

ATTACHMENT 4C
Wetland Delineation Report



Aquatic Resources Delineation

High Point Honeydew Farms
(APN: 107-054-036)

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Prepared for:

ETA Humboldt

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1. INTRODUCTION

The purpose of this report is to identify wetlands and other sensitive aquatic resources that could be impacted by commercial cannabis cultivation on APN: 107-054-036 near Honeydew (Appendix A). The Humboldt County Planning and Building Department has specifically raised concern (email to Austin Theriault, ETA Humboldt, on August 12, 2021) about an area mapped as wetland in the *National Wetlands Inventory (NWI)* (USFWS 2021) near the project area (Appendix B). The same polygon is shown on the Humboldt County *Web G/S* application.

2. DEFINITIONS

2.1. 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."

2.2. 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."

2.3. Streamside Management Areas

The Humboldt County Streamside Management Areas and Wetlands Ordinance recognizes Streamside Management Areas (SMAs) along all streams and wetlands.

The SMAs for streams are defined as:

"One hundred (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."

"Fifty (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."

The SMAs for wetlands are defined as:

Seasonal wetlands = fifty (50) feet

Perennial wetlands = one hundred fifty (150) feet

3. ENVIRONMENTAL SETTING

3.1. Project Location

The parcel is located along Mattole Road approximately one mile north of Honeydew on the Bull Creek USGS quadrangle (Section 31, T2S, R1E) in Humboldt County (Figure 1).

3.2. Soil, Topography, and Hydrology

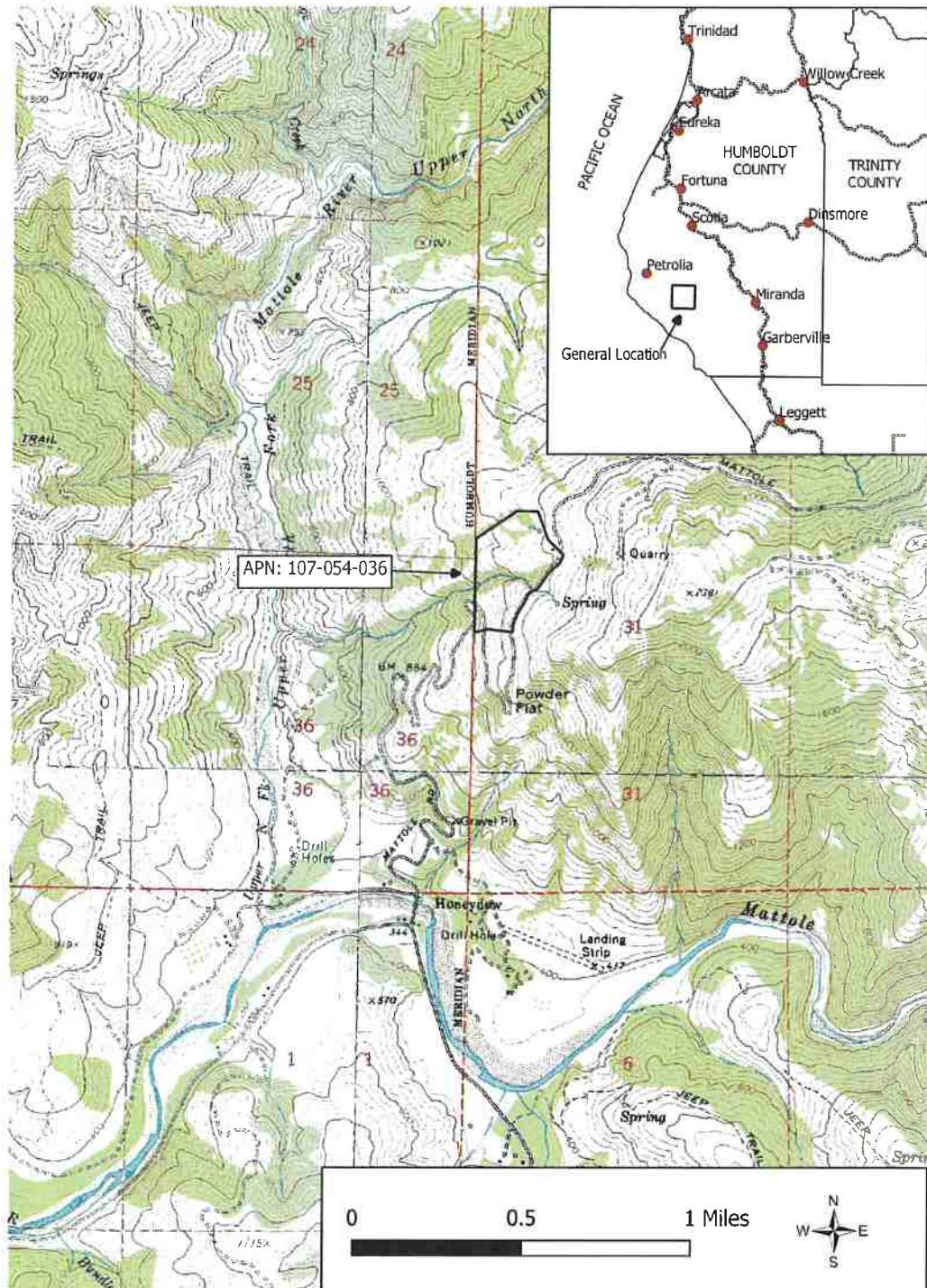
The soil types mapped on the parcel include Crazycoyote-Windynip-Caperidge complex, 15 to 50 percent slopes and Wirefence-Windynip-Devilshole complex, 5 to 30 percent slopes (United States Department of Agriculture, Natural Resource Conservation Service 2021) (Appendix C). These soil types are derived from sandstone and mudstone parent material. The major and minor soil components have non-hydric soil ratings.

The parcel is on a generally west-facing 25-50% slope. The development and cultivation areas are on flat graded terraces. The parcel includes a pond, a spring, and several small tributaries of the Upper North Fork Mattole River. The elevation ranges from approximately 1,200 to 1,600 feet above sea level.

3.3. Vegetation

The parcel is predominantly grassland and forests with a mix of Douglas-fir (*Pseudotsuga menziesii*) and hardwoods including canyon live oak (*Quercus chrysolepis*), and California bay (*Umbellularia californica*). The grasslands observed in the project area are generally dominated by non-native grasses such as wild oat (*Avena barbata*), rattlesnake grass (*Briza maxima*), soft chess (*Bromus hordeaceus*), Mediterranean barley (*Hordeum marinum*), and six weeks grass

Figure 1. Location Map.



(*Festuca myuros*), with native grasses such as blue wildrye (*Elymus glaucus* ssp. *glaucus*) at relatively low cover. The graded areas are also dominated by similar non-native grass and other herbaceous plants with occasional coyote brush (*Baccharis pilularis*). Plants associated with the spring and watercourses include giant chain fern (*Woodwardia fimbriata*) and lady fern (*Athyrium filix-femina*).

4. METHODS

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.

The field work was conducted on September 2, 2021, by Kyle Wear, M.A. Mr. Wear is trained in wetland delineation by the Wetland Training Institute and has been conducting wetland delineations in northern California for over 15 years.

4.1. Hydrophytic Vegetation

The presence of hydrophytic vegetation is determined by the wetland indicator status of each plant species present using the *Western Mountains Valleys and Coast 2018 Regional Wetland Plant List* (Army Corps 2018). 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%.

4.2. Hydric Soil

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

4.3. 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.

Wetland hydrology criteria are met if there is surface water, or the water table is within 12 inches of the surface for more than 14 consecutive days during the growing season.

4.4. Other Aquatic Resources

Other aquatic resources include rivers, streams, ponds, lakes, and other waterbodies and any associated riparian vegetation.

5. RESULTS

The aquatic features in the vicinity of the NWI polygon include a perennial spring that flows into a watercourse that currently connects to a pond (Figure 2). There are three other main watercourses on the parcel.

The water from the spring was flowing on September 2, 2021, and down a portion of the stream channel, but became subsurface in the lower section of the channel toward the cultivation area. Plants associated with the spring include lady fern (*Athyrium filix-femina* [FAC]) and sword fern (*Polystichum munitum* [FACU]).

There are no wetlands associated with the stream channel below the spring. The upper portion of the stream flows through upland forest dominated by (*Pseudotsuga menziesii* [FACU]), canyon live oak (*Quercus chrysolepis* [UPL]), and California bay (*Umbellularia californica* [FAC]).

The lower portion of the stream just above the pond flows through upland grassland that is dominated by wild oat (*Avena barbata* [UPL]), rattlesnake grass (*Briza maxima* [UPL]), six weeks grass (*Festuca myuros* [FACU]), blue wildrye (*Elymus glaucus* ssp. *glaucus* [UPL]), and ox-eye daisy (*Lecanthemum vulgare* [FACU]) (Appendix D). There were no indicators of hydric soil and no indicators of wetland hydrology outside the channel in the lower (Class III) part of the stream near the cultivation area. There are also apple and other fruit trees in the lower part of the NWI polygon along the cultivation area.

The pond includes stands of non-native wetland plants including horticultural iris (*Iris pseudocorus* [OBL]) and umbrella plant (*Cyperus involucratus* [FACU]) that were likely planted in the pond.

6. DISCUSSION AND RECOMMENDATIONS

The SMAs for the aquatic features include a 150-foot setback around the perennial spring, a 100-foot setback along the Class II watercourses, and a 50-foot setback along Class III watercourses. There is no riparian vegetation along the streams, thus the stream setbacks are measured from the top of the bank.

Figure 2. Aquatic Resources Map.



The lower portion of the stream channel adjacent to the northern cultivation area is proposed to be re-aligned and reconnected directly to the stream just to the north to bypass the pond. This will make it an off-stream, non-jurisdictional pond, and not subject to setbacks. A portion of the SMA along the stream will move north farther from the project area when the stream is re-aligned. The map (Figure 2) is based on GPS and hand mapping on aerial imagery and is considered approximate. Setbacks directly adjacent to the cultivation areas should be established by physically measuring from the top of the stream bank on the ground.

7. REFERENCES

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

GretagMacbeth. 2000. *Munsell Soil Color Charts*. New Winsdor, NY.

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U.S. Army Corps of Engineers. 2018. *Western Mountains, Valleys, and Coast 2018 Regional Wetland Plant List*.

https://cwbiapp.sec.usace.army.mil/nwpl_static/data/DOC/lists_2018/Regions/pdf/reg_WMVC_2018v1.pdf

U.S. Fish and Wildlife Service (2021). *National Wetlands Inventory*.

<https://www.fws.gov/wetlands/>

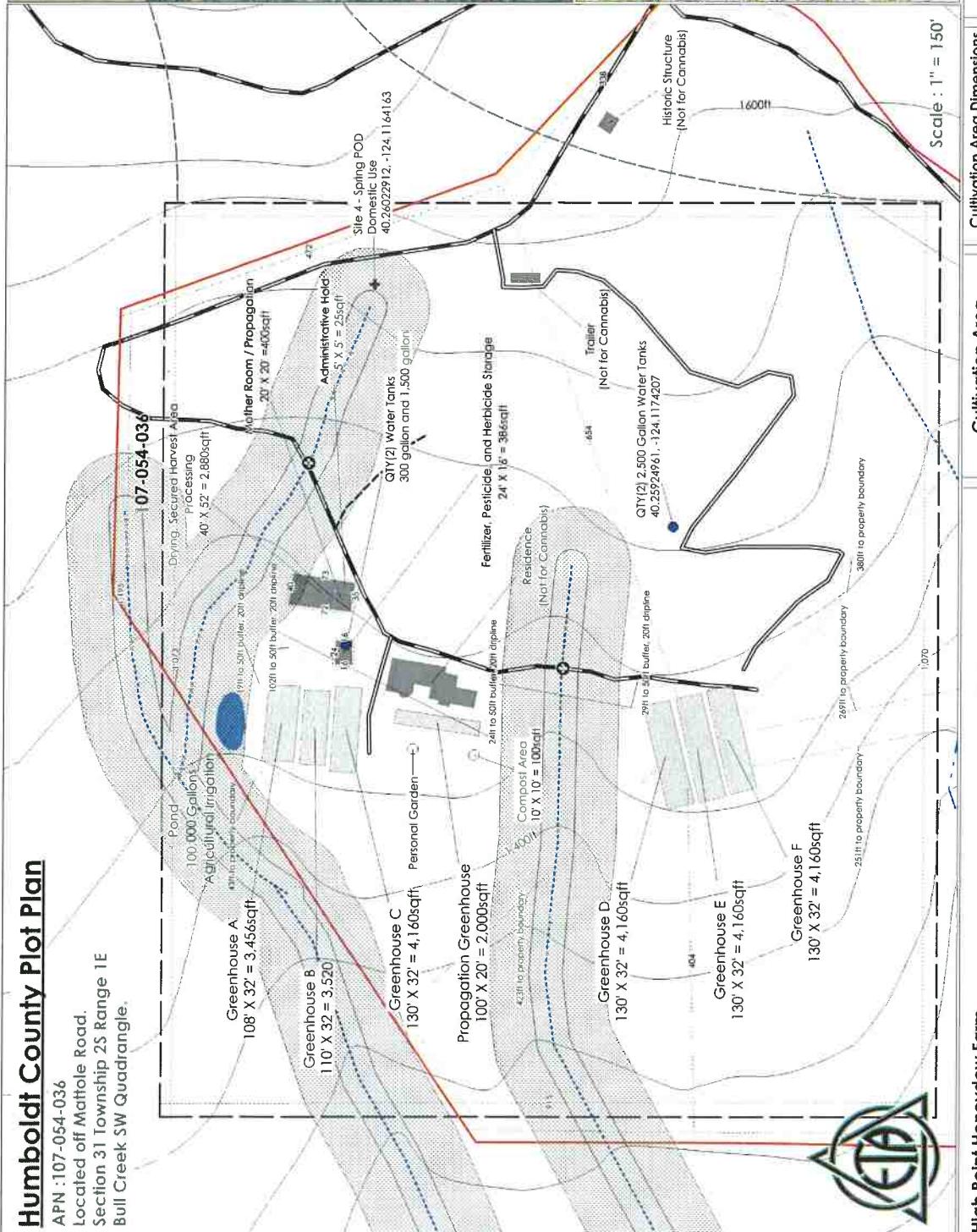
United States Department of Agriculture, Natural Resource Conservation Service. 2021. *Web Soil Survey*. <https://websoilsurvey.sc.egov.usda.gov>

APPENDIX A. Site Plan

Humboldt County Plot Plan

APN: 107-054-036

Located off Mattole Road.
Section 31 Township 2S Range 1E
Bull Creek SW Quadrangle.



Property Information

County: HUMBOLDT, CA
Parcel # (APN): 107-054-036
Parcel Status: ACTIVE
Owner Name: LOUCHALAKOS, EVAN
Mailing Address: 74 AMHERST RD MERRIMACK NH 03054
Legal Description: PAR B PM 549 BK 35 PCS 33-34

Cultivation Area Dimensions

Greenhouse A: 108' X 32' = 3,456sqft
Greenhouse B: 110' X 32' = 3,520sqft
Greenhouse C: 130' X 32' = 4,160sqft
Propagation Greenhouse: 100' X 20' = 2,000sqft
Greenhouse D: 130' X 32' = 4,160sqft
Greenhouse E: 130' X 32' = 4,160sqft
Greenhouse F: 130' X 32' = 4,160sqft

Cultivation Area

Total Cultivation Area = 23,616sqft
Propagation Area Total = 2,400sqft
Propagation Area
Total Area 4,576sqft

APPENDIX B. National Wetlands Inventory Map



107-054-036



February 24, 2021

Wetlands

- Freshwater Emergent Wetland
- Freshwater Forested/Shrub Wetland
- Freshwater Pond
- Estuarine and Marine Deepwater
- Estuarine and Marine Wetland
- Riverine
- Lake
- Other

Source: Esri, Maxar, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User

This map is for general reference only. The US Fish and Wildlife Service is not responsible for the accuracy or currentness of the base data shown on this map. All wetlands related data should be used in accordance with the layer metadata found on the Wetlands Mapper web site.

National Wetlands Inventory (NWI)
This page was produced by the NWI mapper

APPENDIX C. NRCS Soil Map

Soil Map—Humboldt County, South Part, California



SoilMap may not be valid at this scale.

Map Scale: 1:3,770 if printed on A portrait (8.5" x 11") sheet.

A horizontal scale bar representing distance in meters. The bar is marked with numerical values: 0, 50, 100, 200, and 300. The word "Meters" is written at the far right end of the bar.

0 50 100 200 300 Feet

Natural Resources Conservation Service

Web Soil Survey
National Cooperative Soil Survey

9/7/2021
Page 1 of 3

MAP LEGEND

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:24,000

Warning: Soil Map may not be valid at this scale.
Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL:

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Humboldt County, South Part, California
Survey Area Data: Version 9, Jun 1, 2020

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: May 8, 2019—Jun 21, 2019

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Area of Interest (AOI)	
	Area of Interest (AOI)
Soils	
	Soil Map Unit Polygons
	Soil Map Unit Lines
	Soil Map Unit Points
Special Point Features	
	Blowout
	Borrow Pit
	Clay Spot
	Closed Depression
	Gravel Pit
	Gravelly Spot
	Landfill
	Lava Flow
	Marsh or swamp
	Mine or Quarry
	Miscellaneous Water
	Perennial Water
	Rock Outcrop
	Saline Spot
	Sandy Spot
	Severely Eroded Spot
	Sinkhole
	Slide or Slip
	Sodic Spot
Water Features	
	Streams and Canals
Transportation	
	Rails
	Interstate Highways
	US Routes
Background	
	Aerial Photography

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
569	Crazycoyote-Windynip-Caperidge complex, 15 to 50 percent slopes	41.2	63.8%
646	Wirefence-Windynip-Devilshole complex, 5 to 30 percent slopes	22.1	34.3%
649	Windynip-Wirefence-Devilshole complex, 30 to 50 percent slopes	1.2	1.9%
Totals for Area of Interest		64.5	100.0%



APPENDIX D. Wetland Determination Data Form

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

Project/Site: APN: 107-054-036 City/County: Humboldt Sampling Date: 9-2-21

Applicant/Owner: High Point Honeydew Farms State: CA Sampling Point: 1

Investigator(s): Kyle Wear Section, Township, Range: 31, T2S, R1E

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

Subregion (LRR): A Lat: E 404941 Long: N 4457287 Datum: NAD 83

Soil Map Unit Name: Crazycoyote-Windynip-Caperidge NWI classification: PEM 1B

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 <u>X</u>	Is the Sampled Area within a Wetland?
Hydric Soil Present?	Yes _____ No <u>X</u>	Yes _____ No <u>X</u>
Wetland Hydrology Present?	Yes _____ No <u>X</u>	
<p>Remarks: ¹ Sample at normally dry time of year followed by relatively dry spring 2021 Plot is in small grassland directly adjacent to stream channel within NWI polygon</p>		

VEGETATION – Use scientific names of plants.

<u>Tree Stratum</u> (Plot size: _____)	Absolute % Cover _____ Dominant Species? _____ Indicator Status _____ _____ = Total Cover	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>0</u> (A) Total Number of Dominant Species Across All Strata: <u>5</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>0%</u> (A/B)	
1. _____	_____		
2. _____	_____		
3. _____	_____		
4. _____	_____		
= Total Cover			
<u>Sapling/Shrub Stratum</u> (Plot size: _____)			
1. _____	_____		
2. _____	_____		
3. _____	_____		
4. _____	_____		
5. _____	_____		
= Total Cover			
<u>Herb Stratum</u> (Plot size: 5-foot radius)			
1. <u>Avena barbata</u>	<u>20</u>	<u>Y</u>	<u>UPL</u>
2. <u>Briza maxima</u>	<u>15</u>	<u>Y</u>	<u>UPL</u>
3. <u>Elymus glaucus</u>	<u>10</u>	<u>Y</u>	<u>FACU</u>
4. <u>Leucanthemum vulgare</u>	<u>10</u>	<u>Y</u>	<u>FACU</u>
5. <u>Festuca myuros</u>	<u>10</u>	<u>Y</u>	<u>FACU</u>
6. <u>Iris purdyii</u>	<u>2</u>	<u>N</u>	<u>UPL</u>
7. <u>Linum bienne</u>	<u>2</u>	<u>N</u>	<u>UPL</u>
8. <u>Luzula comosa</u>	<u>2</u>	<u>N</u>	<u>FAC</u>
9. <u>Vicia sativa</u>	<u>2</u>	<u>N</u>	<u>UPL</u>
10. _____	_____		
11. _____	_____		
= Total Cover			<u>73</u>
<u>Woody Vine Stratum</u> (Plot size: _____)			
1. _____	_____		
2. _____	_____		
= Total Cover			
% Bare Ground in Herb Stratum _____			
Remarks: ² Difficult to ID some of the mowed grasses without flowers			
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 <u>X</u>

SOIL

Sampling Point: 1

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

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)
 Sandy Gleayed Matrix (S4)
 Sandy Redox (S5)
 Stripped Matrix (S6)
 Loamy Mucky Mineral (F1) (except MLRA 1)
 Loamy Gleayed Matrix (F2)
 Depleted Matrix (F3)
 Redox Dark Surface (F6)
 Depleted Dark Surface (F7)
 Redox Depressions (F8)

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

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

Restrictive Layer (if present):

Type: _____

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, 4A, and 4B)
- Drainage Patterns (B10)
- Dry-Season Water Table (C2)
- Saturation Visible on Aerial Imagery (C)
- 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 Depth (Inches): _____

Saturation Present? Yes No Depth (inches): _____

Wetland Hydrology Present? Yes No X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections). If available, include a copy of the data.

Remarks: