City of Arcata

Old Arcata Road Proposed Project

Wetland Delineation Report

Version 2. July 2021
(Version 1: January 2019)

Table of contents

Attachments

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 and a follow-up visit was conducted on June 23, 2021 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 throughout the entire PSB. 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 wetland investigation are provided in Appendix A. Data sheets documenting conditions observed during the 2018 and 2021 investigation are included in Appendix B.

2. Methodology

2.1 Wetland delineation approach

The 2018 wetland delineation was conducted by a GHD botanist and soil scientist, and the follow up 2021 wetland delineation conducted by two soil scientists which focused on one particular area located along the north side of Jacoby Creek Road approximately 175 feet from the intersection with Old Arcata Road. 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.

The data collected in 2021 uses a different naming convention because no new areas where investigated, rather one area that was delineated in 2018 was revisited. The area that was investigated in 2021 (located on the north side of Jacoby Creek Road approximately 175 feet from the intersection with Old Arcata Road) uses “CP” to signify data collection locations, which stands for “confirmation point”. See Attachment (see Figure 1 of Appendix C) for the locations of CP-1 and CP-2.

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 in 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. In 2021, data was collected using the Avenza mapping application on a smart phone.

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. Soil pits were dug to approximately 14 inches in the 2021 field delineation, and utilized the updated NRCS Hydric Soils Indicator guidance to determine whether hydric soils were present (NRCS 2018). Data on soil color, texture and redoximorphic features (iron concentrations) were collected. Any observed redoximorphic features 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; NRCS 2018).

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, and Version 8.2, 2018).

2.4 Hydrology methodology

The delineation was performed in late August and September 2018, and late June 2021, 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, 0.156 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, sandy 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, and in late June of 2021 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 and late June of 2021 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 and on June 23, 2021. 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

COLOR, M., 2000. *Munsell Soil Color Charts.* Year 2000 revised washable edition. GretagMacbeth

Federal Geographic Data Committee, 2013. *Classification of Wetlands and Deepwater Habitats of the United States*. Second Edition. Wetlands Subcommittee, Federal Geographic Data Committee and U.S. Fish and Wildlife Service, Washington, DC. http://fws.gov/wetlands/Documents/Wetlands-and-Deepwater-Habitats-Classification-chart.pdf

Lichvar, et.al., 2016. *The National Wetland Plant List: 2016 wetland ratings*. United States Army Corps of Engineers. http://acwc.sdp.sirsi.net/client/search/asset:asset?t:ac=$N/1012381

USACE, 2010. *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Western Mountains, Valleys, and Coast Region (Version 2.0)*. U.S. Army Corps of Engineers.

USACE, 1987. *Wetlands Delineation Manual,* Tech. Rep 4-87-1. Waterways Experiment Station, United States Department of the Army Corps of Engineers (USACE).

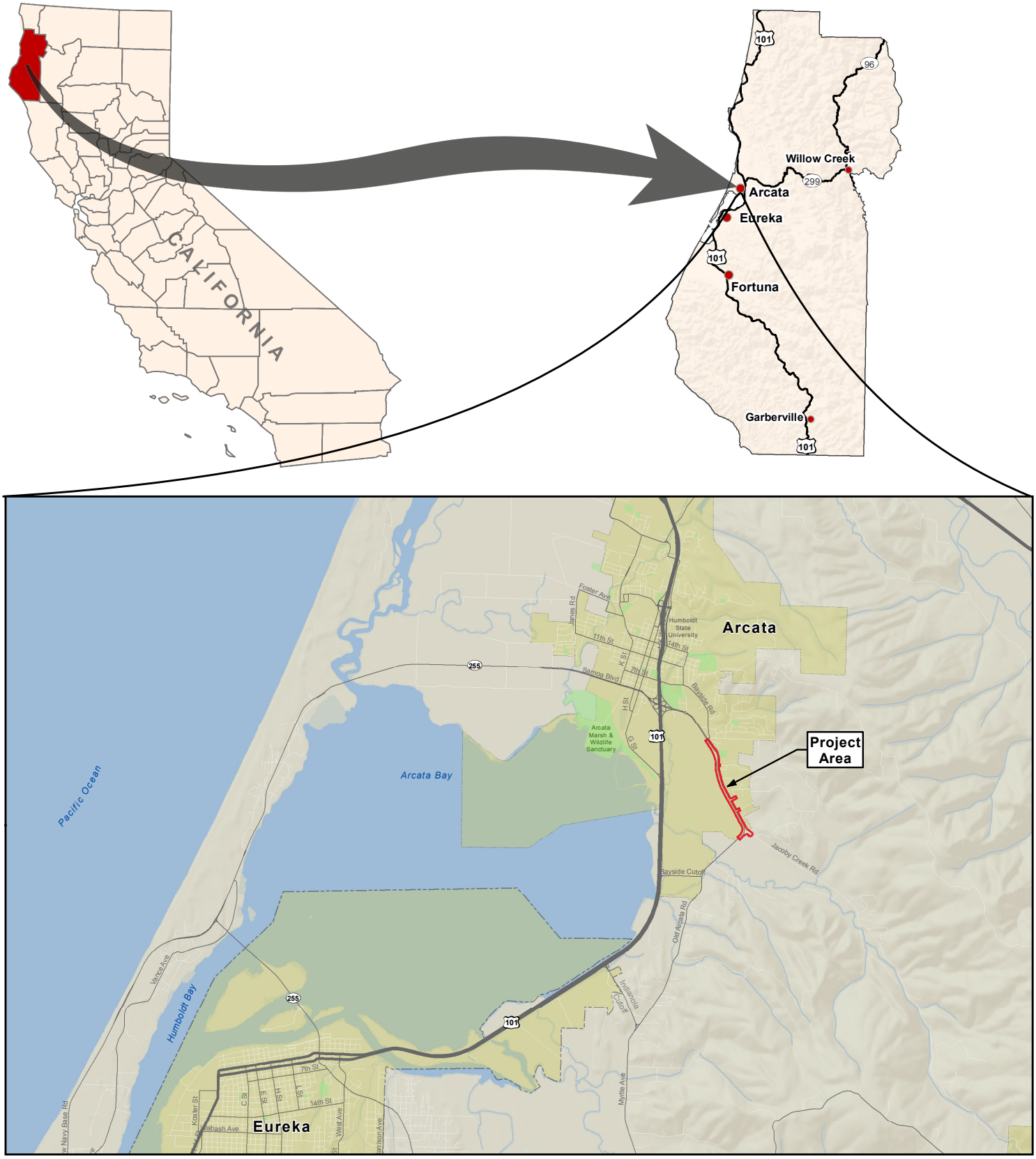
USDA/NRCS, 2016. *Field Indicators of Hydric Soils in the United States, Version 8.0*. L.M. Vasilas, G.W. Hurt, and J.F. Berkowitz (eds). United States Department of Agriculture (USDA) and Natural Resources Conservation Service (NRCS) in cooperation with the National Technical Committee for Hydric Soils.

USDA/NRCS. 2018. Field Indicators of Hydric Soils in the United States, Version 8.2. L.M. Vasilas, G.W. Hurt, and J.F. Berkowitz (eds.). USDA, 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

N

City of Arcata
Old Arcata Road Improvements

Vicinity and
Project Location Map

Job Number	11159130
Revision	A
Date	03 Oct 2018

Figure 1

718 Third Street Eureka CA 95501 USA T 707 443 8326 F 707 444 8330 E eureka@ghd.com W www.ghd.com

G:\111\11159130 Arcata Old Arcata Road Improvements\08-GIS\Maps\Deliverables\11159130_01_Vicinity_RevA.mxd

 Data source: ESRI terrain map; USA Streetmaps; City limits, City of Eureka; NAIP orthoimagery 2012. Created by:gldavidson

Paper Size ANSI B

0 25 50 75 100

Feet

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

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GHD

City of Arcata
Old Arcata Road Improvements

Wetland Delineation

Project No. **11159130**
Revision No. **E**
Date **6/30/2021**

FIGURE 2- 1

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Print date: 30 Jun 2021 - 10:38

Data source: . Created by: zporteous

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

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GHD

City of Arcata
Old Arcata Road Improvements

Wetland Delineation

Project No. **11159130**
Revision No. **E**
Date **6/30/2021**

FIGURE 2- 2

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Data source: . Created by: zporteous

W2T2-W

Legend

- Project Study Boundary

Wetland Survey

- CC upland test pit
- USACE wetland test pit
- USACE wetland transect point
- Intermediate Point
- Upland Ditch
- 1-Parameter Willow Series, Dripline
- 1-Parameter Willow Series, Dripline over Pavement
- Palustrine Emergent Persistent 3-Parameter Wetland
- Palustrine Scrub-Shrub 3-Parameter Wetland Broad leaved Deciduous

Paper Size ANSI B

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Feet

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

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City of Arcata
Old Arcata Road Improvements

Wetland Delineation

Project No. **11159130**
Revision No. **E**
Date **6/30/2021**

FIGURE 2- 3

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Legend

- Project Study Boundary

Wetland Survey

- CC upland test pit
- USACE wetland test pit
- USACE wetland transect point
- Intermediate Point
- Upland Ditch
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Paper Size ANSI B

0 25 50 75 100

Feet

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

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City of Arcata
Old Arcata Road Improvements

Wetland Delineation

Project No. **11159130**
Revision No. **E**
Date **6/30/2021**

FIGURE 2- 4

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Legend

- Project Study Boundary
- **Wetland Survey**
- CC upland test pit
- USACE wetland test pit
- USACE wetland transect point
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Paper Size ANSI B

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Feet

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

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City of Arcata
Old Arcata Road Improvements

Wetland Delineation

Project No. **11159130**
Revision No. **E**
Date **8/4/2021**

FIGURE 2- 5

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Data source: . Created by: zporteous

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): 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 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 X	No	Is the Sampled Area within a Wetland? Yes X No
Hydric Soil Present?	Yes X	No	
Wetland Hydrology Present?	Yes X	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.

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size)			
1			
2			
3			
4			
	= Total Cover		
Sapling/Shrub Stratum (Plot size)			
1			
2			
3			
4			
5			
	= Total Cover		
Herb Stratum (Plot size 8' x 2'6")			
1 Ranunculus repens	15		FAC
2 Festuca arundinacea	30	X	FAC
3 Nasturtium officinale	7		OBL
4 Cyperus eragrostis	5		FACW
5 Hypochaeris radicata	3		FACU
6 Rubus armeniacus	2		FAC
7 Agrostis stolonifera	35	X	FAC
8			
9			
10			
11			
	97 = Total Cover		48.5 / 19.4
Woody Vine Stratum (Plot size)			
1			
2			
	= Total Cover		

% Bare Ground in Herb Stratum ~3%

Dominance Test worksheet:
Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)
Total Number of Dominant Species Across All Strata: 2 (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: 100% (A/B)

Prevalence Index worksheet:

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

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:
- 1 - Rapid Test for Hydrophytic Vegetation
- X 2 - Dominance Test is >50%
- 3 - Prevalence Index is ≤3.0
- 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- 5 - Wetland Non-Vascular Plants[1]
- Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? Yes X No

Remarks: Rubus armeniacus included in herbaceous Stratum since less than 5% Cover for shrub layer. Plot is w/in a road side ditch.

SOIL

Sampling Point: WI-T1-W

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-6"	2.5Y 3/1	100		100	C	M	SILT/LOAM	MUDGRAVEL <15
6-12"	2.5Y 4/1	85%	10YR 5/6	15	C	M	SILT/CLAY	SM < 10
12-16"	2.5Y 3/1	80	10YR 5/6	20	C	M	SILT/CLAY	SM GRAVEL <5

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

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

- ___ 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)

Indicators for Problematic Hydric Soils[3]:

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

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

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:

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

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9) **(except MLRA 1, 2, 4A, and 4B)**
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4) PHF Test
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Stunted or Stressed Plants (D1) **(LRR A)**
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water-Stained Leaves (B9) **(MLRA 1, 2, 4A, and 4B)**
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Saturation Visible on Aerial Imagery (C9)
- X Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- X FAC-Neutral Test (D5) 2:1
- ___ Raised Ant Mounds (D6) **(LRR A)**
- ___ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present? Yes ___ No ✓ Depth (inches): ___

Water Table Present? Yes ___ No ✓ Depth (inches): ___

Saturation Present? (includes capillary fringe) Yes ___ No ✓ Depth (inches): ___

Wetland Hydrology Present? Yes ✓ No ___

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

Remarks:

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: W1-T1-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 X	Is the Sampled Area within a Wetland? Yes No X
Hydric Soil Present?	Yes	No X	
Wetland Hydrology Present?	Yes	No X	

Remarks: From. Mapped transect point, distance to upland pit is 2'.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size 20' radius)	Absolute % Cover	Dominant Species?	Indicator Status
1 → Pinus radiata (* likely aborted)	25%	X	NL (UPL)
2			
3			
4			
	15	= Total Cover	
Sapling/Shrub Stratum (Plot size 7' radius)			
1			
2			
3			
4			
5			
		= Total Cover	
Herb Stratum (Plot size: See note)			
1 Festuca arundinacea	15		FAC
2 Lotus corniculatus	10		FAC
3 Hypochaeris radicata	20	X	FACU
4 Prunella vulgaris	5		FACU
5 Agrostis stolonifera	35	X	FAC
6 Ranunculus repens	15		FAC
7			
8			
9			
10			
11			
	100	= Total Cover	
Woody Vine Stratum (Plot size)			
1			
2			
		= Total Cover	

% Bare Ground in Herb Stratum: 0

Dominance Test worksheet:
Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)
Total Number of Dominant Species Across All Strata: 3 (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: 33.3% (A/B)

Prevalence Index worksheet:

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

Prevalence Index = B/A =

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

Hydrophytic Vegetation Present? Yes No X

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 Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-6"	2.5Y 3/3	100			C	M	Silt Loam	VEGETATION MATCH
6-11"	2.5Y 4/3	98	10YR 5/6	2%	C	M	Silt Loam	
11-16"	2.5Y 4/4	95	7.5YR 5/6	5%	C	M	Silt Loam	

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

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

- ___ 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)

Indicators for Problematic Hydric Soils[3]:

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

[3]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:

DOES NOT MEET HYDRIC SOIL INDICATORS

HYDROLOGY

Wetland Hydrology Indicators:

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

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9) **(except MLRA 1, 2, 4A, and 4B)**
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4) DAP TEST
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Stunted or Stressed Plants (D1) **(LRR A)**
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water-Stained Leaves (B9) **(MLRA 1, 2, 4A, and 4B)**
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)
- ___ Raised Ant Mounds (D6) **(LRR A)**
- ___ Frost-Heave Hummocks (D7)

Field Observations:

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

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

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

Wetland Hydrology Present? Yes _____ No ✓

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

NONE

Remarks:

UPLAND, NO 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 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 X No ____	Is the Sampled Area within a Wetland? Yes X No ____
Hydric Soil Present?	Yes X No ____	
Wetland Hydrology Present?	Yes X No ____	

Remarks: Vegetation plots were radial plots facing away from wetland/upland boundary towards

VEGETATION – Use scientific names of plants. Wetland plot is 5½ feet away from mapped point for wetland T2

Tree Stratum (Plot size 15' Radius)	Absolute % Cover	Dominant Species?	Indicator Status
1 Salix hookeriana	95%	X	FACW
2			
3			
4			
	95% = Total Cover		
Sapling/Shrub Stratum (Plot size 12')			
1 Rubus armeniacus	50%	X	FAC
2			
3			
4			
5			
	50% = Total Cover		
Herb Stratum (Plot size 5')			
1 Ranunculus repens	3%	X	FAC
2			
3			
4			
5			
6			
7			
8			
9			
10			
11			
	3 = Total Cover		
Woody Vine Stratum (Plot size ____)			
1			
2			
	= Total Cover		

% Bare Ground in Herb Stratum: (97% covered by duff and small wood)

Dominance Test worksheet:
Number of Dominant Species That Are OBL, FACW, or FAC: 3 (A)
Total Number of Dominant Species Across All Strata: 3 (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: 100% (A/B)

Prevalence Index worksheet:

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

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:
__ 1 - Rapid Test for Hydrophytic Vegetation
__ 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 X No ____

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

SOIL

Sampling Point: W2-T2-U

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-6"	2.5Y 2/1	100			O	M	SILTY-CLAY LOAM	VEGETATIVE MATTER
6"-12"	2.5Y 3/1	95	10YR 4/6	5	C	M	SILT LOAM	

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

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

- ___ 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)

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type: NONE

Depth (inches): ___

Hydric Soil Present? Yes ✓ No ___

Remarks:

- LOW CHROMA VALUES (2/1, 3/1) CONSISTED WITH REDOXIMORPHIC SOILS.

HYDROLOGY

Wetland Hydrology Indicators:

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

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ✓ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9) **(except MLRA 1, 2, 4A, and 4B)**
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4) PAF TEST
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Stunted or Stressed Plants (D1) **(LRR A)**
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water-Stained Leaves (B9) **(MLRA 1, 2, 4A, and 4B)**
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Saturation Visible on Aerial Imagery (C9)
- X Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- X FAC-Neutral Test (D5) 2:0
- ___ Raised Ant Mounds (D6) **(LRR A)**
- ___ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present? Yes ___ No ✓ Depth (inches): ___

Water Table Present? Yes ___ No ✓ Depth (inches): ___

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

Wetland Hydrology Present? Yes ✓ No ___

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

NA

Remarks:

MET ONE PRIMARY INDICATORS & TWO SECONDARY INDICATORS

B6 - SURFACE CRACKS

D2 - GEOMORPHIC POSITION

C3 - OXIDIZED RHIZOSPHERES ALONG LIVING ROOTS

D5 - FAC NEUTRAL TEST PASSED

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

Project/Site: Old Arcata 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 X No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes _____ No X

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present?	Yes X	No _____	Is the Sampled Area within a Wetland? Yes _____ No X
Hydric Soil Present?	Yes _____	No X	
Wetland Hydrology Present?	Yes _____	No X	

Remarks: Plot is 6' away from mapped boundary of Wetland 2.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size _____)	Absolute % Cover	Dominant Species?	Indicator Status
1			
2			
3			
4			
	_____ = Total Cover		
Sapling/Shrub Stratum (Plot size 10')			
1 Rubus ursinus ×	10	X	FACU
2 Rubus armeniacus	20	X	FAC
3			
4			
5			
	30 = Total Cover		15/6
Herb Stratum (Plot size 5')			
1 Agrostis stolonifera	50	X	FAC
2 Festuca perenne	5		FAC
3 Ranunculus repens	7		FAC
4 Holcus lanatus	20	X	FAC
5 Geranium dissectum	3		NL (UPL)
6 Lapsana communis	7		FACU
7 Equisetum telmatia	3		FACW
8			
9			
10			
11			
	95 = Total Cover		475/19
Woody Vine Stratum (Plot size _____)			
1			
2			
	_____ = Total Cover		

% Bare Ground in Herb Stratum _____

Dominance Test worksheet:

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

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

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

Prevalence Index worksheet:

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

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

__ 1 - Rapid Test for Hydrophytic Vegetation

__ 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 X No _____

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: W2 - T2 - U

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
1 - 8"	2.5 Y 3/3	100%					SILT LOAM	25% SM GRAVEL
8" - 16"	2.5 Y 4/2	100%					SILT LOAM	

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

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

- ___ 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)

Indicators for Problematic Hydric Soils[3]:

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

[3]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:

HIGH CHROMA, NO REDOX SOILS INDICATIVE UPLAND.

HYDROLOGY

Wetland Hydrology Indicators:

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

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9) **(except MLRA 1, 2, 4A, and 4B)**
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4) PHF Test
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Stunted or Stressed Plants (D1) **(LRR A)**
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water-Stained Leaves (B9) **(MLRA 1, 2, 4A, and 4B)**
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)
- ___ Raised Ant Mounds (D6) **(LRR A)**
- ___ Frost-Heave Hummocks (D7)

Field Observations:

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

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

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

Wetland Hydrology Present? Yes _____ No ✓

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

Remarks: NO SIGNS OF SURFACE HYDROLOGY OR 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 WST1-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 X No (If no, explain in Remarks.)
Are Vegetation X, Soil X, or Hydrology X 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 X No	Is the Sampled Area within a Wetland? Yes X No
Hydric Soil Present?	Yes X No	
Wetland Hydrology Present?	Yes X No	

Remarks: Soil pit dug within the freshly dug ditch. Vegetation has been scraped away during excavation. Area covered in rice straw. Herbaceous plot 7'

VEGETATION – Use scientific names of plants. radial plot to encompass more veg. Veg is mowed

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size)			
1			
2			
3			
4			
	= Total Cover		
Sapling/Shrub Stratum (Plot size)			
1			
2			
3			
4			
5			
	= Total Cover		
Herb Stratum (Plot size 7')			
1 Stachys ajugoides	5		OBL
2 Ranunculus repens	15	X	FAC
3 Juncus effusus	20	X	FACW
4 Lotus corniculatus	10		FAC
5 Anthoxanthum odoratum	15	X	FACU
6 Festuca perenne	10		FAC
7 Cyperus eragrostis	5		FACW
8			
9			
10			
11			
	80 = Total Cover		
Woody Vine Stratum (Plot size)			
1			
2			
	= Total Cover		

% Bare Ground in Herb Stratum

Dominance Test worksheet:
Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)
Total Number of Dominant Species Across All Strata: 3 (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: 66% (A/B)

Prevalence Index worksheet:

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

Prevalence Index = B/A =

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

Hydrophytic Vegetation Present? Yes X No

Remarks: In general area veg cover low due to recent mowing + application of rice straw. Large plot used to pick up more veg.

SOIL

Sampling Point: WS-TP-W

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-6	2.5Y 4/1	98	10YR 5/6	3	C	M	Silt-clay loam	>20% Gravel(s)
6-10"	2.5Y 4/2	100			C	M	Clay-loam	<15% "
10-14"	5Y 4/1	100			C	M	Clay loam	<15% "

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

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

- ___ 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)

Indicators for Problematic Hydric Soils[3]:

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

[3]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:

GRAVEL & HAY AT SURFACE, HYDRIC SOIL INDICATOR (F3) - DEPLETED MATRIX AND REDOX SOIL W/IN 6" BGS.

HYDROLOGY

Wetland Hydrology Indicators:

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

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9) **(except MLRA 1, 2, 4A, and 4B)**
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4) PRF Test
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Stunted or Stressed Plants (D1) **(LRR A)**
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water-Stained Leaves (B9) **(MLRA 1, 2, 4A, and 4B)**
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Saturation Visible on Aerial Imagery (C9)
- X Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- X FAC-Neutral Test (D5) 3:1
- ___ Raised Ant Mounds (D6) **(LRR A)**
- ___ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present? Yes ___ No ✓ Depth (inches): ___

Water Table Present? Yes ___ No ✓ Depth (inches): ___

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

Wetland Hydrology Present? Yes ✓ No ___

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

Remarks:

U-PT LOCATED AT PERIMETER OF MAN MADE 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: W5T1-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 X, Soil X, or Hydrology X 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 X No
Hydric Soil Present? Yes No X
Wetland Hydrology Present? Yes No X
Is the Sampled Area within a Wetland? Yes No X

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
1			
2			
3			
4			
	= Total Cover		
Sapling/Shrub Stratum (Plot size 3m x 2m)			
1 Rubus armeniacus	1%	X	FAC
2			
3			
4			
5			
	1% = Total Cover		
Herb Stratum (Plot size 3m x 2m)			
1 Ranunculus repens	1%	X	FAC
2 Anthoxanthum odoratum	1%	X	FACU
3 Juncus effusus	3%	X	FACW
4 Holcus lanatus	1%	X	FAC
5 Helminotheca echioides	1%	X	FAC
6 Cyperus eragrostis	1%	X	FAC
7			
8			
9			
10			
11			
	8 = Total Cover		4
Woody Vine Stratum (Plot size)			
1			
2			
	= Total Cover		

% Bare Ground in Herb Stratum

Dominance Test worksheet:
Number of Dominant Species That Are OBL, FACW, or FAC: 6 (A)
Total Number of Dominant Species Across All Strata: 7 (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: 86% (A/B)

Prevalence Index worksheet:

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

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:
__ 1 - Rapid Test for Hydrophytic Vegetation
X 2 - Dominance Test is >50%
__ 3 - Prevalence Index is ≤3.0
__ 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 X No

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 map as wetland based on disturbed nature of vegetation

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 Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-9"	2.5Y 3/3	100			C	M	GRAVELLY CLAY LOAM	MILD VEGETATION & SURFACE
9-16"	10YR 3/3	98	10YR 5/6	2	C	M	VERY GRAVELLY LOAMY CLAY	

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

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

- ___ 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)

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type: NV

Depth (inches): _____

Hydric Soil Present? Yes _____ No ✓

Remarks:

INCREASE IN ORANGE CONCENTRATIONS AT 10" BGS.

THOUGH SOME REDOX SOILS ≤ 2% AT 9" BGS, NOT SUFFICIENT FOR HYDRIC SOIL.

HYDROLOGY

Wetland Hydrology Indicators:

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

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9) **(except MLRA 1, 2, 4A, and 4B)**
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4) PHF TEST
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Stunted or Stressed Plants (D1) **(LRR A)**
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water-Stained Leaves (B9) **(MLRA 1, 2, 4A, and 4B)**
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)
- ___ Raised Ant Mounds (D6) **(LRR A)**
- ___ Frost-Heave Hummocks (D7)

Field Observations:

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

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

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

Wetland Hydrology Present? Yes _____ No ✓

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

NONE.

Remarks:

NO HYDROLOGY 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 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 X No	Is the Sampled Area within a Wetland? Yes X No
Hydric Soil Present?	Yes X No	
Wetland Hydrology Present?	Yes X No	

Remarks: Area has been mowed recently and covered in rice straw. There is very little vegetation present and mowing complicates describing plot

VEGETATION – Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size ____)			
1			
2			
3			
4			
	= Total Cover		
Sapling/Shrub Stratum (Plot size ____)			
1			
2			
3			
4			
5			
	= Total Cover		
Herb Stratum (Plot size 5x2m, rectangle)			
1 Cyperus eragrostis	3	X	FAC
2 Festuca arundinacea	6	X	FAC
3 Ranunculus repens	1		FAC
4 Juncus effusus	2		FACW
5 Rubus ursinus	1		FACU
6			
7			
8			
9			
10			
11			
	13 = Total Cover		6.5/2.6
Woody Vine Stratum (Plot size ____)			
1			
2			
	= Total Cover		
% Bare Ground in Herb Stratum ____			

Dominance Test worksheet:
Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)
Total Number of Dominant Species Across All Strata: 2 (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: 100% (A/B)

Prevalence Index worksheet:

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

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:
__ 1 - Rapid Test for Hydrophytic Vegetation
__ 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 X No

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 Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-6"	2.5Y 4/1	90	10YR 5/6	10	C	M	gravelly	Silty clay loam w/ NFC
6" - 14"	2.5Y 3/1	95	10YR 5/6	5	C	PL	gravelly	Silty clay loam

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

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

- ___ 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)

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type: NONE

Depth (inches): ___

Hydric Soil Present? Yes ✓ No ___

Remarks:

F3. Depleted Matrix due to low chroma & value of 4 or less.

HYDROLOGY

Wetland Hydrology Indicators:

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

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9) **(except MLRA 1, 2, 4A, and 4B)**
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4) Dipyridyl test
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Stunted or Stressed Plants (D1) **(LRR A)**
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water-Stained Leaves (B9) **(MLRA 1, 2, 4A, and 4B)**
- ✓ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Saturation Visible on Aerial Imagery (C9)
- ✓ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5) 1:1 tie
- ___ Raised Ant Mounds (D6) **(LRR A)**
- ___ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present? Yes ___ No ✓ Depth (inches): ___

Water Table Present? Yes ___ No ✓ Depth (inches): ___

Saturation Present? (includes capillary fringe) Yes ___ No ✓ Depth (inches): ___

Wetland Hydrology Present? Yes X No ___

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

Remarks:

Topographic depressions indicate drainage hydrology patterns.

Two secondary hydrology indicators met:

(B10) - visible drainage patterns

(D2) - geomorphic position adjacent to swale.

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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 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 X No	Is the Sampled Area within a Wetland? Yes ____ No X
Hydric Soil Present?	Yes ____ No X	
Wetland Hydrology Present?	Yes ____ No X	

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

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size ____)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	= Total Cover		
Sapling/Shrub Stratum (Plot size ____)			
1.			
2.			
3.			
4.			
5.			
	= Total Cover		
Herb Stratum (Plot size 4m x 2m)			
1. Festuca arundinacea	20	X	FAC
2. Cyperus eragrostis	5		FAC
3. Trifolium fragiferum	3		FACU
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	28 = Total Cover		14/5.6
Woody Vine Stratum (Plot size ____)			
1.			
2.			
	= Total Cover		
% Bare Ground in Herb Stratum ____			

Dominance Test worksheet:
Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)
Total Number of Dominant Species Across All Strata: 3 (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: 33.3% (A/B)

Prevalence Index worksheet:

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

Prevalence Index = B/A = ____

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

Hydrophytic Vegetation Present? Yes X 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-T2-U

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-6"	2.5 y 4/3	100					Loamy	Silty Loam
6-14"	2.5 y 3/3	100					Very Fine Sandy	Silty Loam

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

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

- ___ 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)

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes _____ No ✓

Remarks:

Upland P.T. High Chroma (3)

HYDROLOGY

Wetland Hydrology Indicators:

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

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9) **(except MLRA 1, 2, 4A, and 4B)**
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4) PRF Test
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Stunted or Stressed Plants (D1) **(LRR A)**
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water-Stained Leaves (B9) **(MLRA 1, 2, 4A, and 4B)**
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)
- ___ Raised Ant Mounds (D6) **(LRR A)**
- ___ Frost-Heave Hummocks (D7)

Field Observations:

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

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

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

Wetland Hydrology Present? Yes _____ No ✓

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

Remarks:

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): 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 X No (If no, explain in Remarks.)
Are Vegetation X, Soil X, or Hydrology X 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 X No
Hydric Soil Present? Yes X No
Wetland Hydrology Present? Yes X No
Is the Sampled Area within a Wetland? Yes X No

Remarks: Excavated ditch covered w/ rice straw and mowed vegetation complicate describing veg plot. Unsure of willow species between S. scouleriana (FAC) or S. sitchensis (FACW)

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size 6m x 3m rectangle)	Absolute % Cover	Dominant Species?	Indicator Status
1 Salix sp. (likely either S. scouleriana or S. sitchensis)	30%	X	FAC or FACW
2			
3			
4			
	= Total Cover		
Sapling/Shrub Stratum (Plot size)			
1			
2 Included in herbaceous plot due to < 5% cover			
3			
4			
5			
	2% = Total Cover		
Herb Stratum (Plot size rectangle 3x1m)			
1 Holcus lanatus	3%	X	FAC
2 Rubus armeniacus	2%	X	FAC
3			
4			
5			
6			
7			
8			
9			
10			
11			
	5% = Total Cover		
Woody Vine Stratum (Plot size)			
1			
2			
	= Total Cover		

% Bare Ground in Herb Stratum

Dominance Test worksheet:
Number of Dominant Species That Are OBL, FACW, or FAC: 3 (A)
Total Number of Dominant Species Across All Strata: 3 (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: 100% (A/B)

Prevalence Index worksheet:

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

Prevalence Index = B/A =

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

Hydrophytic Vegetation Present? Yes X No

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

SOIL

Sampling Point: WS-T3-W

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-6"	2.5Y 3/1	95	10YR 5/6	5	C	M		gravelly
6-10"	2.5Y 3/2	95%	7.5YR 4/6	5%	C	M		" "
10-16"	2.5Y 4/2	98%	7.5YR 4/6	2%	C	M		" "

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

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

- ___ 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)

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (If present):

Type: NONE

Depth (inches): NA

Hydric Soil Present? Yes ✓ No ___

Remarks:

CHROMA OF 2 OR LESS 10" bgs. EVIDENCE OF REDOX SOILS UP TO 16" BGS.

HYDROLOGY

Wetland Hydrology Indicators:

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

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9) **(except MLRA 1, 2, 4A, and 4B)**
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4) PAM Test
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Stunted or Stressed Plants (D1) **(LRR A)**
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water-Stained Leaves (B9) **(MLRA 1, 2, 4A, and 4B)**
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Saturation Visible on Aerial Imagery (C9)
- ✓ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- X FAC-Neutral Test (D5)
- ___ Raised Ant Mounds (D6) **(LRR A)**
- ___ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present? Yes ___ No ✓ Depth (inches): ___

Water Table Present? Yes ___ No ✓ Depth (inches): ___

Saturation Present? (includes capillary fringe) Yes ___ No ✓ Depth (inches): ___

Wetland Hydrology Present? Yes ✓ No ___

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

Remarks:

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 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 X No
Hydric Soil Present? Yes No X
Wetland Hydrology Present? Yes No X
Is the Sampled Area within a Wetland? Yes No X

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 stratu

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size)			
1.			
2			
3			
4			
	= Total Cover		
Sapling/Shrub Stratum (Plot size)			
1			
2			
3			
4			
5			
	= Total Cover		
Herb Stratum (Plot size 6m x 2m)			
1 Holcus lanatus	30	X	FAC
2 Rubus armeniacus	2		FACW
3 Rubus ursinus	2		FACU
4 Plantago lanceolata	1		FACU
5 Vicia sativa ssp. nigra	1		UPL
6 Ranunculus repens	2		FAC
7 Anth. xanthum odoratum	10	X	FACU
8			
9			
10			
11			
	48 = Total Cover		24 / 9.6
Woody Vine Stratum (Plot size)			
1			
2			
	= Total Cover		

% Bare Ground in Herb Stratum

Dominance Test worksheet:
Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)
Total Number of Dominant Species Across All Strata: 2 (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: 50% (A/B)

Prevalence Index worksheet:

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

Prevalence Index = B/A =

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

Hydrophytic Vegetation Present? Yes X No

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

SOIL

Sampling Point: US - T3U

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

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

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

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

- ___ 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)

Indicators for Problematic Hydric Soils[3]:

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

[3]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:

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

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9) **(except MLRA 1, 2, 4A, and 4B)**
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4) Pull Test
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Stunted or Stressed Plants (D1) (LRR A)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water-Stained Leaves (B9) **(MLRA 1, 2, 4A, and 4B)**
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)
- ___ Raised Ant Mounds (D6) (LRR A)
- ___ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present? Yes ____ No ✓ Depth (inches): ____

Water Table Present? Yes ____ No ✓ Depth (inches): ____

Saturation Present? (includes capillary fringe) Yes ____ No ✓ Depth (inches): ____

Wetland Hydrology Present? Yes ____ No ✓

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

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 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 X	No	Is the Sampled Area within a Wetland? Yes X No
Hydric Soil Present?	Yes X	No	
Wetland Hydrology Present?	Yes X	No	

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

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: Radial 3m)	Absolute % Cover	Dominant Species?	Indicator Status
1. Salix hookeriana	85%	X	FACW
2.			
3.			
4.			
	85% = Total Cover		
Sapling/Shrub Stratum (Plot size: 2m)			
1. Rubus armeniacus	25%	X	FAC
2. Rubus ursinus	15%	X	FACU
3.			
4.			
5.			
	40% = Total Cover		
Herb Stratum (Plot size: 2m)			
1. Juncus effusus	15%	X	FACW
2. Oenanthe sarmentosa	20%	X	OBL
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	35% = Total Cover		
Woody Vine Stratum (Plot size:)			
1.			
2.			
	= Total Cover		

% Bare Ground in Herb Stratum:

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 4 (A)

Total Number of Dominant Species Across All Strata: 5 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 80% (A/B)

Prevalence Index worksheet:

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

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

- 1 - Rapid Test for Hydrophytic Vegetation
- X 2 - Dominance Test is >50%
- 3 - Prevalence Index is ≤3.0[1]
- 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- 5 - Wetland Non-Vascular Plants[1]
- Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? Yes X No

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 Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-2"	2.5Y 3/1	100			C	M	SILT	VEGETATION MATTER
2"-6"	2.5Y 2/1	100					SILT-LOAM	INCREASE IN SOIL CONT.
6"-12"	2.5Y 2/1	95	7.5Y 4/6	5			GRAVELLY SILT LOAM	INCREASE IN GRAVEL CONT.
12"-16"	2.5Y 2/1	92	7.5Y 4/6	8			" " + SAND	

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

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

- ___ 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)

Indicators for Problematic Hydric Soils[3]:

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

[3]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:

- F6 CONDITIONS MET W/ MATRIX VALUE OF 3 OR LESS & CHROMA VALUE 2 OR LESS AND 5% DISTINCT REDOX CONCENTRATIONS

HYDROLOGY

Wetland Hydrology Indicators:

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

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9) **(except MLRA 1, 2, 4A, and 4B)**
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Stunted or Stressed Plants (D1) (LRR A)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water-Stained Leaves (B9) **(MLRA 1, 2, 4A, and 4B)**
- ✓ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Saturation Visible on Aerial Imagery (C9)
- ✓ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ✓ FAC-Neutral Test (D5) 3:1
- ___ Raised Ant Mounds (D6) (LRR A)
- ___ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present? Yes ___ No ✓ Depth (inches): ___

Water Table Present? Yes ___ No ✓ Depth (inches): ___

Saturation Present? (includes capillary fringe) Yes ___ No ✓ Depth (inches): ___

Wetland Hydrology Present? Yes ✓ No ___

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

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 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 X No	Is the Sampled Area within a Wetland?	Yes No X
Hydric Soil Present?	Yes No X		
Wetland Hydrology Present?	Yes No X		

Remarks: This roadside is frequently mowed, likely promoting the dominance of velvet grass. Rubus ursinus which is invasive and rated FAC, lumped in herbaceous layer because cover is < 5%.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size:)	Absolute % Cover	Dominant Species?	Indicator Status
1			
2			
3			
4			
	= Total Cover		
Sapling/Shrub Stratum (Plot size:)			
1			
2			
3			
4			
5			
	= Total Cover		
Herb Stratum (Plot size: Rectangle 6'x4')			
1 Rumex acetosella	15		FACU
2 Holcus lanatus	70	X	FAC
3 Scirpus microcarpus	3		OBL
4 Anthoxanthum odoratum	2		FACU
5 Rubus ursinus	3		FAC
6			
7			
8			
9			
10			
11			
	96 = Total Cover		
Woody Vine Stratum (Plot size:)			
1			
2			
	= Total Cover		

% Bare Ground in Herb Stratum:

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

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

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

- 1 - Rapid Test for Hydrophytic Vegetation
- X 2 - Dominance Test is >50%
- 3 - Prevalence Index is ≤3.0[1]
- 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- 5 - Wetland Non-Vascular Plants[1]
- Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? Yes X No

Remarks: 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.

SOIL

Sampling Point: W6-TP-U

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-7"	2.5Y 3/3	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.	- INC IN GRAVEL CONC

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

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

- ___ 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)

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type: None

Depth (inches): NA

Hydric Soil Present? Yes ____ No ✓

Remarks

HIGH VALUE & 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)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9) (except MLRA 1, 2, 4A, and 4B)
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Stunted or Stressed Plants (D1) (LRR A)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)
- ___ Raised Ant Mounds (D6) (LRR A)
- ___ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present? Yes ____ No ✓ Depth (inches): ____

Water Table Present? Yes ____ No ✓ Depth (inches): ____

Saturation Present? (includes capillary fringe) Yes ____ No ✓ Depth (inches): ____

Wetland Hydrology Present? Yes ____ No ✓

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

NONE KNOWN.

Remarks:

TEST PIT LOCATION DOES NOT MEET WETLAND HYDROLOGY INDICATIONS. (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 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 X 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 X	No ____	Is the Sampled Area within a Wetland? Yes X No ____
Hydric Soil Present?	Yes X	No ____	
Wetland Hydrology Present? *	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 3m)	Absolute % Cover	Dominant Species?	Indicator Status
1 Alnus rubra	65%	X	FAC
2			
3			
4			
	65% = Total Cover		
Sapling/Shrub Stratum (Plot size 1.5 m)			
1 Rubus ursinus	5%	X	FACU
2 Rubus armeniacus	3%	X	FAC
3			
4			
5			
	8 = Total Cover		
Herb Stratum (Plot size 1.5 m)			
1 Equisetum telmateia	45	X	FACW
2 Holcus lanatus	50	X	FAC
3 Avena sp	3		
4			
5			
6			
7			
8			
9			
10			
11			
	98% = Total Cover		
Woody Vine Stratum (Plot size ____)			
1			
2			
	____ = Total Cover		

% Bare Ground in Herb Stratum ____

Dominance Test worksheet:
Number of Dominant Species That Are OBL, FACW, or FAC: 4 (A)
Total Number of Dominant Species Across All Strata: 5 (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: 80% (A/B)

Prevalence Index worksheet:

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

Prevalence Index = B/A = ____

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

Hydrophytic Vegetation Present? Yes X No ____

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 Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-4"	2.5Y 2.5/1	100			C	M	Silty loam	C HEAVY ORGANIC MATTER
4"-9"	2.5Y 2.5/1	98	10YR 5/6	2	C	M	Silty clay loam	
9"-16	2.5Y 3/1	95	10YR 5/6	5	C	M	" silt loam "	

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

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

- ___ 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)

Indicators for Problematic Hydric Soils[3]:

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

[3]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:

MATRIX VALUE OF 3 OR LESS, CHROMA OF 1 OR LESS, AND 2% OR MORE DISTINCT REDOX CONCENTRATIONS.

* NOTE: NOT DIGGING UPLAND PIT DUE TO UNDERGROUND UTILITIES (ELECTRICAL LINES).

HYDROLOGY

Wetland Hydrology Indicators:

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

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9) **(except MLRA 1, 2, 4A, and 4B)**
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Stunted or Stressed Plants (D1) **(LRR A)**
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water-Stained Leaves (B9) **(MLRA 1, 2, 4A, and 4B)**
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Saturation Visible on Aerial Imagery (C9)
- ✓ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5) 1:1 (tie)
- ___ Raised Ant Mounds (D6) **(LRR A)**
- ___ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present? Yes ___ No ✓ Depth (inches): ___

Water Table Present? Yes ___ No ✓ Depth (inches): ___

Saturation Present? (includes capillary fringe) Yes ___ No ✓ Depth (inches): ___

Wetland Hydrology Present? Yes ___ No ___ Indicators X

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 U-TP-8
Investigator(s) A Livingston and M. Talley 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 X	No	
Hydric Soil Present?	Yes	No X	Is the Sampled Area within a Wetland? Yes No X
Wetland Hydrology Present?	Yes	No X	

Not by 3 parameter definition

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 Commissin wetland based on veg.

Tree Stratum (Plot size 3m radial plot)

		Absolute % Cover	Dominant Species?	Indicator Status
1	Salix sp. (suspect either S. scouleriana (FAC) or S. sitchensis (FACW))	70%	X	FAC or FACW
2				
3				
4				
		70%	= Total Cover	

Sapling/Shrub Stratum (Plot size)

none

1				
2				
3				
4				
5				
			= Total Cover	

Herb Stratum (Plot size 2m radial plot)

1	Festuca arundinacea	5		FAC
2	Juncus effusus	10		FACW
3	Holcus lanatus	65	X	FAC
4	Anthoxanthum odoratum	10		FACU
5				
6				
7				
8				
9				
10				
11				
		90	= Total Cover	

Woody Vine Stratum (Plot size)

1				
2				
			= Total Cover	

% Bare Ground in Herb Stratum

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)
Total Number of Dominant Species Across All Strata: 2 (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

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

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

- 1 - Rapid Test for Hydrophytic Vegetation
- X 2 - Dominance Test is >50%
- 3 - Prevalence Index is ≤3.0
- 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 X No

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

SOIL

Sampling Point: UTP-8

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-2"	2.5Y 3/3	100			C	M	Silty Clay Loam	ORGANIC - MATTED
2"-8"	2.5Y 4/1	100					Silt Loam	
8"-13"	2.5Y 4/2	100					GRAVELLY Silt Loam	
13"-16"	2.5Y 4/3	100					VERY GRAVELLY Silt Loam	

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

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

- ___ 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)

Indicators for Problematic Hydric Soils[3]:

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

[3]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 SOILS. EVEN WITH LAB CHROMA.

HYDROLOGY

Wetland Hydrology Indicators:

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

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9) **(except MLRA 1, 2, 4A, and 4B)**
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Stunted or Stressed Plants (D1) **(LRR A)**
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water-Stained Leaves (B9) **(MLRA 1, 2, 4A, and 4B)**
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)
- ___ Raised Ant Mounds (D6) **(LRR A)**
- ___ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present? Yes ____ No ✓ Depth (inches): ____

Water Table Present? Yes ____ No ✓ Depth (inches): ____

Saturation Present? (includes capillary fringe) Yes ____ No ✓ Depth (inches): ____

Wetland Hydrology Present? Yes ____ No ✓

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

Remarks:

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: 619TH-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 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 X	No	
Hydric Soil Present?	Yes X	No	Is the Sampled Area within a Wetland? Yes X No
Wetland Hydrology Present?	Yes X	No	

Remarks

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size ____)	Absolute % Cover	Dominant Species?	Indicator Status
1			
2 None			
3			
4			
	= Total Cover		

Sapling/Shrub Stratum (Plot size ____)			
1			
2			
3 None			
4			
5			
	= Total Cover		

Herb Stratum (Plot size Rectangle in ditch 5' x 1')

1 Lythrum hyssopifolium	70	X	OBL
2 Lotus corniculatus	15	X	FAC
3 Convolvulus?	2		?
4 Rubus ursinus	2		FACU
5 Helminthotheca echioides	2		FAC
6			
7			
8			
9			
10			
11			
	91 = Total Cover		

Woody Vine Stratum (Plot size ____)			
1			
2			
	= Total Cover		

% Bare Ground in Herb Stratum ____

Dominance Test worksheet:
Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)
Total Number of Dominant Species Across All Strata: 2 (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

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

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:
__ 1 - Rapid Test for Hydrophytic Vegetation
__ 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 X No

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-T1-W

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-4"	7.5Y 3/1	98	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

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

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

- ___ 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)

Indicators for Problematic Hydric Soils[3]:

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

[3]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:

- EVIDENCE OF REDOXIMORPHIC SOILS. MATRIX VALUE OF 3 OR LESS & LOW CHROMA VALUES.
- EVIDENCE OF SOIL MOISTURE AT 6" bgs.

HYDROLOGY

Wetland Hydrology Indicators:

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

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ✓ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9) **(except MLRA 1, 2, 4A, and 4B)**
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Stunted or Stressed Plants (D1) (LRR A)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water-Stained Leaves (B9) **(MLRA 1, 2, 4A, and 4B)**
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Saturation Visible on Aerial Imagery (C9)
- ✓ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ✓ FAC-Neutral Test (D5) 1:0
- ___ Raised Ant Mounds (D6) (LRR A)
- ___ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present? Yes ___ No ___ Depth (inches) ___

Water Table Present? Yes ___ No ___ Depth (inches) ___

Saturation Present? (includes capillary fringe) Yes ✓ No ___ Depth (inches) 8"

Wetland Hydrology Present? Yes ✓ No ___

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

NA

Remarks:

PRIMARY

2 HYDROLOGY INDICATORS MET, INCLUDING TWO SECONDARY INDICATORS MET

A2 - HIGH WATER TABLE

A3 - SATURATION

- 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 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 X	No	
Hydric Soil Present?	Yes	No X	Is the Sampled Area within a Wetland? Yes No X
Wetland Hydrology Present?	Yes	No X	

Remarks: Vegetation is mowed. Plot is in a road median. Mowing likely favors tall fescue and perennial rye grass which are dominant in herbaceous plot. Other FACU species are present.

VEGETATION – Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size)			
1.			
2.			
3.			
4.			
	= Total Cover		
Sapling/Shrub Stratum (Plot size)			
1.			
2.			
3.			
4.			
5.			
	= Total Cover		
Herb Stratum (Plot size)			
1 Festuca arundinacea	25	X	FAC
2 Rumex acetosella	3		FACU
3 Plantago lanceolata	2		FACU
4 Rubus ursinus	2		FACU
5 Holcus lanatus	10		FAC
6 Symphotrichum chilense	5		FAC
7 Festuca perenne	20	X	FAC
8 Raphanus sativus	3		UPL
9 Anthoxanthum odoratum	7		FACU
10 Daucus carota	2		FACU
11			
	79 = Total Cover (5 / 158)		
Woody Vine Stratum (Plot size)			
1			
2			
	= Total Cover		

% Bare Ground in Herb Stratum

Dominance Test worksheet:
Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)
Total Number of Dominant Species Across All Strata: 2 (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

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

Prevalence Index = B/A =

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

Hydrophytic Vegetation Present? Yes X No

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

SOIL

Sampling Point: W9-T1-U

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-4"	2.5Y 3/2	100					Silt Clay	
4-10"	2.5Y 3/3	100					GRAVELLY Silt Clay	
10-16"	2.5Y 4/1	100					GRAVELLY Silt Clay Loam	

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

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

- ___ 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)

Indicators for Problematic Hydric Soils[3]:

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

[3]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 THAT'S NO EVIDENCE OF REDOXMORPHIC SOILS.
- FILL SOIL
- INCREASE IN GRAVEL SIZE AT DEPTH · (4") bgs.

HYDROLOGY

Wetland Hydrology Indicators:

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

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9) **(except MLRA 1, 2, 4A, and 4B)**
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Stunted or Stressed Plants (D1) **(LRR A)**
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water-Stained Leaves (B9) **(MLRA 1, 2, 4A, and 4B)**
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)
- ___ Raised Ant Mounds (D6) **(LRR A)**
- ___ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present? Yes ____ No ✓ Depth (inches): ____

Water Table Present? Yes ____ No ✓ Depth (inches): ____

Saturation Present? (includes capillary fringe) Yes ____ No ✓ Depth (inches): ____

Wetland Hydrology Present? Yes ____ No ✓

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

NA

Remarks:

NONE.

NO PRIMARY OR SECONDARY INDICATORS MET.

Appendix C – 2021 Wetland Technical Memorandum

Technical Memorandum

June 29, 2021

To	Kasey Sirkin, USACE	**Tel**	(707) 443-0855
Copy to	Netra Khahtri, City of Arcata; Andrea Hilton, GHD	**Email**	l.k.sirkin@usace.army.mil
From	Kerry McNamee, GHD	**Ref. No.**	11159130
Subject	Old Arcata Road Improvement Project 2021 Wetland Delineation Update PJD File No. 2019-00073N		

Greetings Kasey,

This Technical Memorandum is in regards to the proposed Old Arcata Road Improvement Project (Project), and presents the findings of a subsequent delineation conducted at a specific area in question within the Project Area boundary. A PJD was previously issued by the U.S. Army Corps of Engineers (USACE) on March 28, 2019, File No. 2019-00073N.

Purpose

The original wetland delineation for the Project occurred in August 2018 and included evaluation of a small roadside 0.002 acre three-parameter wetland near the intersection of Old Arcata Road and Jacoby Creek Road. In the three years since the original delineation, this roadside area has been in continual use as an informal parking area and thus consistently impacted. As a result of the ongoing use, Project scientists noted the area no longer resembled a wetland, and a formal delineation update occurred to confirm the status of the area in question in order to present accurate environmental impact analysis in the CEQA Environmental Impact Report (EIR) under preparation for the Project.

The subsequent delineation was conducted following a site visit in which the area in question did not appear to be a wetland, located along the north side of Jacoby Creek Road approximately 175 feet from the intersection with Old Arcata Road (the area in question is outlined in yellow on the attached Figure 1). Therefore, GHD wetland scientists conducted a follow up delineation at the area in question on June 23, 2021. The area in question was found to not meet wetland parameters (vegetation, soils, hydrology), and therefore is not considered a three-parameter wetland and non-jurisdictional by USACE. Data from the subsequent delineation is summarized below.

Data Overview

Two GHD wetland scientists visited the area in question on June 23, 2021 and dug two pits to collect vegetation, soils and hydrology data. The two pits are labelled CP-1 and CP-2, (“Confirmation Point”), on the attached Figure 1. Conditions at both CP-1 and CP-2 do not meet all three parameters to be considered a USACE-jurisdictional wetland resource under the Clean Water Act. Datasheets for CP-1 and CP-2 are attached to this Technical Memo as Attachment 2.

Vegetation

- No obligate vegetation was observed at either CP-1 or CP-2.
- The majority of species observed are considered Facultative, meaning they occur in wetlands 34% to 66% of the time, making these species statistically equally likely to occur in wetlands or uplands.

- Most species are invasive and non-native to California.

Soils

- Soils at both sites contained very gravelly sandy loams, and which consisted of riverrun fill material in the upper horizon.
- CP-1 contained potentially hydric soils due to the chroma of 3 and low value (< 2), and presence of redoximorphic conditions in the lower horizon (9.5-13 inches). However, the lower horizon started at a depth greater than 8 inches to the surface, and is therefore not meeting any hydric soils indicators per the USDA/NRCS 2018 Hydric Soils Indicator Guide.
- CP-2 contained soils with low chromas (< 2), and low value (< 2), however did not contain any redoximorphic features or other indicators (such as odors) of hydric soil conditions.

Hydrology

- No surface water was present at both CP-1 and CP-2, however this area is known to seasonally pool during the wet winter months as it is located between a culvert and storm drain.
- No primary indicators were observed at CP-1 and CP-2, however one secondary indicator (Geomorphic Position) was observed at both sites.

Conclusion

The original Wetland Delineation Report (January 2019) has been updated to remove the area in question, and will be resubmitted for an updated Preliminary Jurisdictional determination from the USACE. If warranted, please contact Kerry McNamee at (707) 267-2207 or at Kerry.McNamee@ghd.com to discuss this memo.

Regards

Kerry McNamee
Environmental Planner

Cced: Netra Khatri, P.E., City of Arcata
Andrea Hilton, GHD

Attachment 1: Figures

Attachment 2: Datasheets

Attachments

Attachment 1

Figure

Paper Size ANSI A

0 5.5 11 16.5 22

Feet

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

GHD

City of Arcata
Old Arcata Road Improvement Project

Project No. **11159130**
Revision No. **-**
Date **6/30/2021**

2021 Wetland Area of Investigation

FIGURE 1

\\ghdnet\ghd\US\Eureka\Projects\111\11159130 Arcata Old Arcata Road Improvements\08-GIS\Maps\Deliverables\WetlandMemo_20210630\11159130_WetlandMemo.aprx
Print date: 30 Jun 2021 - 13:47

Data source: . Created by: zporteous

Attachment 2

Data Sheets

U.S. Army Corps of Engineers

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

See ERDC/EL TR-07-24; the proponent agency is CECW-CO-R

OMB Control #: 0710-xxxx, Exp: Pending Requirement Control Symbol EXEMPT: (Authority: AR 335-15, paragraph 5-2a)

Project/Site: Old Arcata Road Improvement Project | City/County: Arcata/Humboldt | Sampling Date: 6/23/2021

Applicant/Owner: Humboldt County | State: CA | Sampling Point: CP-1

Investigator(s): M. Schwarz, K. McNamee | Section, Township, Range: 3, T5N, 1RE

Landform (hillside, terrace, etc.): Flat road shoulder | Local relief (concave, convex, none): none | Slope (%): 0

Subregion (LRR): LRR A | Lat: 40.842391 | Long: -124.063341 | Datum: WGS84

Soil Map Unit Name: Hookton-Tablebluff complex, 2 to 9 percent slopes | NWI classification: None (upland)

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 X No ____

Are Vegetation N, Soil N, or Hydrology N naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present?	Yes X	No ____	**Is the Sampled Area within a Wetland?** Yes ____ No X
Hydric Soil Present?	Yes ____	No X	
Wetland Hydrology Present?	Yes ____	No X	

Remarks:
Vegetation dominated by invasive species. Hydric soil not present. Wetland hydrology present via secondary indicators.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: ____)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	____	=Total Cover	
Sapling/Shrub Stratum (Plot size: ____)			
1.			
2.			
3.			
4.			
5.			
	____	=Total Cover	
Herb Stratum (Plot size: 2 sf)			
1. *Trifolium repens*	25	Yes	FAC
2. *Plantago major*	10	Yes	FAC
3. *Poa annua*	10	Yes	FAC
4. *Matricaria discoidea*	5	No	FACU
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	50	=Total Cover	
Woody Vine Stratum (Plot size: ____)			
1.			
2.			
	____	=Total Cover	

% Bare Ground in Herb Stratum ____

Dominance Test worksheet:

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

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100.0% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	45	x 3 =	135
FACU species	5	x 4 =	20
UPL species	0	x 5 =	0
Column Totals:	50 (A)		155 (B)

Prevalence Index = B/A = 3.10

Hydrophytic Vegetation Indicators:

- ____ 1 - Rapid Test for Hydrophytic Vegetation
- X 2 - Dominance Test is >50%
- ____ 3 - Prevalence Index is ≤3.0[1]
- ____ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ____ 5 - Wetland Non-Vascular Plants[1]
- ____ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? Yes X No ____

Remarks:

SOIL

Sampling Point: CP-1

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-9.5	2.5Y 3/2	100					Sandy	very gravelly sandy loam; riverrun fill
9.5-13	10YR 3/1	96	7.5YR 7/6	4	C	M	Sandy	contained variegated soil

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

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

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ 2.5 cm Mucky Peat or Peat (S2) **(LRR G)**
- ___ 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)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10)
- ___ Red Parent Material (F21)
- ___ Very Shallow Dark Surface (F22)
- ___ Other (Explain in Remarks)

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

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** ___ **No** X

Remarks:

Although the second soil horizon contains redoximorphic features, it started deeper than the hydric soil indicators (such as F6).

HYDROLOGY

Wetland Hydrology Indicators:

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

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9) (**except MLRA 1, 2, 4A, and 4B**)
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Stunted or Stressed Plants (D1) (**LRR A**)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water-Stained Leaves (B9) (**MLRA 1, 2 4A, and 4B**)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Saturation Visible on Aerial Imagery (C9)
- X Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)
- ___ Raised Ant Mounds (D6) (**LRR A**)
- ___ Frost-Heave Hummocks (D7)

Field Observations:

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

Wetland Hydrology Present? **Yes** ___ **No** X

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

Remarks:

Sampling location is between a culvert and storm drain.

U.S. Army Corps of Engineers

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

See ERDC/EL TR-07-24; the proponent agency is CECW-CO-R

OMB Control #: 0710-xxxx, Exp: Pending Requirement Control Symbol EXEMPT: (Authority: AR 335-15, paragraph 5-2a)

Project/Site: Old Arcata Road Improvement Project City/County: Arcata/Humboldt Sampling Date: 6/23/2021

Applicant/Owner: Humboldt County State: CA Sampling Point: CP-2

Investigator(s): M. Schwarz, K. McNamee Section, Township, Range: 3, T5N, 1RE

Landform (hillside, terrace, etc.): Flat road shoulder Local relief (concave, convex, none): none Slope (%): 0

Subregion (LRR): LRR A Lat: 40.842410 Long: -124.063377 Datum: WGS84

Soil Map Unit Name: Hookton-Tablebluff complex, 2 to 9 percent slopes NWI classification: None (upland)

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 X No ____

Are Vegetation N, Soil N, or Hydrology N naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present?	Yes ____	No X	**Is the Sampled Area within a Wetland?** **Yes** ____ **No** X
Hydric Soil Present?	Yes ____	No X	
Wetland Hydrology Present?	Yes ____	No X	

Remarks:
Vegetation dominated by invasive species. Hydric soil not present. Wetland hydrology not present however one secondary indicator was observed.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: ____)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	=Total Cover		
Sapling/Shrub Stratum (Plot size: ____)			
1.			
2.			
3.			
4.			
5.			
	=Total Cover		
Herb Stratum (Plot size: 2 sf)			
1. *Trifolium repens*	35	Yes	FAC
2. *Hypochaeris radicata*	15	Yes	FACU
3. *Poa annua*	10	No	FAC
4. *Festuca perennis*	5	No	FAC
5. *Plantago major*	5	No	FAC
6.			
7.			
8.			
9.			
10.			
11.			
	70 =Total Cover		
Woody Vine Stratum (Plot size: ____)			
1.			
2.			
	=Total Cover		

% Bare Ground in Herb Stratum ____

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 50.0% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	55	x 3 =	165
FACU species	15	x 4 =	60
UPL species	0	x 5 =	0
Column Totals:	70 (A)		225 (B)

Prevalence Index = B/A = 3.21

Hydrophytic Vegetation Indicators:

____ 1 - Rapid Test for Hydrophytic Vegetation

____ 2 - Dominance Test is >50%

____ 3 - Prevalence Index is ≤3.0[1]

____ 4 - Morphological Adaptations[1](Provide supporting data in Remarks or on a separate sheet)

____ 5 - Wetland Non-Vascular Plants[1]

____ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? **Yes** ____ **No** X

Remarks:

SOIL

Sampling Point: CP-2

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

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-9	2.5Y 3/2	100					Sandy	very gravelly sandy loam; riverrun fill
9-14	10YR 2/1	100					Sandy	No redox observed.

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

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

___ Histosol (A1)
___ Histic Epipedon (A2)
___ Black Histic (A3)
___ Hydrogen Sulfide (A4)
___ Depleted Below Dark Surface (A11)
___ Thick Dark Surface (A12)
___ Sandy Mucky Mineral (S1)
___ 2.5 cm Mucky Peat or Peat (S2) **(LRR G)**
___ 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)

Indicators for Problematic Hydric Soils[3]:

___ 2 cm Muck (A10)
___ Red Parent Material (F21)
___ Very Shallow Dark Surface (F22)
___ Other (Explain in Remarks)

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

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** ___ **No** X

Remarks:
No redoximorphic conditions observed

HYDROLOGY

Wetland Hydrology Indicators:

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

___ Surface Water (A1)
___ High Water Table (A2)
___ Saturation (A3)
___ Water Marks (B1)
___ Sediment Deposits (B2)
___ Drift Deposits (B3)
___ Algal Mat or Crust (B4)
___ Iron Deposits (B5)
___ Surface Soil Cracks (B6)
___ Inundation Visible on Aerial Imagery (B7)
___ Sparsely Vegetated Concave Surface (B8)
___ Water-Stained Leaves (B9) (**except MLRA 1, 2, 4A, and 4B**)
___ Salt Crust (B11)
___ Aquatic Invertebrates (B13)
___ Hydrogen Sulfide Odor (C1)
___ Oxidized Rhizospheres on Living Roots (C3)
___ Presence of Reduced Iron (C4)
___ Recent Iron Reduction in Tilled Soils (C6)
___ Stunted or Stressed Plants (D1) (**LRR A**)
___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

___ Water-Stained Leaves (B9) (**MLRA 1, 2 4A, and 4B**)
___ Drainage Patterns (B10)
___ Dry-Season Water Table (C2)
___ Saturation Visible on Aerial Imagery (C9)
X Geomorphic Position (D2)
___ Shallow Aquitard (D3)
___ FAC-Neutral Test (D5)
___ Raised Ant Mounds (D6) (**LRR A**)
___ Frost-Heave Hummocks (D7)

Field Observations:

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

Wetland Hydrology Present? **Yes** ___ **No** X

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

Remarks:
Sampling location is between a culvert and storm drain.

GHD

718 Third Street
Eureka, California 95501

T: 707.443.8326 F: 707.444.8330 E: info@ghd.com

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