

Appendix B

**June 2021 Wetland Delineation
Documentation**

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		

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.

Purpose

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 the U.S. Army Corps of Engineers (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

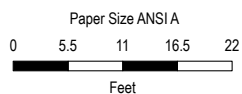
Attachments

Attachment 1

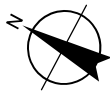
Figure



- Legend**
- Confirmation Points
 - ▭ Project Study Boundary
 - ▭ Wetland In Question
 - ▭ Palustrine Emergent Persistent 3-Parameter Wetland



Map Projection: Lambert Conformal Conic
Horizontal Datum: North American 1983
Grid: NAD 1983 StatePlane California 1 FIPS 0401 Feet



City of Arcata
Old Arcata Road Improvement Project

2021 Wetland Area of Investigation

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

FIGURE 1



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

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

City of Arcata

Old Arcata Road Improvements

Wetland Delineation

Project No. 11159130

Revision No. E

Date 8/4/2021

FIGURE 2-1

Data source: . Created by: zportous





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

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

City of Arcata

Old Arcata Road Improvements

Wetland Delineation

Project No. 11159130

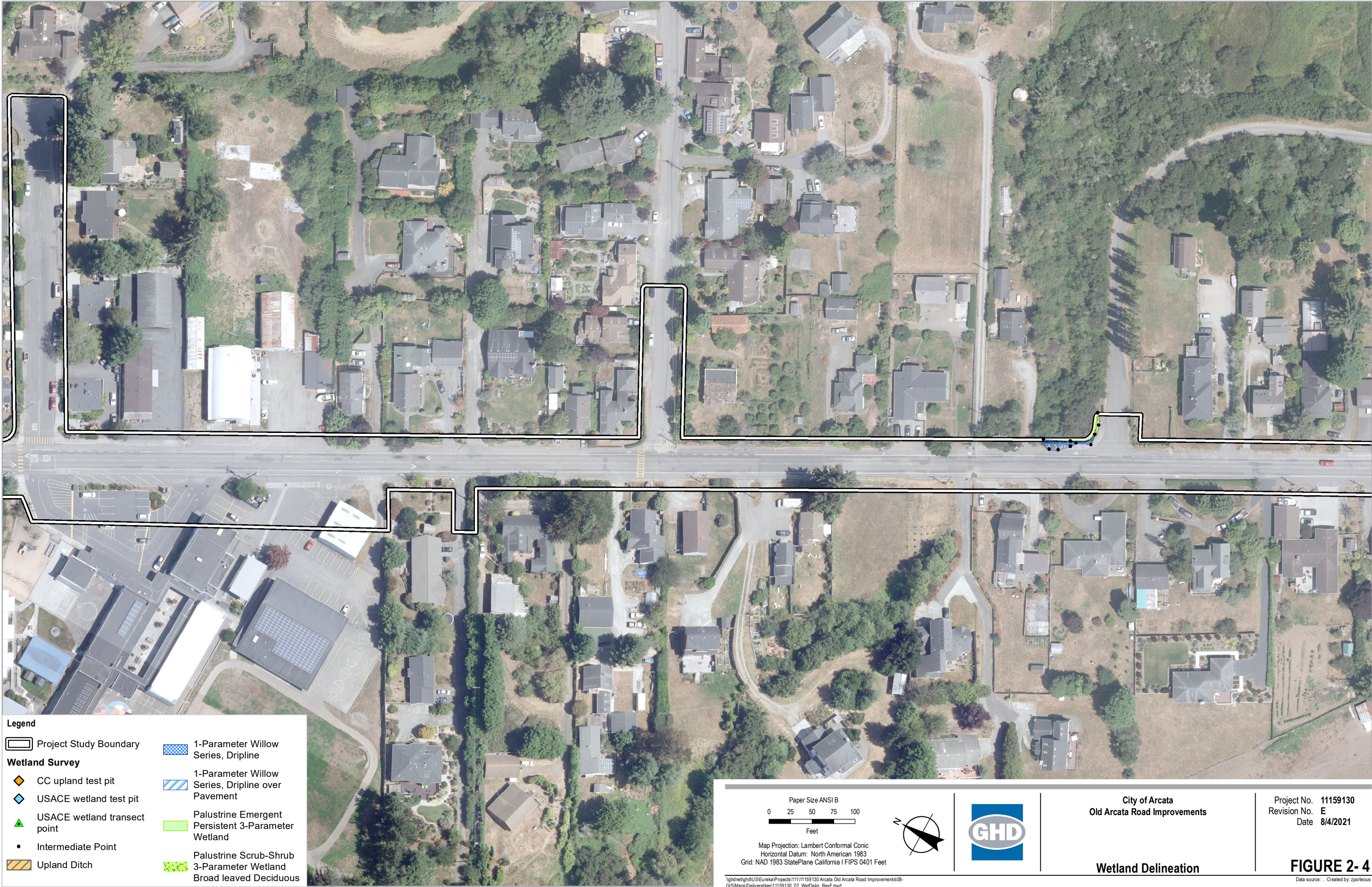
Revision No. E

Date 8/4/2021

FIGURE 2- 3

Data source: - Created by: zporteous

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Print date: 04 Aug 2021 - 08:45





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

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

City of Arcata

Old Arcata Road Improvements

Project No. 11159130

Revision No. E

Date 8/4/2021

Wetland Delineation

FIGURE 2- 5

\\ghdnet\ghd\US\Europe\Projects\11111159130 Arcata Old Arcata Road Improvements\08-GIS\Maps\Deliverables\11159130_02_WetDelineation_RevF.mxd

Print date: 04 Aug 2021 - 08:46

Data source: - Created by: zporteous

Attachment 2

Data Sheets

Project/Site: Old Arcata Road Improvement ProjectCity/County: Arcata/HumboldtSampling Date: 6/23/2021

Applicant/Owner: Humboldt CountyState: CASampling Point: CP-1

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

Landform (hillside, terrace, etc.): Flat road shoulderLocal relief (concave, convex, none): noneSlope (%): 0

Subregion (LRR): LRR ALat: 40.842391Long: -124.063341Datum: WGS84

Soil Map Unit Name: Hookton-Tablebluff complex, 2 to 9 percent slopesNW1 classification: None (upland)

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

Are Vegetation ☐, Soil ☐, or Hydrology ☐ significantly disturbed?Are "Normal Circumstances" present?Yes ☒ No ☐

Are Vegetation ☒ 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 ☐

Hydric Soil Present?Yes ☐ No ☒

Wetland Hydrology Present?Yes ☐ No ☒

Is the Sampled Area within a Wetland?Yes ☐ No ☒

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				
Remarks:				

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 ≤3.0¹

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

5 - Wetland Non-Vascular Plants¹

Problematic Hydrophytic Vegetation¹ (Explain)

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

Hydrophytic Vegetation Present?

Yes ☒ No ☐

SOIL

Sampling Point: CP-1

[illegible]

HYDROLOGY

Wetland Hydrology Indicators:			
Primary Indicators (minimum of one is required; check all that apply)		Secondary Indicators (2 or more required)	
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Water-Stained Leaves (B9) (except MLRA 1, 2, 4A, and 4B)	<input type="checkbox"/> Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)	
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Salt Crust (B11)	<input type="checkbox"/> Drainage Patterns (B10)	
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Aquatic Invertebrates (B13)	<input type="checkbox"/> Dry-Season Water Table (C2)	
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)	
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3)	<input checked="" type="checkbox"/> Geomorphic Position (D2)	
<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Shallow Aquitard (D3)	
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)	<input type="checkbox"/> FAC-Neutral Test (D5)	
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Stunted or Stressed Plants (D1) (LRR A)	<input type="checkbox"/> Raised Ant Mounds (D6) (LRR A)	
<input type="checkbox"/> Surface Soil Cracks (B6)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> Frost-Heave Hummocks (D7)	
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)			
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)			
Field Observations:			
Surface Water Present?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Depth (inches):	<input type="text"/>
Water Table Present?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Depth (inches):	<input type="text"/>
Saturation Present?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Depth (inches):	<input type="text"/>
(includes capillary fringe)		Wetland Hydrology Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	
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 ☒ 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 ☒

Hydric Soil Present? Yes ☐ No ☒

Wetland Hydrology Present? Yes ☐ No ☒

Is the Sampled Area within a Wetland?

Yes ☐ No ☒

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:)	Absolute % Cover	Dominant Species?	Indicator Status
1.				
2.				
3.				
4.				
5.				
		=Total Cover		

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

Woody Vine Stratum	(Plot size:)	Absolute % Cover	Dominant Species?	Indicator Status
1.				
2.				
		=Total Cover		

% Bare Ground in Herb Stratum

Remarks:

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 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 ≤3.0¹

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

5 - Wetland Non-Vascular Plants¹

Problematic Hydrophytic Vegetation¹ (Explain)

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

Hydrophytic Vegetation Present?

Yes ☐ No ☒

SOIL

Sampling Point: CP-2

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

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

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains.

²Location: PL=Pore Lining, M=Matrix.

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

Indicators for Problematic Hydric Soils³:

☐ Histosol (A1)

☐ Histic Epipedon (A2)

☐ Black Histic (A3)

☐ Hydrogen Sulfide (A4)

☐ Depleted Below Dark Surface (A11)

☐ Thick Dark Surface (A12)

☐ Sandy Mucky Mineral (S1)

☐ 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)

☐ 2 cm Muck (A10)

☐ Red Parent Material (F21)

☐ Very Shallow Dark Surface (F22)

☐ Other (Explain in Remarks)

³Indicators 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)

Secondary Indicators (2 or more required)

☐ Surface Water (A1)

☐ High Water Table (A2)

☐ Saturation (A3)

☐ Water Marks (B1)

☐ Sediment Deposits (B2)

☐ Drift Deposits (B3)

☐ Algal Mat or Crust (B4)

☐ Iron Deposits (B5)

☐ Surface Soil Cracks (B6)

☐ Inundation Visible on Aerial Imagery (B7)

☐ Sparsely Vegetated Concave Surface (B8)

☐ Water-Stained Leaves (B9) (except MLRA 1, 2, 4A, and 4B)

☐ Salt Crust (B11)

☐ Aquatic Invertebrates (B13)

☐ Hydrogen Sulfide Odor (C1)

☐ Oxidized Rhizospheres 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)

☐ 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

Water Table Present? Yes No X

Saturation Present? Yes No X

(includes capillary fringe)

Depth (inches):

Depth (inches):

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.