Applicant/Owner City of Arcata State: CA Sampling Point W6T1-U  
 Investigator(s): \_\_\_\_\_ Section, Township, Range \_\_\_\_\_  
 Landform (hillslope, terrace, etc.) \_\_\_\_\_ Local relief (concave, convex, none): \_\_\_\_\_ Slope (%) \_\_\_\_\_  
 Subregion (LRR) \_\_\_\_\_ Lat \_\_\_\_\_ Long: \_\_\_\_\_ Datum \_\_\_\_\_  
 Soil Map Unit Name \_\_\_\_\_ NWI classification \_\_\_\_\_

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

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

Hydrophytic Vegetation Present?	Yes <input checked="" type="checkbox"/>	No _____	Is the Sampled Area within a Wetland? Yes _____ No <input checked="" type="checkbox"/>
Hydric Soil Present?	Yes _____	No <input checked="" type="checkbox"/>	
Wetland Hydrology Present?	Yes _____	No <input checked="" type="checkbox"/>	
Remarks <u>This roadside is frequently mowed, likely promoting the dominance of velvet grass: <i>Rubus visidus</i> which is invasive and rated FAC. <i>Rubus visidus</i> lumped in herbaceous layer because cover is &lt; 5%.</u>			

**VEGETATION – Use scientific names of plants.**

Tree Stratum (Plot size _____)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:	
1 _____				Number of Dominant Species That Are OBL, FACW, or FAC	<u>1</u> (A)
2 _____				Total Number of Dominant Species Across All Strata	<u>1</u> (B)
3 _____				Percent of Dominant Species That Are OBL, FACW, or FAC	<u>100</u> (A/B)
4 _____				<b>Prevalence Index worksheet:</b>	
				Total % Cover of:	Multiply by
= Total Cover				OBL species _____	x 1 = _____
= Total Cover				FACW species _____	x 2 = _____
= Total Cover				FAC species _____	x 3 = _____
= Total Cover				FACU species _____	x 4 = _____
= Total Cover				UPL species _____	x 5 = _____
= Total Cover				Column Totals: _____	(A) _____ (B) _____
= Total Cover				Prevalence Index = B/A = _____	
<b>Hydrophytic Vegetation Indicators:</b>					
1 - Rapid Test for Hydrophytic Vegetation					
<input checked="" type="checkbox"/> 2 - Dominance Test is >50%					
3 - Prevalence Index is ≤3.0 <sup>1</sup>					
4 - Morphological Adaptations <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet)					
5 - Wetland Non-Vascular Plants <sup>1</sup>					
Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)					
<sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.					
				<b>Hydrophytic Vegetation Present?</b> Yes <input checked="" type="checkbox"/> No _____	
Woody Vine Stratum (Plot size: _____)					
1 _____					
2 _____					
= Total Cover					
% Bare Ground in Herb Stratum _____					
Remarks <u>Upland soil test pit is ~1 ft from mapped boundary of W6T1 point. Veg plot is rectangle which includes soil test pit. Rectangular pit extends to edge of pavement.</u>					

SOIL

Sampling Point: W6-T1-U

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

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-2'	2.5Y 3/2	100					Silt loam	VEGE MATTER
3-6"	2.5Y 4/3	100					GRAVELLY SILT LOAM	
6-16"	2.5Y 5/2	100					VG SILT-LOAM.	- IN - IN GRAVEL CONC

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

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

Restrictive Layer (if present):

Type: NONE

Depth (inches): NA

Hydric Soil Present? Yes  No

Remarks

Light VALE & CHROMA. SEEN IN SOILS. NO REDOX OBSERVED. NO SIGNS OF HYDRIC SOILS.

- Fill soils w/ vegetation through top 2" BGS.

HYDROLOGY

Wetland Hydrology Indicators:

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

Field Observations:

Surface Water Present? Yes  No  Depth (inches): \_\_\_\_\_

Water Table Present? Yes  No  Depth (inches): \_\_\_\_\_

Saturation Present? Yes  No  Depth (inches): \_\_\_\_\_ (includes capillary fringe)

Wetland Hydrology Present? Yes  No

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

None known.

Remarks:

TEST PIT LOCATION DOES NOT MEET WETLAND HYDROLOGY INDICATORS. (PRIMARY OR SECONDARY)

- UPLAND HYDROLOGY w/ Fill soils.

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

Project/Site Old Arcata Road City/County Arcata/Humboldt Sampling Date 9/20/18  
 Applicant/Owner City of Eureka State CA Sampling Point WTP 7  
 Investigator(s) Amy Livingston and Matt Tulley Section, Township, Range \_\_\_\_\_  
 Landform (hillslope terrace etc) \_\_\_\_\_ Local relief (concave convex none) Concave Slope (%) \_\_\_\_\_  
 Subregion (LRR) \_\_\_\_\_ Lat \_\_\_\_\_ Long \_\_\_\_\_ Datum \_\_\_\_\_  
 Soil Map Unit Name \_\_\_\_\_ NWI classification \_\_\_\_\_

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

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

Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No _____	Is the Sampled Area within a Wetland? Yes <input checked="" type="checkbox"/> No _____
Hydric Soil Present? Yes <input checked="" type="checkbox"/> No _____	
Wetland Hydrology Present? <input checked="" type="checkbox"/> Yes _____ No _____	

Remarks Not doing paired transect due to proximity to underground utilities. Wetland test pit to assess 3 parameters. WTP is 6' 8" from mapped wetland boundary

**VEGETATION – Use scientific names of plants.**

Tree Stratum (Plot size <u>3m</u> )	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:
1 <u>Alnus rubra</u>	<u>65%</u>	<input checked="" type="checkbox"/>	<u>FAC</u>	Number of Dominant Species That Are OBL, FACW, or FAC <u>4</u> (A)
2 _____				Total Number of Dominant Species Across All Strata <u>5</u> (B)
3 _____				Percent of Dominant Species That Are OBL, FACW, or FAC <u>80%</u> (A/B)
4 _____				
<u>65%</u> = Total Cover				<b>Prevalence Index worksheet:</b>
Sapling/Shrub Stratum (Plot size <u>1.5 m</u> )	Absolute % Cover	Dominant Species?	Indicator Status	Total % Cover of _____ Multiply by _____
1 <u>Rubus ursinus</u>	<u>5%</u>	<input checked="" type="checkbox"/>	<u>FACU</u>	OBL species _____ x 1 = _____
2 <u>Rubus armeniacus</u>	<u>3%</u>	<input checked="" type="checkbox"/>	<u>FAC</u>	FACW species _____ x 2 = _____
3 _____				FAC species _____ x 3 = _____
4 _____				FACU species _____ x 4 = _____
5 _____				UPL species _____ x 5 = _____
<u>8</u> = Total Cover				Column Totals _____ (A) _____ (B)
Herb Stratum (Plot size <u>1.5 m</u> )	Absolute % Cover	Dominant Species?	Indicator Status	Prevalence Index = B/A = _____
1 <u>Equisetum telmateia</u>	<u>45</u>	<input checked="" type="checkbox"/>	<u>FACW</u>	<b>Hydrophytic Vegetation Indicators:</b> _____ 1 - Rapid Test for Hydrophytic Vegetation <input checked="" type="checkbox"/> 2 - Dominance Test is >50% _____ 3 - Prevalence Index is ≤3.0 _____ 4 - Morphological Adaptations (Provide supporting data in Remarks or on a separate sheet) _____ 5 - Wetland Non-Vascular Plants _____ Problematic Hydrophytic Vegetation (Explain) Indicators of hydric soil and wetland hydrology must be present unless disturbed or problematic
2 <u>Holcus lanatus</u>	<u>50</u>	<input checked="" type="checkbox"/>	<u>FAC</u>	
3 <u>Avena sp</u>	<u>3</u>			
4 _____				
5 _____				
6 _____				
7 _____				
8 _____				
9 _____				
10 _____				
11 _____				
<u>98%</u> = Total Cover				
Woody Vine Stratum (Plot size _____)	Absolute % Cover	Dominant Species?	Indicator Status	Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No _____
1 _____				
2 _____				
_____ = Total Cover				
% Bare Ground in Herb Stratum _____				

Remarks  Site was visited at the end of the dry season when it is most difficult to observe direct evidence of wetland hydrology. See remarks under hydrology section.

SOIL

Sampling Point: WTP-7

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

Depth (inches)	Matrix		Redox Features				Type <sup>1</sup>	Loc <sup>2</sup>	Texture	Remarks
	Color (moist)	%	Color (moist)	%						
0-4"	2.5Y 2.5/1	100			C	M		Silty loam	VEGETATION	
4"-9"	2.5Y 2.5/1	98	10YR 5/6	2				Silty clay loam		
9"-16"	2.5Y 3/1	95	10YR 5/8	5				"Silt loam"		

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

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

Indicators for Problematic Hydric Soils<sup>3</sup>:

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

Restrictive Layer (if present):

Type: NA  
Depth (inches): NA

Hydric Soil Present? Yes  No

Remarks:

MATRIX VALUE OF 3 OR LESS, CHROMA OF 1 OR LESS, AND 2% OR MORE DISSEMINATED REDOX CONCENTRATIONS.  
A NOTE: NOT DIGGING UP AND PIT DUE TO UNDERGROUND UTILITIES (ELECTRICAL & GAS).

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

Secondary Indicators (2 or more required)

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

Field Observations:

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

Wetland Hydrology Present? Yes  No

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

Remarks:

ONLY 1 SECONDARY WETLAND HYDROLOGY INDICATOR MET.  
-(D2) - GEOMORPHIC POSITION INDICATOR MET..

Tie on the FAC-Neutral Test.  
Assuming wetland hydrology

indicator is met during wet season.

Site was visited near the end of the dry season.

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

Project/Site Old Arcata Road City/County Arcata, Humboldt Sampling Date 9/20/18  
 Applicant/Owner City of Arcata State CA Sampling Point UTP-8  
 Investigator(s) A Livingston and M. Tolley Section Township Range \_\_\_\_\_  
 Landform (hillslope terrace etc) \_\_\_\_\_ Local relief (concave convex none) \_\_\_\_\_ Slope (%) \_\_\_\_\_  
 Subregion (LRR) \_\_\_\_\_ Lat: \_\_\_\_\_ Long: \_\_\_\_\_ Datum \_\_\_\_\_  
 Soil Map Unit Name \_\_\_\_\_ NWI classification: \_\_\_\_\_

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

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

Hydrophytic Vegetation Present?	Yes <input checked="" type="checkbox"/> No _____	Is the Sampled Area within a Wetland? Yes _____ No <input checked="" type="checkbox"/> <u>Not by 3 parameter definition</u>
Hydric Soil Present?	Yes _____ No <input checked="" type="checkbox"/>	
Wetland Hydrology Present?	Yes _____ No <input checked="" type="checkbox"/>	

Remarks: Vegetation is recently mowed and covered with rice straw complicating the description of veg plots. Herbaceous plot consists of all recently mowed veg.

VEGETATION – Use scientific names of plants \*1 parameter Coastal Commission wetland based on veg.

Tree Stratum (Plot size <u>3m radial plot</u> )	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:
1 <u>Salix sp. (suspect either S. scouleriana (FAC) or S. sitchensis (FACW))</u>	<u>70%</u>	<input checked="" type="checkbox"/>	<u>FAC or FACW</u>	Number of Dominant Species That Are OBL, FACW, or FAC: <u>2</u> (A)
2 _____	_____	_____	_____	Total Number of Dominant Species Across All Strata: <u>2</u> (B)
3 _____	_____	_____	_____	Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100</u> (A/B)
4 _____	_____	_____	_____	Prevalence Index worksheet:
Sapling/Shrub Stratum (Plot size _____) <u>70% = Total Cover</u>				Total % Cover of _____ Multiply by _____
1 _____	_____	_____	_____	OBL species _____ x 1 = _____
2 _____	_____	_____	_____	FACW species _____ x 2 = _____
3 _____	_____	_____	_____	FAC species _____ x 3 = _____
4 _____	_____	_____	_____	FACW species _____ x 4 = _____
5 _____	_____	_____	_____	UPL species _____ x 5 = _____
Herb Stratum (Plot size <u>2m radial plot</u> ) _____ = Total Cover				Column Totals: _____ (A) _____ (B)
1 <u>Festuca arundinaceae</u>	<u>5</u>	_____	<u>FAC</u>	Prevalence Index = B/A = _____
2 <u>Juncus effusus</u>	<u>10</u>	_____	<u>FACW</u>	Hydrophytic Vegetation Indicators:
3 <u>Hilcus lanatus</u>	<u>65</u>	<input checked="" type="checkbox"/>	<u>FAC</u>	<input checked="" type="checkbox"/> 1 - Rapid Test for Hydrophytic Vegetation
4 <u>Anthoxanthus odoratum</u>	<u>10</u>	_____	<u>FACW</u>	<input checked="" type="checkbox"/> 2 - Dominance Test is >50%
5 _____	_____	_____	_____	_____ 3 - Prevalence Index is ≤3.0
6 _____	_____	_____	_____	_____ 4 - Morphological Adaptations (Provide supporting data in Remarks or on a separate sheet)
7 _____	_____	_____	_____	_____ 5 - Wetland Non-Vascular Plants
8 _____	_____	_____	_____	_____ Problematic Hydrophytic Vegetation (Explain)
9 _____	_____	_____	_____	Indicators of hydric soil and wetland hydrology must be present unless disturbed or problematic.
10 _____	_____	_____	_____	
11 _____	_____	_____	_____	
Woody Vine Stratum (Plot size _____) <u>90 = Total Cover</u> <u>18/18</u>				Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No _____
% Bare Ground in Herb Stratum _____				

Remarks: Radial plots documenting vegetation to side of main ditch that is dug in upland (did not include upland side)

**SOIL**

Sampling Point: UTC-8

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

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-2"	2.5-1 3/3	100			C	M	Silty Clay-loam	ORGANIC MATTER
7"-9"	2.5-1 4/1	100					Silt loam	
9"-13"	2.5-1 4/2	100					GRAVELLY SILT LOAM	
13"-16"	2.5-1 4/3	100					VERY GRAVELLY SILT LOAM	

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

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

**Indicators for Problematic Hydric Soils<sup>3</sup>:**

- |  |   |   |
|--|---|---|
| <input type="checkbox"/> Histosol (A1)                     | <input type="checkbox"/> Sandy Redox (S5)                         | <input type="checkbox"/> 2 cm Muck (A10)                  |
| <input type="checkbox"/> Histic Epipedon (A2)              | <input type="checkbox"/> Stripped Matrix (S6)                     | <input type="checkbox"/> Red Parent Material (TF2)        |
| <input type="checkbox"/> Black Histic (A3)                 | <input type="checkbox"/> Loamy Mucky Mineral (F1) (except MLRA 1) | <input type="checkbox"/> Very Shallow Dark Surface (TF12) |
| <input type="checkbox"/> Hydrogen Sulfide (A4)             | <input type="checkbox"/> Loamy Gleyed Matrix (F2)                 | <input type="checkbox"/> Other (Explain in Remarks)       |
| <input type="checkbox"/> Depleted Below Dark Surface (A11) | <input type="checkbox"/> Depleted Matrix (F3)                     |   |
| <input type="checkbox"/> Thick Dark Surface (A12)          | <input type="checkbox"/> Redox Dark Surface (F6)                  |   |
| <input type="checkbox"/> Sandy Mucky Mineral (S1)          | <input type="checkbox"/> Depleted Dark Surface (F7)               |   |
| <input type="checkbox"/> Sandy Gleyed Matrix (S4)          | <input type="checkbox"/> Redox Depressions (F8)                   |   |

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

**Restrictive Layer (if present):**

Type: NA  
Depth (inches): NA

Hydric Soil Present? Yes  No

Remarks:

- DOES NOT MEET ANY HYDRIC SOIL INDICATORS. NO EVIDENCE OF REDOX SPTS. EVEN WITH LW CHANNEL.

**HYDROLOGY**

**Wetland Hydrology Indicators:**

Primary Indicators (minimum of one required; check all that apply)

Secondary Indicators (2 or more required)

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

**Field Observations:**

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

Wetland Hydrology Present? Yes  No

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

Remarks:

NO EVIDENCE OF WETLAND HYDROLOGY

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

Project Site Old Arcata Road City/County Arcata, Humboldt Sampling Date 9/20/18  
 Applicant/Owner City of Arcata State CA Sampling Point (W9TH-W)  
 Investigator(s) A.L. M.T. Section Township Range \_\_\_\_\_  
 Landform (hillslope, terrace, etc.) \_\_\_\_\_ Local relief (concave, convex, none) Concave Slope (%) \_\_\_\_\_  
 Subregion (LRR) \_\_\_\_\_ Lat \_\_\_\_\_ Long \_\_\_\_\_ Datum \_\_\_\_\_  
 Soil Map Unit Name \_\_\_\_\_ NWI classification \_\_\_\_\_

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

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

Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No _____ Hydric Soil Present? Yes <input checked="" type="checkbox"/> No _____ Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No _____	Is the Sampled Area within a Wetland? Yes <input checked="" type="checkbox"/> No _____
Remarks  	

**VEGETATION – Use scientific names of plants.**

Tree Stratum (Plot size _____)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:																
1 _____				Number of Dominant Species That Are OBL, FACW, or FAC <u>2</u> (A)																
2 <u>None</u>				Total Number of Dominant Species Across All Strata <u>2</u> (B)																
3 _____				Percent of Dominant Species That Are OBL, FACW, or FAC <u>100</u> (A/B)																
4 _____				<b>Prevalence Index worksheet:</b> <table style="width:100%; border-collapse: collapse;"> <tr> <td style="width:50%;">Total % Cover of</td> <td style="width:50%;">Multiply by</td> </tr> <tr> <td>OBL species _____</td> <td>x 1 = _____</td> </tr> <tr> <td>FACW species _____</td> <td>x 2 = _____</td> </tr> <tr> <td>FAC species _____</td> <td>x 3 = _____</td> </tr> <tr> <td>FACU species _____</td> <td>x 4 = _____</td> </tr> <tr> <td>UPL species _____</td> <td>x 5 = _____</td> </tr> <tr> <td>Column Totals _____</td> <td>(A) _____ (B) _____</td> </tr> <tr> <td colspan="2">Prevalence Index = B/A = _____</td> </tr> </table>	Total % Cover of	Multiply by	OBL species _____	x 1 = _____	FACW species _____	x 2 = _____	FAC species _____	x 3 = _____	FACU species _____	x 4 = _____	UPL species _____	x 5 = _____	Column Totals _____	(A) _____ (B) _____	Prevalence Index = B/A = _____	
Total % Cover of	Multiply by																			
OBL species _____	x 1 = _____																			
FACW species _____	x 2 = _____																			
FAC species _____	x 3 = _____																			
FACU species _____	x 4 = _____																			
UPL species _____	x 5 = _____																			
Column Totals _____	(A) _____ (B) _____																			
Prevalence Index = B/A = _____																				
_____ = Total Cover																				
Sapling/Shrub Stratum (Plot size _____)	Absolute % Cover	Dominant Species?	Indicator Status																	
1 _____				<b>Hydrophytic Vegetation Indicators:</b> ___ 1 - Rapid Test for Hydrophytic Vegetation ___ 2 - Dominance Test is >50% ___ 3 - Prevalence Index is ≤3.0 ___ 4 - Morphological Adaptations (Provide supporting data in Remarks or on a separate sheet) ___ 5 - Wetland Non-Vascular Plants ___ Problematic Hydrophytic Vegetation (Explain) *Indicators of hydric soil and wetland hydrology must be present unless disturbed or problematic																
2 _____																				
3 <u>None</u>																				
4 _____																				
5 _____																				
_____ = Total Cover																				
Herb Stratum (Plot size <u>5' x 1'</u> )	Absolute % Cover	Dominant Species?	Indicator Status																	
1 <u>Lythrum hyssopifolium</u>	<u>70</u>	<u>X</u>	<u>OBL</u>	<b>Hydrophytic Vegetation Present?</b> Yes <input checked="" type="checkbox"/> No _____																
2 <u>Lotus corniculatus</u>	<u>15</u>	<u>X</u>	<u>FAC</u>																	
3 <u>Convolvulus?</u>	<u>2</u>		<u>?</u>																	
4 <u>Rubus ursinus</u>	<u>2</u>		<u>FACU</u>																	
5 <u>Helminthotheca echioides</u>	<u>2</u>		<u>FAC</u>																	
6 _____																				
7 _____																				
8 _____																				
9 _____																				
10 _____																				
11 _____																				
<u>91</u> = Total Cover																				
Woody Vine Stratum (Plot size _____)	Absolute % Cover	Dominant Species?	Indicator Status																	
1 _____																				
2 _____																				
_____ = Total Cover																				
% Bare Ground in Herb Stratum _____																				

Remarks  
 Soil Pit dug in the narrow, existing ditch. Veg plot is a rectangle within ditch. Ditch is narrow, wetland boundary is edge of ditch.

SOIL

Sampling Point: W9-T1W

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

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-4"	7.5Y 3/1	99	10YR 5/6	2	C	M	Silt loam	
4-8"	2.5Y 2/1	95	10YR 5/6	5			GRAVELLY SILT LOAM	
8-16"	2.5Y 2/1	85	2.5YR 3/6	15			Silty clay loam	

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

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

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

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

Hydric Soil Present? Yes  No

Remarks:  
 • EVIDENCE OF REDOX/ANPHIC SOILS. MATRIX VALUE OF 3 OR LESS & LOW CHROMA VALUES.  
 • EVIDENCE OF SOIL MOISTURE AT 6" BY 5."

HYDROLOGY

Wetland Hydrology Indicators:

<u>Primary Indicators (minimum of one required; check all that apply)</u>		<u>Secondary Indicators (2 or more required)</u>
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Water-Stained Leaves (B9) (except MLRA 1, 2, 4A, and 4B)	<input type="checkbox"/> Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Salt Crust (B11)	<input type="checkbox"/> Drainage Patterns (B10)
<input checked="" type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Aquatic Invertebrates (B13)	<input type="checkbox"/> Dry-Season Water Table (C2)
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)	<input checked="" type="checkbox"/> Geomorphic Position (D2)
<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Shallow Aquitard (D3)
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)	<input checked="" type="checkbox"/> FAC-Neutral Test (D5) 1:0
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Stunted or Stressed Plants (D1) (LRR A)	<input type="checkbox"/> Raised Ant Mounds (D6) (LRR A)
<input type="checkbox"/> Surface Soil Cracks (B6)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> Frost-Heave Hummocks (D7)
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)		
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)		

Field Observations:

Surface Water Present? Yes <input type="checkbox"/> No <input type="checkbox"/> Depth (inches): _____	Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
Water Table Present? Yes <input type="checkbox"/> No <input type="checkbox"/> Depth (inches): _____	
Saturation Present? (includes capillary fringe) Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Depth (inches): <u>8"</u>	

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

Remarks:  
 2 Hydrology indicators met, including two primary:  
 A2 - HIGH WATER TABLE  
 A3 - SATURATION

TWO SECONDARY INDICATORS MET  
 • D2 - GEOMORPHIC POSITION  
 • D5 - FAC NEUTRAL TEST PASSED.

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

Project/Site Old Arcata Road City/County Arcata, Humboldt Sampling Date 9/20/18  
 Applicant/Owner City of Arcata State CA Sampling Point W9TI-U  
 Investigator(s) A.L., M.T. Section, Township Range \_\_\_\_\_  
 Landform (hillslope terrace etc) \_\_\_\_\_ Local relief (concave convex none) \_\_\_\_\_ Slope (%) \_\_\_\_\_  
 Subregion (LRR) \_\_\_\_\_ Lat \_\_\_\_\_ Long \_\_\_\_\_ Datum \_\_\_\_\_  
 Soil Map Unit Name \_\_\_\_\_ NWI classification \_\_\_\_\_

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

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

Hydrophytic Vegetation Present?	Yes <input checked="" type="checkbox"/> No _____	Is the Sampled Area within a Wetland?	Yes _____ No <input checked="" type="checkbox"/>
Hydric Soil Present?	Yes _____ No <input checked="" type="checkbox"/>		
Wetland Hydrology Present?	Yes _____ No <input checked="" type="checkbox"/>		

Remarks Vegetation is mowed. Plot is in a road median. Mowing likely favors tall fescue and perennial ryegrass which are dominant in herbaceous plot.

**VEGETATION – Use scientific names of plants.** Other FACU species are present.

Tree Stratum (Plot size _____)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:
1 _____				Number of Dominant Species That Are OBL, FACW, or FAC <u>2</u> (A)
2 _____				Total Number of Dominant Species Across All Strata <u>2</u> (B)
3 _____				Percent of Dominant Species That Are OBL, FACW, or FAC <u>100</u> (A/B)
4 _____				Prevalence Index worksheet: Total % Cover of: _____ Multiply by _____ OBL species _____ x 1 = _____ FACW species _____ x 2 = _____ FAC species _____ x 3 = _____ FACU species _____ x 4 = _____ UPL species _____ x 5 = _____ Column Totals: _____ (A) _____ (B) Prevalence Index = B/A = _____
_____ = Total Cover				
Sapling/Shrub Stratum (Plot size _____)				
1 _____				
2 _____				
3 _____				
4 _____				
5 _____				
_____ = Total Cover				
Herb Stratum (Plot size _____)				Hydrophytic Vegetation Indicators: ___ 1 - Rapid Test for Hydrophytic Vegetation ___ 2 - Dominance Test is >50% ___ 3 - Prevalence Index is ≤3.0 ___ 4 - Morphological Adaptations (Provide supporting data in Remarks or on a separate sheet) ___ 5 - Wetland Non-Vascular Plants ___ Problematic Hydrophytic Vegetation (Explain) *Indicators of hydric soil and wetland hydrology must be present unless disturbed or problematic
1 <u>Festuca arundinacea</u>	<u>25</u>	<input checked="" type="checkbox"/>	<u>FAC</u>	
2 <u>Rumex acetosella</u>	<u>3</u>		<u>FACU</u>	
3 <u>Plantago lanceolata</u>	<u>2</u>		<u>FACU</u>	
4 <u>Rubus ursinus</u>	<u>2</u>		<u>FACU</u>	
5 <u>Halicus lanatus</u>	<u>10</u>		<u>FAC</u>	
6 <u>Symphoricarum chilense</u>	<u>5</u>		<u>FAC</u>	
7 <u>Festuca perenne</u>	<u>20</u>	<input checked="" type="checkbox"/>	<u>FAC</u>	
8 <u>Raphanus sativus</u>	<u>3</u>		<u>UPL</u>	
9 <u>Anthoxanthum odoratum</u>	<u>7</u>		<u>FACU</u>	
10 <u>Daucus carota</u>	<u>2</u>		<u>FACU</u>	
11 _____				
<u>79</u> = Total Cover <u>15.8</u>				
Woody Vine Stratum (Plot size _____)				Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No _____
1 _____				
2 _____				
_____ = Total Cover				
% Bare Ground in Herb Stratum _____				

Remarks Veg plot is rectangular pit facing upland. Mowed vegetation complicates cover estimates

**SOIL**

Sampling Point W1-T1-U

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

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-4"	2.5y 3/2	100	<del>2.5y 3/2</del>				Silt Clay	
4-10"	2.5y 3/2	100	↓				GRAVELLY Silt Clay	
10-16"	2.5y 4/1	100	↓				GRAVELLY Silt Clay Layer	

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

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)		Indicators for Problematic Hydric Soils <sup>3</sup> :
<input type="checkbox"/> Histosol (A1)	<input type="checkbox"/> Sandy Redox (S5)	<input type="checkbox"/> 2 cm Muck (A10)
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Stripped Matrix (S6)	<input type="checkbox"/> Red Parent Material (TF2)
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Loamy Mucky Mineral (F1) (except MLRA 1)	<input type="checkbox"/> Very Shallow Dark Surface (TF12)
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Loamy Gleyed Matrix (F2)	<input type="checkbox"/> Other (Explain in Remarks)
<input type="checkbox"/> Depleted Below Dark Surface (A11)	<input type="checkbox"/> Depleted Matrix (F3)	
<input type="checkbox"/> Thick Dark Surface (A12)	<input type="checkbox"/> Redox Dark Surface (F6)	
<input type="checkbox"/> Sandy Mucky Mineral (S1)	<input type="checkbox"/> Depleted Dark Surface (F7)	
<input type="checkbox"/> Sandy Gleyed Matrix (S4)	<input type="checkbox"/> Redox Depressions (F8)	

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

**Restrictive Layer (if present):**  
 Type: NA  
 Depth (inches): NA

Hydric Soil Present? Yes  No

Remarks:  
 • LOW CHROMA & VALUES THRUH NO EVIDENCE OF REDOX MUCKY SOILS.  
 • INCREASE IN GRAVEL SIZE AT DEPTH (4") by 5.

**HYDROLOGY**

Wetland Hydrology Indicators:	
Primary Indicators (minimum of one required; check all that apply)	Secondary Indicators (2 or more required)
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Water-Stained Leaves (B9) (except MLRA 1, 2, 4A, and 4B)
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Salt Crust (B11)
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Aquatic Invertebrates (B13)
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)
<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Presence of Reduced Iron (C4)
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)
<input type="checkbox"/> Surface Soil Cracks (B6)	<input type="checkbox"/> Stunted or Stressed Plants (D1) (LRR A)
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Other (Explain in Remarks)
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)	

**Field Observations:**

Surface Water Present? Yes  No  Depth (inches): \_\_\_\_\_

Water Table Present? Yes  No  Depth (inches): \_\_\_\_\_

Saturation Present? (includes capillary fringe) Yes  No  Depth (inches): \_\_\_\_\_

Wetland Hydrology Present? Yes  No

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

Remarks:  
NONE  
 NO PRIMARY OR SECONDARY INDICATORS MET.

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