AQUATIC RESOURCES DELINEATION

APN: 214-142-009

HUMBOLDT COUNTY

Prepared by:

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Date:

September 2019

1. INTRODUCTION

This report includes the results an aquatic resources delineation conducted on a portion of APN: 214-142-009 near Redway. The purpose of the study was to determine the extent of wetlands and other aquatic resources that were filled or disturbed from development for cannabis cultivation so that a restoration plan can be developed.

2. DEFINITIONS

Waters of the United States

Waters of the United States are regulated by the U.S Army Corps of Engineers (Army Corps) under the Clean Water Act. Waters of the United States include, but are not limited to, territorial seas, waters used for interstate or foreign commerce and their tributaries, and waters adjacent to the aforementioned, including wetlands.

Army Corps jurisdiction in waters such as creeks and rivers includes the area below the ordinary high water mark, which is the line on the bank established by fluctuations of water that leave physical characteristics such as a distinct line on the bank, shelving, destruction of terrestrial vegetation, and presence of debris.

The Army Corps defines wetlands as:

> "… areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal conditions do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs, and similar areas."

Waters of the State

Waters of the state are regulated by the State Water Resources Control Board (Water Board) under the Porter-Cologne Water Quality Control Act. Waters of the state are defined as:

> "… any surface water or groundwater, including saline waters, within the boundaries of the state."

Waters of the State includes water in both natural and artificial channels.

The Water Board's definition of a wetland is:

> *"An area is wetland if, under normal circumstances, (1) the area has continuous or recurrent saturation of the upper substrate caused by groundwater, or shallow surface water, or both; (2) the duration of such saturation is sufficient to cause anaerobic conditions in the upper substrate; and (3) the area's vegetation is dominated by hydrophytes or the area lacks vegetation."*

Streamside Management Areas
The Humboldt County General Plan (Humboldt County 2017) recognizes Streamside Management Areas (SMAs) along all streams, which are defined as:

> "100 feet, measured as the horizontal distance from the top of bank or edge of riparian drip-line whichever is greater on either side of perennial streams."
>
> "50 feet, measured as the horizontal distance from the top of bank or edge of riparian drip-line whichever is greater on either side of intermittent streams."

3. ENVIRONMENTAL SETTING

Project Location
The parcel is located along Wood Ranch Road approximately 3.75 miles northeast of Redway on the Miranda USGS quadrangle (Non-sectioned area of T3S, R3E).

Soil, Topography, and Hydrology
The soil type mapped in the study area is Coyoterock-Yorknorth complex, 15-50% slopes (United States Department of Agriculture, Natural Resource Conservation Service 2019). This soil type is derived from sandstone, mudstone, and schist parent material. All of the soil components have a non-hydric soil rating. The study area is in a relatively flat, partially graded terrace on an approximately 15% south-facing slope. The elevation ranges from approximately 800-880 feet above sea level. The site includes wetlands and small streams that drain into the South Fork Eel River.

4. METHODS

4.1. Current Conditions
The study was conducted on May 8, 2019 by Kyle Wear, M.A. Mr. Wear has over 20 years of experience conducting floristic surveys and other botanical work in northern California and over ten years of experience conducting wetland delineations. Mr. Wear is also trained in wetland delineation by the Wetland Training Institute.

Federal, State, and County wetland delineation methods follow the *1987 Corps of Engineers Wetlands Delineation Manual* (Environmental Laboratory 1987) and the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual Western Mountains, Valleys, and Coast Region (Version 2.0)* (Army Corps 2010). A positive wetland determination is made when all three wetland parameters (hydrophytic vegetation, hydric, soil, and wetland hydrology) are present. Four sample plots were evaluated for hydrophytic vegetation, hydric, soil, and wetland hydrology. Wetland determination data forms are provided in Appendix A.

Hydrophytic Vegetation
The presence of hydrophytic vegetation in determined by the wetland indicator status of each plant species present using the *Western Mountains Valleys and Coast 2016 Regional Wetland*

Plant List (Army Corps 2016). The indicator status of plants is based on the estimated probability of the species occurring in wetlands. The indicator status categories are:

Obligate Wetland Plants (OBL)	Almost always occur in wetlands	>99% frequency
Facultative Wetland Plants (FACW)	Usually occur in wetlands	67%-99%
Facultative Plants (FAC)	Equally occur wetlands and non-wetlands	33%-67%
Facultative Upland Plants (FACU)	Sometimes occur in wetlands	1%-33%
Obligate Upland Plants (UPL)	Rarely occur in wetlands	<1%

If more than 50% of the dominant plants across all vegetation strata (i.e. trees, shrubs, herbs) are OBL, FACW, or FAC, the vegetation is considered to be hydrophytic. Dominance of plants within the plots is determined using the "50/20" rule. This method involves estimating absolute cover of each plant in each vegetation stratum. Dominant plants include the plants with the highest cover that collectively or individually account for 50% of the total vegetation cover. Additional plants are considered dominant if their cover is at least 20%.

Hydric Soil

Indicators of hydric soil include, but are not limited to, a strong hydrogen sulfide (rotten egg) odor, redox concentrations, depleted matrix, and high organic matter content. Soil colors are determined by using a standard Munsell soil color chart (Gretag Macbeth 2000).

Wetland Hydrology

Indicators of wetland hydrology include, but are not limited to, surface water, high water table, soil saturation, sediment deposits, soil cracks, and oxidized root channels along living roots.

Non-Wetland Waters

Non-wetland waters include watercourses with an ordinary highwater mark in addition to ponds, lakes, and other waterbodies.

4.2. Conditions Before Development

National Agricultural Imagery Program (NAIP) images taken before (2014) and after (2016 and 2018) development and Google Earth images (2014 and 2019) were evaluated to determine the extent of filling and disturbance to wetlands on the site. The extent of wetlands and disturbance visible in the photos was mapped with QGIS software that was used to calculate the area of wetland fill and disturbance.

5. RESULTS AND DISCUSSION

There are 1.218 acres of seasonal emergent wetland visible in the 2014 NAIP (Appendix B) and Google Earth images (Appendix C) that were taken before development of the site. The wetlands are distinguishable by the brownish-green patches of rushes (likely *Juncus patens*) in contrast to the lighter green or tan color of the adjacent grasslands, and other lighter green features that are trees and shrubs including oaks, California bay, Douglas-fir, and coyote brush. By 2018, 2.990 acres of grading and development are visible in on the NAIP image, most of

which appears to have occurred by 2016 (Figure 1, Table 1). The grading resulted in filling of 0.465 acre of wetland. These areas no longer have wetland characteristics and are under greenhouse pads and roads. 0.753 acres of emergent wetland were delineated in 2019, of which 0.306 acre is within the graded area visible in the aerial images; there is no development on these areas and they still have wetland characteristics. Most of the grading and development outside the wetlands is within the 100-foot wetland setback (of the 2014 wetland extent) required by the *Cannabis Cultivation Policy* (Water Board 2019). Representative photos of the site are provided Appendix D.

Table 1. Summary of Wetland Impacts.

	Total Area (acres)	
Map Feature	**2014**	**2019**
Disturbed Area	0	2.990
Emergent Wetland	1.218	0.753
Filled Wetland	0	0.465
Disturbed Wetland	0	0.306
Unimpacted Wetland	1.218	0.447

There is an approximately 165-foot stretch of an intermittent stream running through the disturbed portion of Wetland 1. This feature is not visible on the 2014 aerial images. There is evidence of the channel on the 2016 NAIP image and the 2019 Google Earth image. Thus, it may be constructed, enhanced, or a result of the disturbance to the wetland. For example, the lack of vegetation after disturbance may have increased runoff and erosion through the area creating the channel. It is also possible it is not visible due to resolution of the images, or it is obscured by vegetation. There is no other evidence in the aerial images or on the ground at the site indicating other potential watercourse alterations.

The remaining wetlands, which includes the areas that were disturbed, but still have wetland characteristics, and the unimpacted wetlands have hydrophytic vegetation dominated by spreading rush (*Juncus patens*) and other hydrophytes including spike rush (*Eleocharis macrostachya*), nut sedge (*Cyperus eragrostis*), and pennyroyal (*Mentha pelugium*). The adjacent upland habitat includes grassland dominated by non-native grasses including rattlesnake grass (*Briza maxima*), wild oat (*Avena barbata*), and orchard grass (*Dactylis glomerata*). There are also stands coyote brush (*Baccharis pilularis*), Douglas-fir (*Pseudotsuga menziesii*), oaks (*Quercus* spp.), and California bay (*Umbellularia californica*).

The soil in the wetlands meets hydric soil indicators F3 (Depleted Matrix) and F6 (Redox Dark Surface). The soil color is 10yr 4/1 or 10yr 3/1 with approximately 10% 7.5yr 5/6 redox concentrations. Primary wetland hydrology indicators observed included Surface Water (A1), High Water Table (A2), and Saturation (A3). The upland soil color was 10yr 2/2 with no redox features or other hydric soil indicators. The upland grassland and forested areas lack indicators of wetland hydrology.

6. REFERENCES

Environmental Laboratory. 1987. *Corps of Engineers Wetlands Delineation Manual*. Technical Report Y-87-1. Vicksburg, MS: U.S. Army Engineer Waterways Experimental Station.

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https://www.waterboards.ca.gov/water_issues/programs/cannabis/docs/policy/final_cannabis_policy_with_attach_a.pdf

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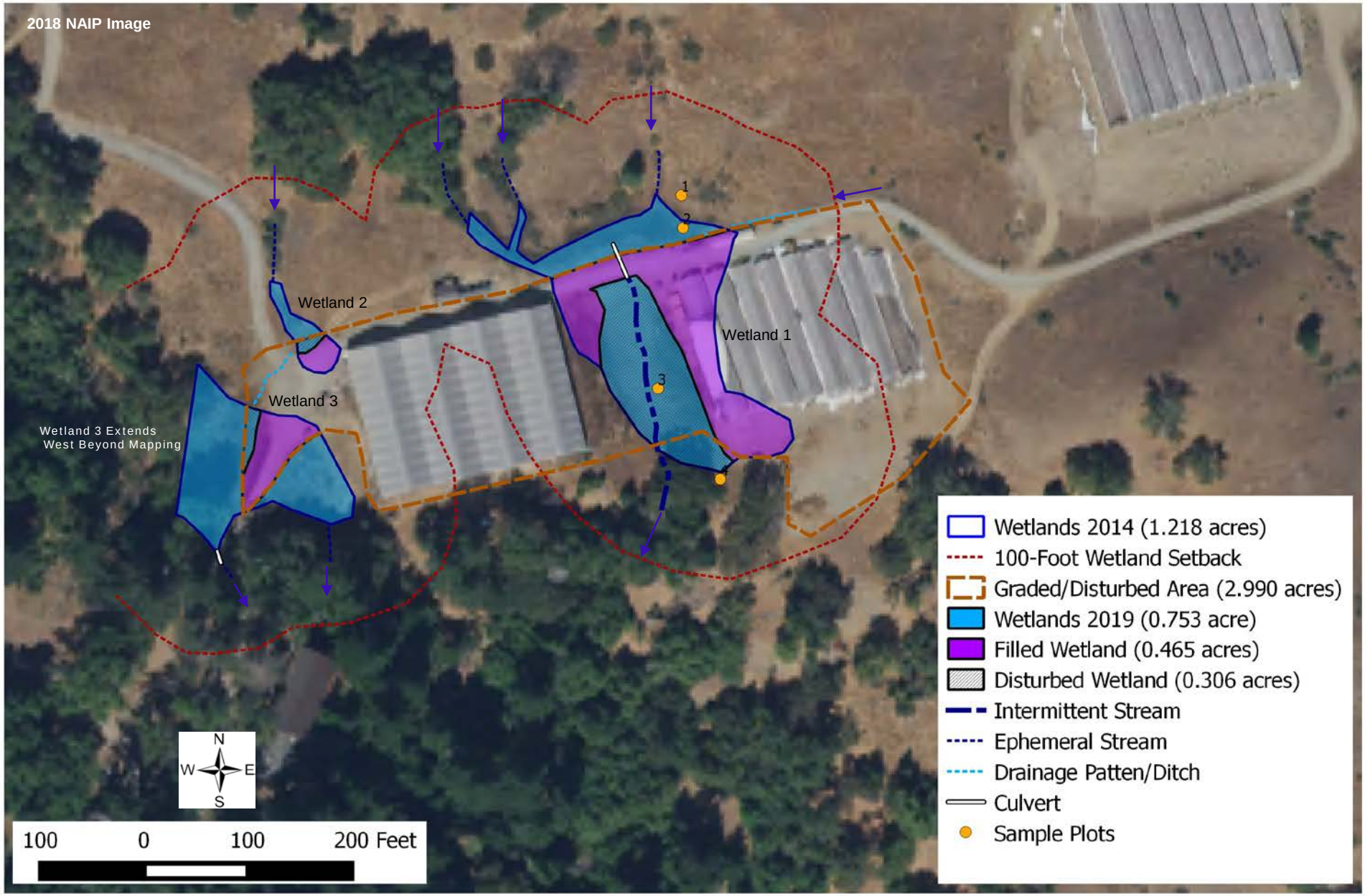
U.S. Army Corps of Engineers. 2016. *Western Mountains, Valleys, and Coast 2016 Regional Wetland Plant List.* Lichvar, R.W., D.L. Banks, and N.C. Melvin. The National Wetland Plant List: 2016 Update of Wetland Ratings. Phytoneuron 2016-30: 1-17.

United States Department of Agriculture, Natural Resource Conservation Service. 2019. *Web Soil Survey.* https://websoilsurvey.sc.egov.usda.gov

Figure 1. Aquatic Resources and Impacts Map.



Appendix A. Wetland Determination Data Forms

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

Project/Site: APN: 212-142-009 City/County: Humboldt Sampling Date: 1

Applicant/Owner: TRC State: CA Sampling Point: S-8-19

Investigator(s): K. Wear Section, Township, Range: N5, T3S, R3E

Landform (hillslope, terrace, etc.): hillslope Local relief (concave, convex, none): none Slope (%): 20

Subregion (LRR): A ~~Lat:~~ E 432230.9 ~~Long:~~ N 4446917.0 Datum: WAD83

Soil Map Unit Name: Coyotrock-Yorknorth 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 X No _____

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

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

Hydrophytic Vegetation Present?	Yes _____ No 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 – 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: 30' radius)			
1. Baccharis pilularis	20	Y	UPL
2.			
3.			
4.			
5.			
	20 = Total Cover		
Herb Stratum (Plot size: 20'-radius)			
1. Briza maxima	60	Y	UPL
2. Avena barbata	30	Y	UPL
3. Linum bienne	5	N	UPL
4. Vicia sativa	5	N	UPL
5. Hypochaeris radicata	2	N	FACU
6. Torilis arvensis	2	N	UPL
7.	104		
8.			
9.			
10.			
11.			
	_____ = 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: 0 (A)

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 0% (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:

SOIL

Sampling Point: 1

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	10yr 2/2						CL	

[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 X

Remarks:

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 X Depth (inches): _____

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

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

Wetland Hydrology Present? Yes _____ No X

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

Remarks:

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

Project/Site: APN 212-14-009 City/County: Humboldt Sampling Date: 5-8-19

Applicant/Owner: TRC State: CA Sampling Point: 2

Investigator(s): K. Wear Section, Township, Range: NS, T3S, R3E

Landform (hillslope, terrace, etc.): base of slope Local relief (concave, convex, none): concave Slope (%): 0

Subregion (LRR): A Lat: 432231.5 Long: N 4446907.3 Datum: NAD83

Soil Map Unit Name: ~~Ocean~~ Coyoterock - Yurknorth 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 X No ____

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

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

Hydrophytic Vegetation Present?	Yes 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 – 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: 10'-radius)			
1. Eleocharis macrostachya	20	Y	OBL
2. Juncus patens	20	Y	FACW
3. Mentha pulegium	10	Y	OBL
4. Holcus lanatus	10	Y	FAC
5. Poa trivialis	10	Y	FAC
6. Rumex crispus	5	N	FAC
7.			
8.			
9.			
10.			
11.			
	75 = 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: 5 (A)

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

SOIL

Sampling Point: 2

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
0-12	10yr 4/1	90	7.5yr 5/6	10	C	M	CL	

[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)
- X 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 X No _____

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

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

- ___ Surface Water (A1)
- X High Water Table (A2)
- X 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)
- X 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 X Depth (inches): _____

Water Table Present? Yes X No _____ Depth (inches): 4"

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

Wetland Hydrology Present? Yes X No _____

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

Remarks:

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

Project/Site: APN: 212-142-009 City/County: Humboldt Sampling Date: 5-8-19

Applicant/Owner: TRC State: _____ Sampling Point: 3

Investigator(s): K. Wear Section, Township, Range: NS, T3S, R3E

Landform (hillslope, terrace, etc.): terrace Local relief (concave, convex, none): Concave Slope (%): 1

Subregion (LRR): A Lat: E432224.0 Long: 4446860.3 Datum: NAD83

Soil Map Unit Name: Coyoterock - Yorknorth NWI classification: _____

Are climatic / hydrologic conditions on the site typical for this time of year? Yes _____ No _____ (If no, explain in Remarks.)

Are Vegetation X, Soil X, or Hydrology X 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 X No _____
Hydric Soil Present?	Yes X	No _____	
Wetland Hydrology Present?	Yes X	No _____	

Remarks: ~~Area~~ Plot is in graded area, vegetation has been clearly disturbed, likely soil & hydrology as well

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: 10' - radius)			
1. Juncus patens	20	Y	FACW
2. Cyperus eragrostis	20	Y	FACW
3. Poa trivialis	20	Y	FAC
4. Mentha pulegium	20	Y	OBL
5. Dipsacus fullonum	2	N	FAC
6. Linum bienne	2	N	UPL
7. Myosotis discolor	2	N	FAC
8. Trifolium dubium	2	N	FACW
9. Trifolium subterraneum	2	N	UPL
10. Hypochaeris radicata	2	N	FACU
11.			
	92 = 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: 4 (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:

SOIL

Sampling Point: 3

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
0-12	10yr 3/1	90	7.5yr 5/6	10	C	M	CL	

[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)
- X 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 X No ___

Remarks:

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)
- X 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)
- X 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 X No ___

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

Remarks: Water flowing in stream channel adjacent to plot

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

Project/Site: APN: 212-142-009 City/County: Humboldt Sampling Date: 5-9-19

Applicant/Owner: TRC State: CA Sampling Point: 4

Investigator(s): K. Wear Section, Township, Range: WS, T3S, R3E

Landform (hillslope, terrace, etc.): Hillslope Local relief (concave, convex, none): none Slope (%): 5

Subregion (LRR): A Lat: E 432242.4 Long: N 4446833.4 Datum: NAD83

Soil Map Unit Name: Coyoterock - Yorkville 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 X No ____

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

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

Hydrophytic Vegetation Present?	Yes ____	No 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 – 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: 30'-radius)			
1. Quercus garryana	10	Y	FACU
2. Pseudotsuga menziesii	10	Y	FACU
3. Umbellularia californica	10	Y	FAC
4.			
5.			
	____ = Total Cover		
Herb Stratum (Plot size: 10'-radius)			
1. Briza maxima	Y	40	UPL
2. Dactylis glomerata	Y	10	FACU
3. Iris purdyi	Y	10	UPL
4. Anthoxanthum odoratum	N	5	FACU
5. Chlorgalum sp	N	5	UPL
6. Ranunculus sp	N	5	?
7. Sisyrinchium bellum	N	2	FACW
8. Vicia hirsuta	N	2	UPL
9. Elymus glaucus	N	2	FACU
10. Calochortus tolmiei	N	2	UPL
11. Trifolium subterraneum	N	2	UPL
	____ = 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: 6 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 17% (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:

SOIL

Sampling Point: 4

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	10yr 2/2						CL	

[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 X

Remarks:

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 X Depth (inches): _____

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

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

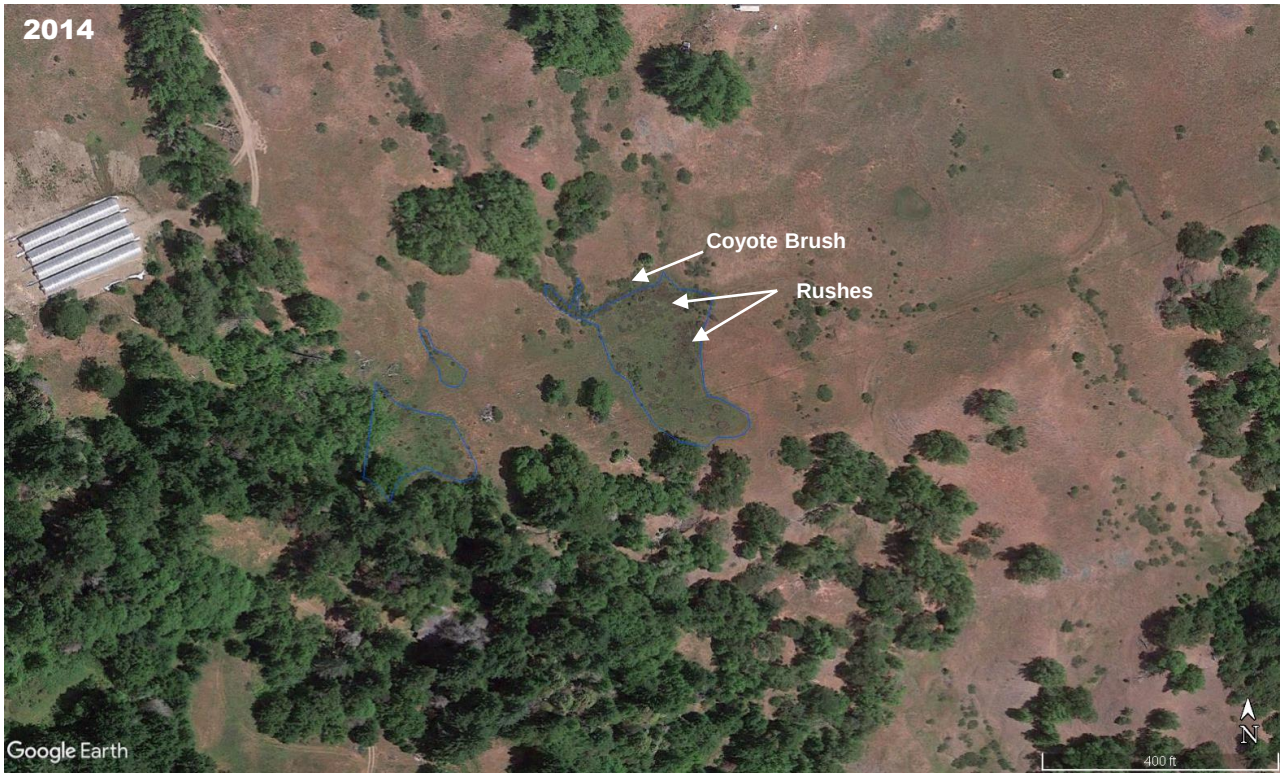
Wetland Hydrology Present? Yes _____ No X

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

Remarks:

Appendix B. Comparison of 2014, 2016, and 2019 NAIP Images.

Appendix C. Comparison of 2014 and 2019 Google Earth Images.



Appendix D. Representative Photos

Photo 1. Ephemeral stream flowing into Wetland 1, looking north from near the road.

Photo 2. Wetland 1, looking southwest towards greenhouses.

Photo 3. Wetland 2, looking south.

Photo 4. Ephemeral stream draining into Wetland 2, looking north.

Photo 5. Wetland 3, looking south from road.

Photo 6. Road drainage feature from Wetland 2, looking northeast.

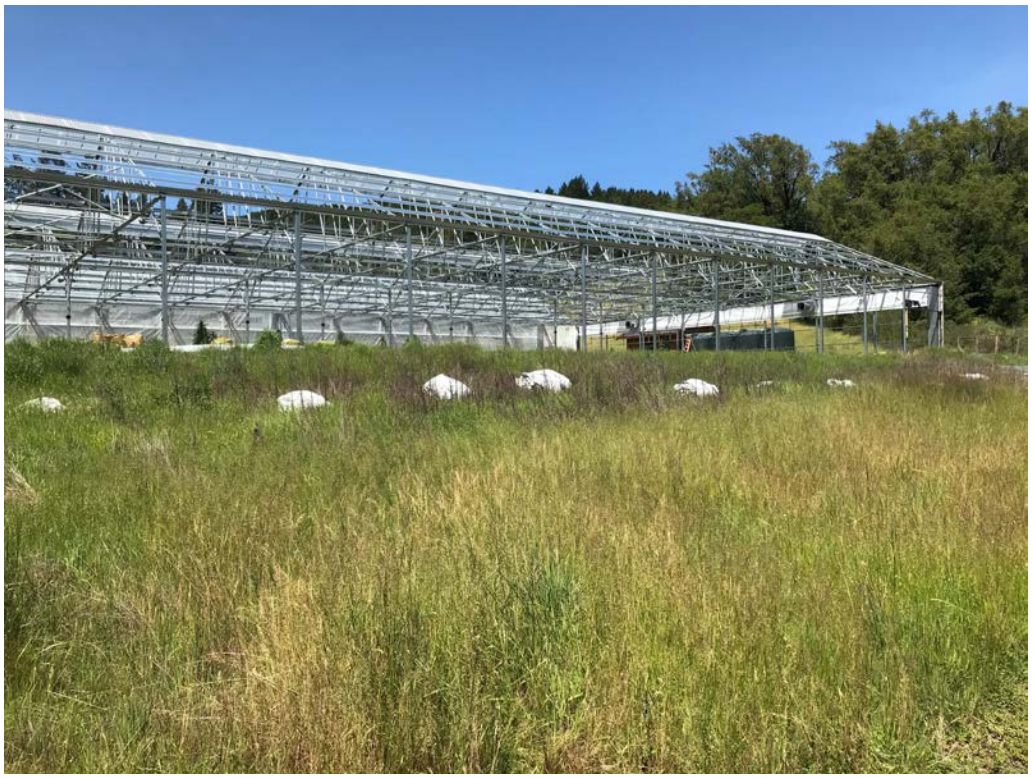


Photo 7. Greenhouses adjacent to Wetland 1, looking west.

Photo 8. Cultivation area on fill in Wetland 1, looking east.

Photo 9. Intermittent stream through disturbed portion of Wetland 1, looking south from road.

Photo 10. Intermittent stream through disturbed portion of Wetland 1, looking north.