

# **Preliminary Jurisdictional Wetland and Other Waters Delineation**

**Emerald Family Farms, LLC  
Willow Creek, California**

Prepared for:

**Emerald Family Farms, LLC**

***SH* Engineers & Geologists**

812 W. Wabash Ave.  
Eureka, CA 95501-2138  
707-441-8855

September 2016  
016225.003

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QA/QC: GCR\_\_\_

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## Abbreviations and Acronyms

APN	Assessor's parcel number
CDEC	California Data Exchange Center
CFR	Code of Federal Regulations
CT	control point
CWA	Clean Water Act
EPA	U.S. Environmental Protection Agency
ERDC/CRREL	U.S. Army Engineer Research and Development Center/Cold Regions Research and Engineering Laboratory
FAC	facultative wetland plant species
FACU	facultative-upland wetland plant species
FACW	facultative-wet wetland plant species
GIS	geographic information system
GPS	global positioning system
NCDC	National Climatic Data Center
NL	not listed Wetland plant species
NOAA	National Oceanic & Atmospheric Administration
NR	no reference
NRCS	Natural Resources Conservation Service
NWI	National Wetlands Inventory
OBL	obligate wetland plant species
OHWM	ordinary high water mark
Redox	redoximorphic
RWQCB	California Regional Water Quality Control Board
SHN	SHN Engineers & Geologists
SS	scrub-shrub
SWRCB	State Water Resources Control Board
TP	test pit
U	upland site
UPL	upland wetland plant species
USACE	U.S. Army Corps of Engineers
USC	U.S. Code
USDA	United States Department of Agriculture
USFWS	U. S. Fish & Wildlife Service
USGS	United States Geological Survey
W	wetland site
WDRs	waste discharge requirements
WETS	Climate Analysis for Wetlands Tables
WoS	waters of the State
WoUS	waters of the United States

# 1.0 Introduction

SHN Engineers & Geologists has prepared this preliminary jurisdictional wetland and other waters delineation for Emerald Family Farms, LLC in Willow Creek, California. Fieldwork was performed by SHN staff.

## 1.1 Purpose

The purpose of this report is to identify potential jurisdictional wetlands and other waters of the U.S. and State at the project site, as defined by the United States Army Corps of Engineers (USACE) methodology. The delineation of these features will help guide the design and construction of future development within the study area and avoid impacts to potential jurisdictional wetlands. The results of this report will be used to facilitate the permitting process for the proposed project.

## 1.2 Project Location

The project is located in Willow Creek, California, an incorporated town of Humboldt County (Figure 1; United States Geological Survey [USGS] Willow Creek and Salyer 7.5-minute Quadrangles, Township 7 North, Range 5 East, Sections 28 and 33, Humboldt Meridian). The project is located in a 19.5-acre portion of a 42.2-acre parcel (Assessor's parcel number [APN] 522-201-01) with a central location latitude and longitude of 40.9429° and -123.6270°, respectively. The site is approximately a quarter mile northeast from central downtown Willow Creek at 131 Flower-McNeil Road off of Country Club Road.

## 2.0 Project Description

Agricultural-related uses are being considered for the study area. This report will assist in the project planning phase and determining the location for construction activities.

## 3.0 Environmental Setting

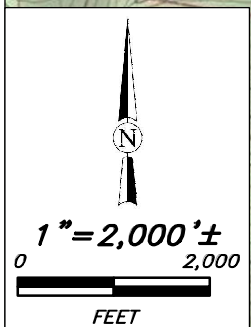
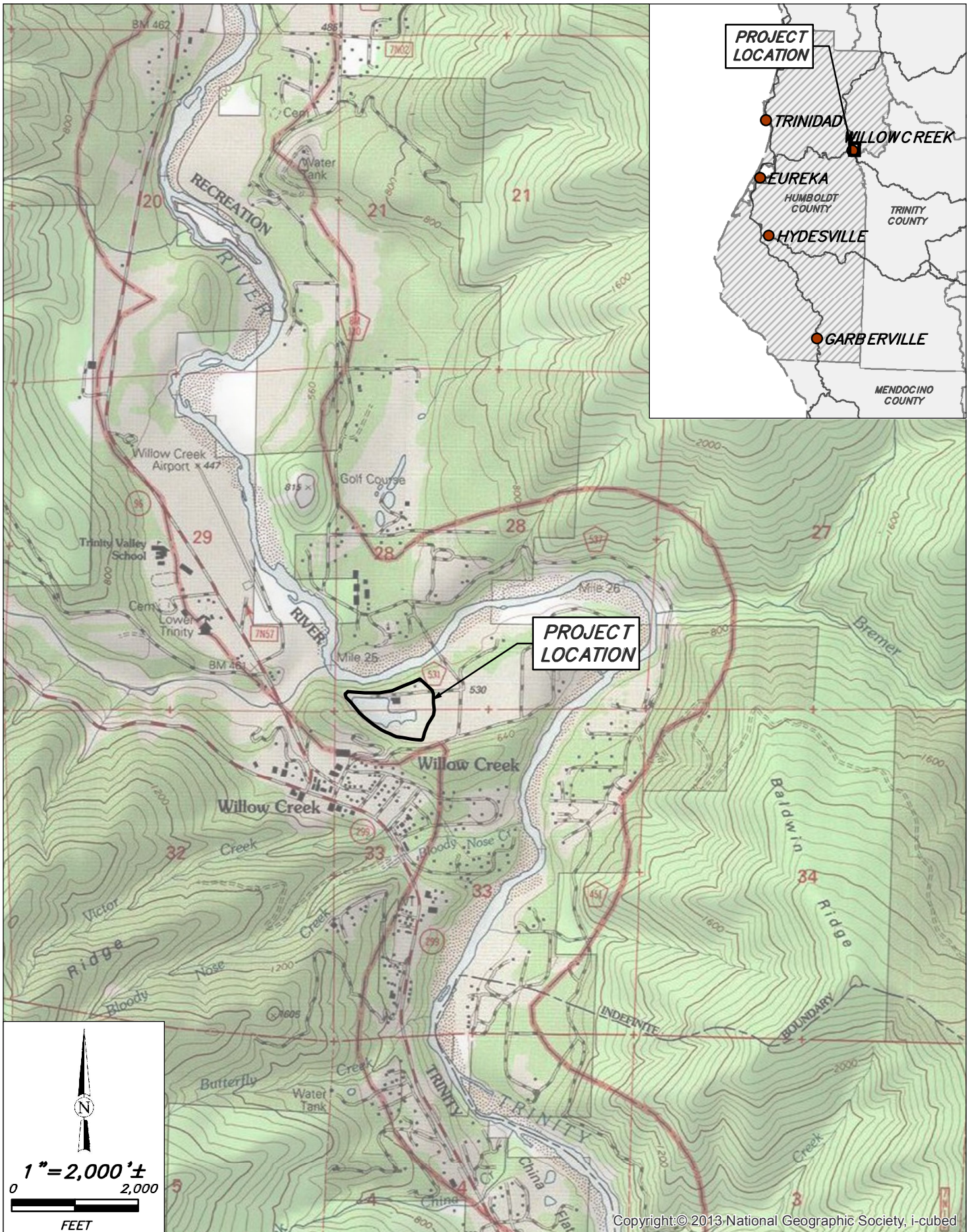
The study area is situated at the approximate 530-foot elevation above mean sea level on a large, flat terrace with a steep uphill slope on its southern boundary and the Trinity River riparian embankment on the northern boundary (See Figure 2 and Appendix A). The study area has functioned as an industrial facility for the past half century, possibly longer. Its main use was as a lumber mill with a mill pond constructed on the western portion of the study area (Figure 1). Portions of the pond have been filled leaving a network of depressional features and catchment ponds formed by man-made berms (see Figure 2 and Appendix B, photos B1 and B2).

The majority of the project site has experienced extensive fill and grading. Reviewing the history of the site on Google Earth shows that the majority of the grading activity pre-dates their oldest aerial photo of 1988. There are several existing outbuildings within the study area; the eastern portion of the study area has been used as a wildlands firefighter staging area and base camp for emergency fire activities.

The average 30-year precipitation (1980 to 2010) for this area from October 1 through August 31 is 54.79 inches (NOAA, 2016). Rainfall for the period from October 1, 2015 through August 31, 2016, is 62.16 inches (CDEC, 2016), indicating that the 2015-2016 rain season is in an above-normal



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**SEI**  
 Consulting Engineers  
 & Geologists, Inc.

Emerald Family Farms  
 Wetland Delineation  
 Willow Creek, California

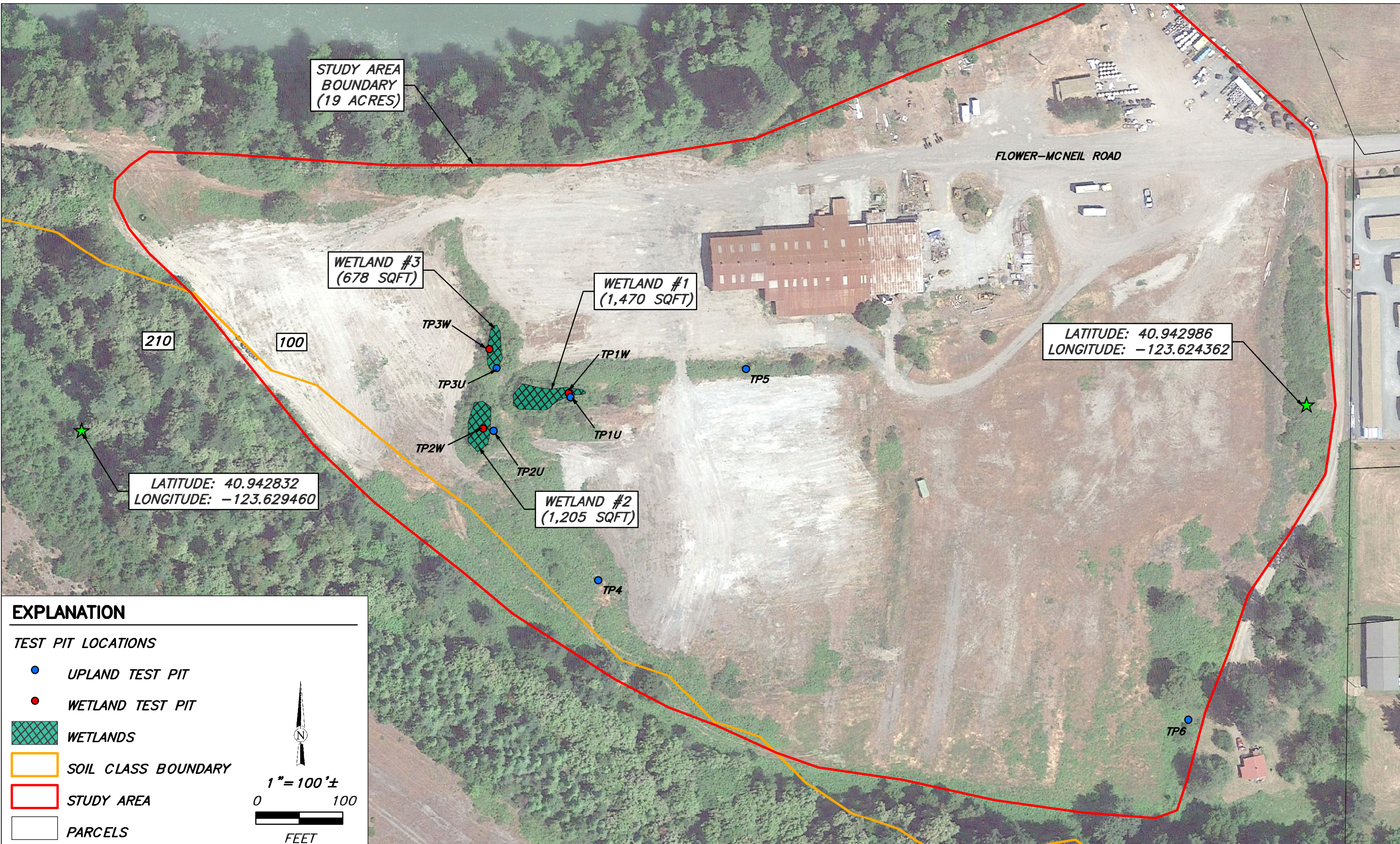
September 2016

Project Location Map  
 SHN 016225.003

Figure 1

Copyright:© 2013 National Geographic Society, i-cubed



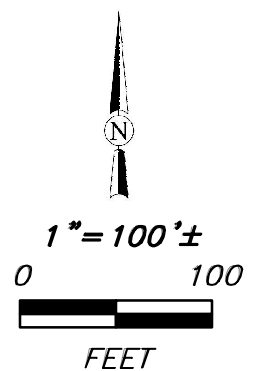


**EXPLANATION**

**TEST PIT LOCATIONS**

- UPLAND TEST PIT
- WETLAND TEST PIT

- WETLANDS
- SOIL CLASS BOUNDARY
- STUDY AREA
- PARCELS



**NOTES:**  
 100 = TYPIC XEROFLUENTS-RIVERWASH ASSOC.  
 210 = SKALAN-GOLDRIDGE-CLALLAMFAMILIES ASSOC.  
 AIR PHOTO: GOOGLE EARTH (5/26/2016), SOILS (USGS, 1995-2001); PARCELS (MODIFIED FROM COUNTY OF HUMBOLDT, 2016)



Emerald Family Farms  
 Wetland Delineation  
 Willow Creek, California  
 October 2016

Delineated Wetlands  
 Site Map  
 SHN 016225.003  
 Figure 2



category. Using the United States Department of Agriculture-Natural Resources Conservation Service (USDA-NRCS) Climate Analysis for Wetlands Table (WETS) method that reviews the previous three months before the investigation (or the same month and two prior if after the 15<sup>th</sup>) indicates that these most current months are considered a normal rainfall (Table 1; USDA-NRCS, 2016).

Table 1 WETS Rainfall Data Emerald Family Farms Property, Willow Creek, CA				
Month	WETS data	Rank	Weight	Value
August 2016	Normal	2	3	6
July 2016	Normal	2	2	4
June 2016	Normal	2	1	2
<b>Total</b>				<b>12</b>
A sum of 10-14 prior to site investigation is considered normal rainfall				

## 4.0 Vegetation

The study area is a flat graded surface, with considerable influx of non-native species, predominantly Himalayan blackberry (*Rubus armeniacus*, facultative [FAC]), wild oat (*Avena sativa*, upland [UPL]), and yellow star thistle (*Centaurea solstitialis*; not listed [NL]). The old lumber mill logging pond has been drained, but small depressional areas remain. These swales are predominantly vegetated with Himalayan blackberry, but the deeper swales also contain the native arroyo willow (*Salix lasiolepis* [FACW]), pacific willow (*Salix lasiandra* var. *lasiandra* [facultative wet FACW]), and black cottonwood (*Populus trichocarpa* [FAC]). A complete list of plants observed within the study area is compiled in Table C-1 in Appendix C.

## 5.0 Geologic and Soil Composition

The site is set in the coastal mountains approximately 26 miles east of the Pacific Ocean coast. It is located on a fluvial floodplain terrace above the Trinity River, composed of the Galice formation sediments, which consists of Jurassic-aged marine sediments.

The underlying soils in the project site have a USDA classification of Typic Xerofluvents-Riverwash association, 2 to 10 percent slopes (map unit 100) in 90% of the project area (Figure 2), and 10% Skalan-Goldridge-Clallam families association, deep, 20 to 70 percent slopes (map unit 210). Due to the unknown source of fill found onsite, these descriptions are the general depiction of what may be encountered. The actual soil description at each exploratory soil test pit is described in the field data forms found in Appendix D.

### 100- Typic Xerofluvents-Riverwash association, 2 to 10 percent slopes

#### *Description of Typic Xerofluvents*

#### *Typical profile*

H1 - 0 to 10 inches: gravelly sandy loam

H2 - 10 to 60 inches: stratified extremely gravelly loamy sand to silt loam

#### *Properties and qualities*

Slope: 2 to 10 percent

*Depth to restrictive feature: More than 80 inches*  
*Natural drainage class: Somewhat excessively drained*  
*Runoff class: Low*  
*Capacity of the most limiting layer to transmit water (Ksat): High (1.98 to 5.95 in/hr)*  
*Depth to water table: More than 80 inches*  
*Frequency of flooding: Occasional*  
*Frequency of ponding: None*  
*Available water storage in profile: Low (about 4.1 inches)*

**Description of Riverwash**

**Typical profile**

*H1 - 0 to 60 inches: very bouldery loamy sand*

**Properties and qualities**

*Slope: 2 to 10 percent*

*Percent of area covered with surface fragments: 2.0 percent*

*Natural drainage class: Excessively drained*

*Capacity of the most limiting layer to transmit water (Ksat): High (1.98 to 5.95 in/hr)*

*Frequency of flooding: Frequent*

**210 – Skalan-Goldridge-Clallam families association, deep, 20 to 70 percent slopes**

**Description of Skalan, Deep**

**Typical profile**

*H1 - 0 to 12 inches: very gravelly loam*

*H2 - 12 to 56 inches: very gravelly clay loam*

*H3 - 56 to 60 inches: unweathered bedrock*

**Properties and qualities**

*Slope: 20 to 55 percent*

*Depth to restrictive feature: 56 to 60 inches to lithic bedrock*

*Natural drainage class: Well drained*

*Runoff class: Very high*

*Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.14 to 0.57 in/hr)*

*Depth to water table: More than 80 inches*

*Frequency of flooding: None*

*Frequency of ponding: None*

*Available water storage in profile: Low (about 5.5 inches)*

**Description of Goldridge, Deep**

**Typical profile**

*H1 - 0 to 4 inches: very gravelly loam*

*H2 - 4 to 30 inches: gravelly clay loam*

*H3 - 30 to 43 inches: gravelly clay*

*H4 - 43 to 47 inches: unweathered bedrock*

**Properties and qualities**

*Slope: 20 to 35 percent*

*Depth to restrictive feature: 43 to 47 inches to lithic bedrock*

*Natural drainage class: Well drained*

*Runoff class: Very high*

*Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.14 to 0.57 in/hr)*  
*Depth to water table: More than 80 inches*  
*Custom Soil Resource Report 14*  
*Frequency of flooding: None*  
*Frequency of ponding: None*  
*Available water storage in profile: Low (about 5.7 inches)*

***Description of Clallam, Deep***

***Typical profile***

*H1 - 0 to 4 inches: very gravelly loam*

*H2 - 4 to 30 inches: extremely gravelly loam*

*H3 - 30 to 53 inches: extremely gravelly loam, very gravelly loam*

*H3 - 30 to 53 inches: unweathered bedrock*

*H4 - 53 to 57 inches:*

***Properties and qualities***

*Slope: 50 to 70 percent*

*Depth to restrictive feature: 53 to 57 inches*  
*(USDA, 2016b)*

## **6.0 Regulatory Setting**

### **6.1 Federal Laws**

#### **6.1.1 Section 401 and 404 of the Clean Water Act**

Under Section 404 (33 U.S. Code [USC] 1344) of the Clean Water Act (CWA), as amended, the USACE and the Environmental Protection Agency (EPA) retain primary responsibility for permits to discharge dredged or fill material into “navigable waters of the United States.” All discharges of dredged or fill material into jurisdictional waters of the United States (WoUS) that result in permanent or temporary losses of WoUS are regulated by the USACE. A permit from the USACE must be obtained before placing fill or grading in wetlands or other WoUS, unless the activity is exempt from CWA Section 404 regulation (for example, certain farming and forestry activities).

In summary, the definition of WoUS as defined by 33 Code of Federal Regulations (CFR) Section 328.3 includes:

1. waters used for commerce,
2. interstate wetlands,
3. all other waters (including lakes, rivers, streams, mudflats, sandflats, wetlands, sloughs, prairie potholes, wet meadows, playa lakes, and natural ponds),
4. impoundments of water,
5. tributaries to aforementioned waters,
6. territorial seas, and
7. wetlands adjacent to waters.

Under 33 CFR 328.3, WoUS do not include prior converted cropland or waste treatment systems.

In 2008, the EPA and USACE released a guidance memorandum implementing the Supreme Court's decision in the cases of the *Rapanos v. U.S.* and *Carabell v. U.S.* Because of these cases, the agencies will apply a significant nexus standard to the following categories to determine if it meets the definition of a WoUS:

- Non-navigable tributaries that are not relatively permanent
- Wetland adjacent to non-navigable tributaries that are not relatively permanent
- Wetland adjacent to but that does not directly abut a relatively permanent tributary

Section 401 of the CWA (33 USC 1341) requires applicants for a federal license or permit to obtain a certification from the state in which the discharge originates or would originate, or if appropriate, from the interstate water pollution control agency having jurisdiction over the affected waters at the point where the discharge originates or would originate, that the discharge will comply with the applicable effluent limitations and water quality standards. The responsibility for the protection of water quality in California rests with the State Water Resources Control Board (SWRCB) and its nine Regional Water Quality Control Boards (RWQCBs).

### **6.1.2 Rivers and Harbors Appropriation Act of 1899**

The River and Harbors Appropriation Act of 1899 addresses activities that involve the construction of dams, bridges, dikes, and other structures across any navigable water. Placing obstructions to navigation outside established federal lines and excavating from or depositing material in such waters require permits from the USACE Section 10 (33 USC 403) of the Rivers and Harbors Appropriation Act and prohibits the unauthorized obstruction or alteration of any navigable WoUS.

## **6.2 State Laws–Porter-Cologne Water Quality Act**

The state maintains independent regulatory authority over the placement of waste, including fill, into waters of the State (WoS) under the Porter-Cologne Water Quality Act. WoS are defined by the Porter-Cologne Water Quality Act as “any surface water or groundwater, including saline waters, within the boundaries of the state.” The SWRCB protects all waters in its regulatory scope, but has special responsibility for isolated wetlands and headwaters. WoS are regulated by the RWQCBs under the State Water Quality Certification Program, which regulates discharges of dredged and fill material under Section 401 of the CWA and the Porter-Cologne Water Quality Control Act.

Projects that require an USACE permit, or fall under other federal jurisdiction, and have the potential to impact WoS are required to comply with the terms of the Water Quality Certification Program. If a proposed project does not require a federal license or permit, but does involve activities that may result in a discharge to WoS, then the local RWQCB has the option to regulate such activities under its state authority in the form of waste discharge requirements (WDRs) or certification of WDRs. Water Quality Order No. 2004-0004-DWQ specifies general WDRs for dredge or fill discharges to waters deemed by the USACE to be outside of federal jurisdiction under Section 404 of the CWA.



## 7.0 Methodology

Wetland delineation methods described in *U.S. Army 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)* (USACE, 2010) were used to identify potential wetlands and other waters. The routine method for wetland delineation described in the USACE 1987 manual was used to identify potential wetlands within the study area. The USACE method relies on a three-parameter approach, in which criteria for hydrophytic vegetation, hydric soils, and wetland hydrology must each be met (present at the point of field investigation) to conclude that an area qualifies as a wetland.

Hydrophytic vegetation refers to plant species known to be adapted to wetland sites. To classify the hydrophytic plants onsite, the most recent *Western Mountains, Valleys, and Coast 2016 Regional Wetland Plant List* was used (USACE, 2016). Hydric soils are soils that are formed under saturated conditions, flooding, or ponding long enough during the growing season to develop anaerobic conditions in the upper part of the soil profile (USDA, 2010). Wetland hydrology is demonstrated through direct evidence (primary indicators) or indirect evidence (secondary indicators) of flooding, ponding, or saturation for a significant portion of the growing season (USACE, 2010).

At each investigation point, two test pits (TP) were excavated to find the boundary of the wetland: a wetland site (W) and an upland site (U). These are called “paired plots.” Paired upland and wetland test pits are located as close together as possible, while avoiding transitional areas. If a suspected wetland test pit was not determined to be a USACE-designated wetland, a second upland paired plot was not performed.

Prior to conducting the field investigation, SHN staff reviewed the USGS topographic quadrangle map (Figure 1); USDA-NRCS Web Soil Survey website (USDA, 2016); and NWI map (USFWS, 2016) (Appendix A). During the field investigation, sample points were characterized at the site for the aforementioned botanical, hydrological, and soil parameters.

Point locations were selected to:

- achieve appropriate coverage and characterization of wetland and upland habitats,
- document potential changes in the vegetative community (such as, a shift in the dominant species), and
- determine the approximate boundary line between wetlands and uplands by determining the extent of key wetland criteria (hydrology, hydric soils, and hydrophytic vegetation).

Field investigations were conducted on August 26 and September 1, 2016. Three paired test pits and three investigative pits (nine test pits total), were excavated to characterize the area and record information for soils, vegetation, and hydrology on USACE Wetland Determination Data Forms (Appendix D). Locations of TPs are shown on Figure 2. Photos of the study area are included in Appendix B.

All field mapping was completed with a Trimble pro 6t global positioning system (GPS) antenna connected to a Panasonic Toughbook CF-19 with geographic information system (GIS) software. SHN downloaded the appropriate aerial photos and digitized relevant site plan mapping (Google Earth, 2016). Several fixed locations (for example fence angles) were marked as control points (CT) with the Trimble Pro 6t to get an estimate of aerial imagery accuracy.

## 7.1 Vegetation Methodology

Prior to the field investigation, a review of plant species reported to be within the project area was performed by querying the “Consortium of California Herbaria” database records and “Calflora” observations. It was determined that the site investigation was performed during an above-normal rainfall period by reviewing rainfall data from October 2015 through August 2016 (see Section 3.0). Absolute percent cover of each plant species was visually estimated within the sample point and within each vegetation stratum. The tree stratum was inspected at a 30-foot radius centered on the sample point, the herbaceous and sapling/shrub strata at a 5-foot radius. Botanical nomenclature follows *The Jepson Manual, Vascular Plants of California* (Baldwin et al., 2012) in addition to the online Jepson Interchange (U. C. Berkeley, 2016) for verification of species whose taxonomy may have changed since its publication.

The wetland indicator status of plant species for this investigation was based on the *Western Mountains, Valleys, and Coast 2016 Regional Wetland Plant List* (USACE, 2016). Synonyms were checked for species that did not appear on the USACE wetland plant list. Plant species were classified as:

- Obligate (OBL)-usually occurs within a wetland (estimated probability 99%)
- Facultative-wet (FACW)-usually occurs in wetlands (estimated probability 67-99%)
- Facultative (FAC)-equally likely to occur in wetlands or non-wetlands (estimated probability 33-67%)
- Facultative-upland (FACU)-usually occurs in non-wetlands (estimated probability 1-33%)
- Upland (UPL)-occurs almost always in non-wetlands (estimated probability 99%)
- Not listed (NL)-scored as an upland plant and calculated as such on wetland determination forms

The 50/20 method<sup>1</sup> was applied to each stratum to determine the dominant plant species and to satisfy the hydrophytic vegetation criteria. If either hydric soils or wetland hydrology were present, the prevalence index<sup>2</sup> was applied. The occurrence and type of plant cover determine whether jurisdictional areas are identified as satisfying the vegetation criteria of a wetland or other waters. Those sites with little or no hydrophytic plant cover, or other sites not capable of supporting hydrophytic plant communities in normal circumstances, are identified as other waters, provided they have an ordinary high water mark (OHWM).

## 7.2 Soils Methodology

Soils were field-verified for the presence or absence of hydric conditions. All test pits were dug to a minimum depth of 20 inches, and the thickness of each soil horizon was measured. The Munsell Soil Color Chart (Kollmorgen Instruments Corporation, 1998) was referenced to determine the

- 
1. The 50/20 rule: for each stratum of the plant community, dominant species are the most abundant species that (when ranked in descending order of abundance and cumulatively totaled) immediately exceed 50% of total dominance measure for the stratum, plus any additional species that individually comprise 20% or more of the total dominance measure for the stratum (USACE, 2010).
  2. The prevalence index is a weighted-average wetland indicator status of all plant species in the sampling plot or other sampling unit, where each indicator status category is given a numeric code (OBL = 1, FACW = 2, FAC = 3, FACU = 4, and UPL = 5) and weighting is by abundance (absolute percent cover).

colors of the moist soil matrix and redoximorphic (redox) features (if present). Soils were closely inspected for hydric soil indicators, as defined by the NRCS “Field Indicators of Hydric Soils in the United States” (Version 7.0; USDA, 2010).

### 7.3 Hydrology Methodology

The presence (or lack) of wetland hydrology indicators was determined by direct observation of surface water, groundwater, or shallow soil saturation during the field investigation. In some cases, hydrology determinations were made based on hydrology indicators (for example, drainage patterns, geomorphic placement, and water-stained leaves) rather than actual direct evidence from saturation or inundation itself. Additionally, observations were made that would indicate if the site is subject to flooding or standing water. Potential indicators would include water marks, drift deposits, sediment deposits, and similar features. Indicators of extended period saturation would include oxidized rhizospheres surrounding living roots or the presence of reduced iron or sulfur in the soil profile. A site location must contain at least one primary indicator or two secondary indicators to have the hydrology parameter.

### 7.4 Ordinary High Water Mark Methodology

For purposes of Section 404 of the CWA, the lateral limits of jurisdiction over non-tidal water bodies in the absence of adjacent wetlands extend to the OHWM. When adjacent wetlands are present, CWA jurisdiction extends beyond the OHWM to the limits of the adjacent wetlands. For purposes of Sections 9 and 10 of the Rivers and Harbors Act of 1899, the lateral extent of federal jurisdiction, which is limited to the traditional navigable waters of the United States, extends to the OHWM, whether or not adjacent wetlands extend landward of the OHWM (USACE, 2014).

USACE regulations define the term OHWM for the purposes of the CWA lateral jurisdiction as follows:

*The term “ordinary high water mark” means that line on the shore established by the fluctuations of water and indicated by physical characteristics such as a clear, natural line impressed on the bank, shelving, changes in the character of soil, destruction of terrestrial vegetation, the presence of litter and debris, or other appropriate means that consider the characteristics of the surrounding areas at 33 CFR 328.3(e).*

The OHWM in non-perennial streams corresponds with the boundaries of the active channel, which are typically expressed by some combination of three primary indicators: a topographic break in slope, change in sediment characteristics, and change in vegetation characteristics (USACE, 2014). The following supporting features should be considered when making an OHWM determination, to the extent that they can be identified and are deemed reasonably reliable (USACE, 2014):

- Drift/wrack
- Erosion/scour
- Bank undercutting
- Root exposure
- Point bars
- Water staining
- Litter Water staining
- removal
- Silt deposits
- Shelving
- Headcut/knickpoint
- Macroinvertebrates

## 8.0 Results

Field investigations were conducted on August 26 and September 1, 2016. Test pits (TP) were installed to characterize the area and record information for soils, vegetation, and hydrology. Locations of TPs are shown on Figure 2; completed “Wetland Determination Data Forms” are presented in Appendix D. Photos of the study area are shown in Appendix B.

### 8.1 TP1 Test Site

The TP1 site is located in a 10-foot wide diameter depression basin on an old logging pond site (Appendix B, Photo B-3), within a swale incised by erosion and a built-up berm. It is in part of a series of detention basins created by berms placed down-gradient. There is one paired plot for this depression: TP1W and TP1U.

TP1W has all three parameters present: vegetation, hydric soils, and hydrology and is, therefore, considered a wetland site. The vegetation contains the following: tree stratum–60 percent arroyo willow (*Salix lasiolepis* [FACW]); sapling/shrub stratum–15 percent arroyo willow and 5 percent Himalayan blackberry (*Rubus armeniacus* [FAC]).

The soils have the F6 redox dark surface indicator. The hydrology has the primary A2 high water table at 12 inches, B1 watermarks, and the C4 presence of reduced iron (tested positive to alpha-alpha Dipyridyl solution) indicators and two secondary indicators: D2 geomorphic position and D5 FAC-Neutral test.

TP1U is situated on an eroded slope approximately 10 feet above TP1W and only has the vegetation parameter met. Therefore, TP1U is considered out of the wetland depression. The vegetation consists of the following: tree stratum–35 percent arroyo willow; sapling/shrub stratum–20 percent arroyo willow, 5 percent coyote brush (*Baccharis pilularis* [NL]), and 5 percent Scotch broom (*Cytisus scoparius* [NL]); herb stratum–15 percent rattlesnake grass (*Briza maxima* [NL]) and 5 percent common velvet grass (*Holcus lanatus* [FAC]).

No hydric soils or hydrology indicators are present.

### 8.2 TP2 Test Site

The TP2 site is situated in an approximate 25-foot wide depression basin on another branch of the incised swale (Appendix B, Photo B-4). There is one paired plot for this site: TP2W and TP2U.

TP2W has all three parameters present: vegetation, hydric soils, and hydrology and is, therefore, considered a wetland site. The vegetation consists of the following: tree stratum–50 percent arroyo willow and 20 percent pacific willow (*Salix lasiandra* var. *lasiandra* [FACW]); sapling/shrub stratum–35 percent Himalayan blackberry and 10 percent arroyo willow.

The soils have the F6 redox dark surface and the F8 redox depressions indicators. The hydrology has the primary A2 high water table mark at 14 inches, A3 saturation at 6 inches, the C4 presence of reduced iron (tested positive to alpha-alpha Dipyridyl solution), and C3 oxidized rhizospheres along living roots indicators. It also has the secondary D2 geomorphic position and FAC-Neutral test indicators.

TP2U is situated on an eroded slope approximately 5 feet above TP2W; it only meets the vegetation parameter. Therefore, TP2U is considered out of the wetland depression. The vegetation consists of the following: tree stratum-40 percent arroyo; sapling/shrub stratum-45 percent Himalayan blackberry and 15 percent arroyo willow.

There are no hydric soils indicators present and only the secondary hydrology FAC-Neutral indicator is met.

### 8.3 TP3 Test Site

The TP3 site is downgradient from TP2, separated by a berm (Appendix B, Photo B-5). This depression is a shallower feature, and it has another berm downgradient of TP3. There is one paired plot at this site: TP3W and TP3U.

TP3W is situated in a broad swale with an approximate 25-foot width. It has all three wetland parameters present: vegetation, hydric soils, and hydrology, and is, therefore, considered a wetland site. The vegetation consists of the following: tree stratum-35 percent arroyo willow and 25 percent black cottonwood (*Populus trichocarpa* (*Populus balsamifera*) [FAC]); sapling/shrub stratum-20 percent arroyo willow and 15 percent Himalayan blackberry; herb stratum-5 percent common bog rush (*Juncus effusus* [FACW]).

The soils have the S5 sandy redox indicator. There are the primary hydrology B1 water marks and B4 algal mat or crust indicators, and the secondary D2 geomorphic position and D5 FAC-Neutral test indicators.

TP3U is 23 feet away from TP3W due to a broad transitional area where the algal mats stop and hydric soils end. Vegetation is the only parameter met, and it consists of the following: tree stratum-20 percent arroyo willow; sapling/shrub stratum-60 percent Himalayan blackberry and 5 percent arroyo willow; herb stratum-5 percent tall cyperus (*Cyperus eragrostis* [FACW]) and 5 percent bent grass (*Agrostis exarata* [FACW]).

There are no hydric soils indicators present and only the secondary hydrology FAC-Neutral indicator present.

### 8.4 TP4 Test Site

TP4 (Appendix B, Photo B-6) is in a local topographic low of a closed basin approximately 20 feet wide and 120 feet long. There is buried metal and debris in this location, and it took several attempts to find a site that could be penetrated to 24 inches. The soils appear to be in situ longer than five years, and considered to be within "normal circumstances." None of the wetland parameters was present, and this basin is determined not to be a wetland. A second, paired test pit was not performed due to the lack of three wetland parameters in the most likely location for wetlands to occur in this vicinity.

The onsite vegetation found is as follows: sapling/shrub stratum-60 percent Himalayan blackberry; herb stratum-80 percent wild oat (*Avena sativa* [UPL]), 10 percent blue wildrye (*Elymus glaucus* [FACU]), and 2 percent medusa head (*Elymus caput-medusae* [NL]).

There are no hydric soils indicators present and only the secondary hydrology geomorphic position indicator present.

## 8.5 TP5 Test Site

TP5 was excavated to see if this closed basin is a wetland site (Appendix B, Photo B-7). There is a berm between this basin and the TP1 site. It was difficult to find “normal circumstances” because of the loose soils spilling into the swale. One area was found to be representative of “normal circumstances” (a surface at least older than five years). None of the wetland parameters was present, and this basin is determined not to be a wetland site. A second, paired test pit was not performed due to the lack of three wetland parameters in the most likely location for wetlands to occur in this vicinity.

The onsite vegetation found is as follows: sapling/shrub stratum–70 percent Himalayan blackberry; herb stratum–30 percent wild oat and 5 percent black mustard (*Brassica nigra* [NL]).

There are no hydric soils indicators present and only the secondary hydrology geomorphic position indicator present.

## 8.6 TP6 Test Site

This site was chosen to determine if this zone of Himalayan berries in the eastern portion of the study area is supporting a wetland (Appendix B, Photo B-8). Several exploratory pits were performed, but the soils encountered were recently moved and not considered “normal circumstances.” The soils at TP6 aren’t native according to the USDA NRCS soils survey (See Section 5.0), but has been in situ long enough to be considered “normal circumstances.” None of the wetland parameters was present, and this area is determined not to be a wetland site. A second, paired test pit was not performed due to the lack of three wetland parameters in the most likely location for wetlands to occur in this vicinity.

The onsite vegetation found is as follows: sapling/shrub stratum–70 percent Himalayan blackberry; herb stratum–50 percent Kentucky blue grass (*Poa pratensis* [FAC]), 10 percent blue wildrye, 2 percent Queen Anne's lace (*Daucus carota* [FACU]), and 2 percent orchard grass (*Dactylis glomerata* [FACU]).

There are no hydric soils or hydrology indicators present.

## 8.7 Ordinary High Water Mark (OHWM)

Additional constructed swales exist in portions of the study area; however, these swales were not delineated as wetlands. Within these areas, no OHWM was observed. These constructed swales (outside of wetlands) consist of man-made depressional features with constructed banks and berms that facilitate water detention, preventing water flowing in a continuous stream channel across the study area. In evaluating whether or not the constructed swales contain an active channel, we determined that some of the swales contained a man-made break in slope but that there were not identifiable changes in sediment or vegetation characteristics.

## 9.0 Conclusions

The USFWS NWI website (Appendix A) does not show NWI designations in the study area. The site investigation occurred during an above-normal rainfall year during the summer season of 2016. Following the USACE 3-parameter guidelines, TP1W, TP2W, and TP3W have the vegetative, hydric soil, and hydrology indicators necessary to place them within wetland boundaries (Figure 2; Table 2). TP1U, TP2U, TP3U, and TP6 have the one vegetative parameter but not the hydrology or hydric soils parameters. TP4 and TP5 have none of the 3-parameter qualifications.

The wetlands occur in a drainage system where a logging pond used to exist. Man-made berms have turned the mill pond into a series of catchment ponds that do not appear to drain into one another. There were no OHWM observed within the project site.

<b>Waterbodies</b>	<b>Cowardian Type</b>	<b>Latitude/Longitude</b>	<b>Area (square feet)</b>
Wetland #1	Palustrine SS <sup>2</sup> 1 <sup>3</sup>	40.942990, -123.627599	1,470
Wetland #2	Palustrine SS1	40.942859, -123.627838	1,205
Wetland #3	Palustrine SS1	40.943100, -123.627771	678
<b>Total</b>			<b>3,353</b>

1. OHWM: ordinary high water mark  
 2. SS: scrub-shrub  
 3. broad-leaved deciduous

## 10.0 Limitations

The conclusions in this report represent a “snapshot in time” and it is possible that some species were not present at the time of the fieldwork. This report documents the investigation by using the best professional judgment of SHN’s botanist and soil scientist. The conclusions should be verified by the USACE through receipt of a jurisdictional determination letter.

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**A**

**National Wetlands Inventory**



September 7, 2016

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

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.

**B**

**Site Photographs**





**Photo B1: Project Area Terrain**



**Photo B2: South-North Drainage**



**Photo B3: TP1 Site**



**Photo B-4: TP2 Site**





**Photo B-5 TP3 Site**



**Photo B-6 TP4 Site**



**Photo B-7 TP5 Site**



**Photo B-8 TP6 Site**

# C

## Plant List

**Table C-1  
Plant List  
Emerald Family Farms, Willow Creek**

<b>Scientific Name</b>	<b>Common Name</b>	<b>Indicator 2016<sup>1</sup></b>
<i>Acer macrophyllum</i>	big leaf maple	FACU
<i>Adiantum jordanii</i>	California maidenhair fern	FAC
<i>Agrostis exarata</i>	bentgrass	FACW
<i>Alnus rhombifolia</i>	white alder	FACW
<i>Anisocarpus madioides</i>	woodland madia	NL
<i>Arbutus menziesii</i>	madrono	NL
<i>Arctostaphylos manzanita</i> ssp. <i>manzanita</i>	common manzanita	NL
<i>Artemisia douglasiana</i>	California mugwort	FACW
<i>Artemisia</i> sp.	sage	NL
<i>Athyrium filix-femina</i> var. <i>cyclosorum</i> ( <i>Athyrium cyclosorum</i> )	western lady fern	FAC
<i>Avena sativa</i>	wild oat	UPL
<i>Baccharis pilularis</i>	coyote brush	NL
<i>Brassica nigra</i>	black mustard	NL
<i>Briza maxima</i>	rattlesnake grass	NL
<i>Bromus hordeaceus</i>	soft chess	FACU
<i>Carex nudata</i>	torrent sedge	OBL
<i>Ceanothus integerrimus</i>	deer brush	NL
<i>Centaurea solstitialis</i>	yellow star thistle	NL
<i>Cercis occidentalis</i> ( <i>Cercis canadensis</i> )	western redbud	UPL
<i>Cichorium intybus</i>	chicory	FACU
<i>Cirsium vulgare</i>	bull thistle	FACU
<i>Cornus nuttallii</i>	dogwood	FACU
<i>Corylus cornuta</i> ssp. <i>californica</i>	beaked hazelnut	FACU
<i>Croton setigerus</i>	turkey mullein	NL
<i>Cynodon dactylon</i>	Bermuda grass	FACU
<i>Cynosurus echinatus</i>	dogtail grass	NL
<i>Cyperus eragrostis</i>	tall cyperus	FACW
<i>Cytisus scoparius</i>	Scotch broom	NL
<i>Dactylis glomerata</i>	orchard grass	FACU
<i>Darmera peltata</i>	umbrella plant	OBL
<i>Daucus carota</i>	carrot	FACU
<i>Deschampsia danthonioides</i>	annual hair grass	FACW
<i>Deschampsia elongata</i>	hair grass	FACW
<i>Digitaria sanguinalis</i>	crab grass	FACU
<i>Elymus caput-medusae</i>	Medusa head	NL
<i>Elymus glaucus</i>	blue wild rye	FACU
<i>Epilobium ciliatum</i> ssp. <i>ciliatum</i>	fringed willow herb	FACW
<i>Eriogonum nudum</i>	naked buckwheat	NL
<i>Erodium brachycarpum</i>	white stemmed filaree	NL
<i>Erodium brachycarpum</i>	white stemmed filaree	NL
<i>Euphorbia maculata</i>	spotted spurge	UPL
<i>Festuca idahoensis</i>	blue fescue	FACU
<i>Fragaria vesca</i>	wild strawberry	FACU

**Table C-1  
Plant List  
Emerald Family Farms, Willow Creek**

<b>Scientific Name</b>	<b>Common Name</b>	<b>Indicator 2016<sup>1</sup></b>
<i>Frangula californica</i>	California coffeeberry	NL
<i>Fraxinus latifolia</i>	Oregon ash	FACW
<i>Galium</i> sp.	bedstraw	NL
<i>Hedera helix</i>	English ivy	FACU
<i>Heterotheca oregona</i>	Oregon golden aster	FACU
<i>Heuchera micrantha</i>	alum root	NL
<i>Heuchera micrantha</i>	alum root	NL
<i>Hieracium albiflorum</i>	white flowered hawkweed	NL
<i>Holcus lanatus</i>	common velvet grass	FAC
<i>Holodiscus discolor</i>	ocean spray	FACU
<i>Hordeum marinum</i>	seaside barley	FAC
<i>Hypericum perforatum</i>	Klamath weed	FACU
<i>Hypochaeris radicata</i>	hairy cats ear	FACU
<i>Juncus bufonius</i>	common toad rush	FACW
<i>Juncus effusus</i>	Common bog rush	FACW
<i>Leucanthemum vulgare</i>	ox- eye daisy	FACU
<i>Lonicera hispidula</i>	pink honeysuckle	FACU
<i>Lysimachia arvensis</i>	scarlet pimpernel	FAC
<i>Malus</i> X	cultivated apple	NL
<i>Melilotus albus</i>	white sweet clover	NL
<i>Mentha pulegium</i>	pennyroyal	OBL
<i>Nicotiana quadrivalois</i>	Indian tobacco	FACU
<i>Notholithocarpus densiflorus</i> var. <i>densiflorus</i>	tanoak	NL
<i>Panicum capillare</i>	witch grass	FAC
<i>Pinus ponderosa</i>	ponderosa pine	FACU
<i>Plantago lanceolata</i>	ribwort	FACU
<i>Poa pratensis</i>	Kentucky blue grass	FAC
<i>Polystichum munitum</i>	western sword fern	FACU
<i>Populus trichocarpa</i> ( <i>Populus balsamifera</i> )	black cottonwood	FAC
<i>Prosartes smithii</i>	largeflower fairybells	NL
<i>Pseudotsuga menziesii</i> var. <i>menziesii</i>	douglas fir	FACU
<i>Pteridium aquilinum</i>	western bracken fern	FACU
<i>Quercus chrysolepis</i>	gold cup live oak	NL
<i>Quercus garryana</i>	Oregon oak	FACU
<i>Quercus kelloggii</i>	California black oak	NL
<i>Rubus armeniacus</i>	Himalayan blackberry	FAC
<i>Rubus ursinus</i>	California blackberry	FACU
<i>Rumex crispus</i>	curly dock	FAC
<i>Salix exigua</i>	narrow leaf willow	FACW
<i>Salix lasiandra</i> var. <i>lasiandra</i>	pacific willow	FACW
<i>Salix lasiolepis</i>	arroyo willow	FACW
<i>Sonchus asper</i> ssp. <i>asper</i>	sow thistle	FACU
<i>Spergularia rubra</i>	purple sand spurry	FAC
<i>Toxicodendron diversilobum</i>	poison oak	FAC



**Table C-1  
Plant List  
Emerald Family Farms, Willow Creek**

<b>Scientific Name</b>	<b>Common Name</b>	<b>Indicator 2016<sup>1</sup></b>
<i>Tribulus terrestris</i>	puncture vine	NL
<i>Trichostema lanceolatum</i>	vinegar weed	FACU
<i>Trifolium repens</i>	white clover	FAC
<i>Trisetum cernuum</i>	nodding oat grass	FACU
<i>Vicia sativa</i>	spring vetch	UPL
<i>Vitis californica</i>	California wild grape	FACU
<i>Whipplea modesta</i>	modesty	NL
<i>Woodwardia fimbriata</i>	western chain fern	FACW
<i>Zeltnera muehlenbergii</i>	Muehlenberg's centaury	FACW

1. Indicators are abbreviated as follows:  
 OBL: Obligate  
 FACW: Facultative  
 FAC: Facultative  
 FACU: Facultative upland  
 UPL: Upland  
 NL: Not listed

**D**

**Wetland Determination Data Forms**

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

Project/Site: Emerald Family Farms City/County: Humboldt Co. Sampling Date: 8/26/16  
 Applicant/Owner: S&S Cornerstone Development State: CA Sampling Point: TPIW  
 Investigator(s): Greg O'Connell, Cindy Wilcox Section, Township, Range: S.20 & 33, T7N, R5E  
 Landform (hillslope, terrace, etc.): basin Local relief (concave, convex, none): Concave Slope (%): 2  
 Subregion (LRR): LRR A Lat: 40.9429° Long: -123.6270° Datum: Humboldt  
 Soil Map Unit Name: Typic Xerochlovents - liverwash association NWI classification: none

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? N Are "Normal Circumstances" present? Yes  No   
 Are Vegetation , Soil , or Hydrology  naturally problematic? N (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Hydric Soil Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Is the Sampled Area within a Wetland? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
Remarks: <u>Above average annual rain fall</u> <u>Stake from previous study?</u>	

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

Tree Stratum (Plot size: <u>30ft</u> )	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:
1. <u>Salix lasiolepis</u>	<u>60</u>	<u>Y</u>	<u>FACW</u>	Number of Dominant Species That Are OBL, FACW, or FAC: <u>3</u> (A)
2. _____				Total Number of Dominant Species Across All Strata: <u>3</u> (B)
3. _____				Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100</u> (A/B)
4. _____				<b>Prevalence Index worksheet:</b> Total % Cover of: _____ Multiply by: _____ OBL species _____ x 1 = _____ FACW species _____ x 2 = _____ FAC species _____ x 3 = _____ FACU species _____ x 4 = _____ UPL species _____ x 5 = _____ Column Totals: _____ (A) _____ (B) Prevalence Index = B/A = _____
<u>60</u> = Total Cover				
<b>Sapling/Shrub Stratum (Plot size: <u>5ft</u>)</b>				
1. <u>Salix lasiolepis</u>	<u>15</u>	<u>Y</u>	<u>FACW</u>	
2. <u>Rubus armeniacus</u>	<u>5</u>	<u>Y</u>	<u>FAC</u>	
3. _____				
4. _____				
5. _____				
<u>20</u> = Total Cover				
<b>Herb Stratum (Plot size: <u>5ft</u>)</b>				
1. _____				
2. _____				
3. _____				
4. <u>Ø</u>				
5. _____				
6. _____				
7. _____				
8. _____				
9. _____				
10. _____				
11. _____				
<u>Ø</u> = Total Cover				
<b>Woody Vine Stratum (Plot size: _____)</b>				
1. <u>Ø</u>				
2. <u>Ø</u>				
<u>Ø</u> = Total Cover				
% Bare Ground in Herb Stratum <u>100%</u>				
Remarks: <u>Bare ground in herb stratum contains leaf litter 1-3 inches thick.</u>				

**SOIL**

Sampling Point: TPIW

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

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-2"	10YR 2/1	100					L	
2-8"	10YR 2/1	97	5YR 5/8	3	CS	m	cobbly L	groundwater 12"
8-20"	10Y 2.5/1	100					cobbly SL	alpha-alpha dipyridyl reaction
water - can't auger deeper								

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

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

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

**Restrictive Layer (if present):**

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

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

**Hydric Soil Present?** Yes  No

**Remarks:**

Test pit at lowest spot in depression. Approximate 10' wide basin

**HYDROLOGY**

**Wetland Hydrology Indicators:**

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

**Field Observations:**

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

Water Table Present? Yes  No  Depth (inches): 12"

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:**

B1 = water stains on surface cobbles

Tested positive to alpha-alpha dipyridyl solution

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

Project/Site: Emerald Family Farms City/County: Humboldt Co. Sampling Date: 8/26/16  
 Applicant/Owner: S&S Cornerstone Development State: CA Sampling Point: TP14  
 Investigator(s): Greg O'Connell, Cindy Wilcox Section, Township, Range: S-20, T33, R5E  
 Landform (hillslope, terrace, etc.): hill slope Local relief (concave, convex, none): convex Slope (%): 45  
 Subregion (LRR): LRR A Lat: 40.9429° Long: -123.6270° Datum: Humboldt  
 Soil Map Unit Name: Typic Xerofluvents - riverwash association NWI classification: none

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? N Are "Normal Circumstances" present? Yes  No   
 Are Vegetation , Soil , or Hydrology  naturally problematic? N (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Hydric Soil Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Wetland Hydrology Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Is the Sampled Area within a Wetland? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
Remarks: <u>above average annual rain fall</u> <u>* berm dozed pile &gt; 5yrs. On hill slope above TP14 on cutbank.</u>	

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

Tree Stratum (Plot size: <u>30</u> )	Absolute % Cover	Dominant Species?	Indicator Status	
1. <u>Salix lasiolepis</u>	<u>35</u>	<u>Y</u>	<u>FACW</u>	<b>Dominance Test worksheet:</b> Number of Dominant Species That Are OBL, FACW, or FAC: <u>3</u> (A) Total Number of Dominant Species Across All Strata: <u>4</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>75%</u> (A/B)
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
<u>35</u> = Total Cover				<b>Prevalence Index worksheet:</b> Total % Cover of: _____ Multiply by: _____ OBL species _____ x 1 = _____ FACW species _____ x 2 = _____ FAC species _____ x 3 = _____ FACU species _____ x 4 = _____ UPL species _____ x 5 = _____ Column Totals: _____ (A) _____ (B) Prevalence Index = B/A = _____
<b>Sapling/Shrub Stratum (Plot size: <u>5</u>)</b>				
1. <u>Salix lasiolepis</u>	<u>20</u>	<u>Y</u>	<u>FACW</u>	
2. <u>Baccharis pilularis</u>	<u>5</u>	<u>N</u>	<u>NL</u>	
3. <u>Cytisus scoparius</u>	<u>5</u>	<u>N</u>	<u>NL</u>	
<u>30</u> = Total Cover				
<b>Herb Stratum (Plot size: <u>5</u>)</b>				
1. <u>Briza maxima</u>	<u>15</u>	<u>Y</u>	<u>NL</u>	
2. <u>Holcus lanatus</u>	<u>5</u>	<u>Y</u>	<u>FAC</u>	
<u>20</u> = Total Cover				
<b>Woody Vine Stratum (Plot size: _____)</b>				
1. <u>Ø</u>	_____	_____	_____	
2. <u>Ø</u>	_____	_____	_____	
<u>Ø</u> = Total Cover				
% Bare Ground in Herb Stratum <u>80</u>				
Remarks: <u>leaf litter 1-2 inches thick</u>				

**SOIL**

Sampling Point: TPIU

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

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-5"								Surface duff
5"-24"	10YR 3/1	100						gravelly sand w/ cobbles

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

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

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

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

<sup>3</sup>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: Pit on eroded slope above TPIU

**HYDROLOGY**

**Wetland Hydrology Indicators:**

<u>Primary Indicators (minimum of one required; check all that apply)</u>		<u>Secondary Indicators (2 or more required)</u>
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Water-Stained Leaves (B9) (except MLRA 1, 2, 4A, and 4B)	<input type="checkbox"/> Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Salt Crust (B11)	<input type="checkbox"/> Drainage Patterns (B10)
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Aquatic Invertebrates (B13)	<input type="checkbox"/> Dry-Season Water Table (C2)
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)	<input type="checkbox"/> Geomorphic Position (D2)
<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Shallow Aquitard (D3)
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)	<input type="checkbox"/> FAC-Neutral Test (D5) <u>NO (nit &gt; 50%)</u>
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Stunted or Stressed Plants (D1) (LRR A)	<input type="checkbox"/> Raised Ant Mounds (D6) (LRR A)
<input type="checkbox"/> Surface Soil Cracks (B6)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> Frost-Heave Hummocks (D7)
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)		
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)		

**Field Observations:**

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

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

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

(includes capillary fringe)

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

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

Remarks:

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

Project/Site: Emerald Family Farms City/County: Humboldt Co. Sampling Date: 8/26/16  
 Applicant/Owner: S&S Cornerstone Development State: CA Sampling Point: TP2W  
 Investigator(s): Greg O'Connell, Cindy Wilcox Section, Township, Range: S-20 & 33, T7N, R5E  
 Landform (hillslope, terrace, etc.): depression Local relief (concave, convex, none): concave Slope (%): 2-5%  
 Subregion (LRR): LRR A Lat: 40.9429° Long: -123.6270° Datum: Humboldt  
 Soil Map Unit Name: Typic Xero-fluvents - Riverwash association NWI classification: none

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? N Are "Normal Circumstances" present? Yes  No   
 Are Vegetation , Soil , or Hydrology  naturally problematic? N (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Hydric Soil Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Is the Sampled Area within a Wetland? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
Remarks: <u>Above average annual rain fall. Atypical soil texture. Source from another area. Appears &gt; 5yrs ago.</u>	

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

Tree Stratum (Plot size: <u>30'</u> )	Absolute % Cover	Dominant Species?	Indicator Status	
1. <u>Salix lasiolepis</u>	<u>50</u>	<u>Y</u>	<u>FACW</u>	<b>Dominance Test worksheet:</b> Number of Dominant Species That Are OBL, FACW, or FAC: <u>4</u> (A) Total Number of Dominant Species Across All Strata: <u>4</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100</u> (A/B)
2. <u>Salix lasiolepis</u>	<u>20</u>	<u>Y</u>	<u>FACW</u>	
3. _____				
4. _____				
<u>70</u> = Total Cover				<b>Prevalence Index worksheet:</b> Total % Cover of: _____ Multiply by: _____ OBL species _____ x 1 = _____ FACW species _____ x 2 = _____ FAC species _____ x 3 = _____ FACU species _____ x 4 = _____ UPL species _____ x 5 = _____ Column Totals: _____ (A) _____ (B) Prevalence Index = B/A = _____
<b>Sapling/Shrub Stratum (Plot size: <u>5'</u>)</b>				
1. <u>Rubus armeniacus</u>	<u>35</u>	<u>Y</u>	<u>FAC</u>	
2. <u>Salix lasiolepis</u>	<u>10</u>	<u>Y</u>	<u>FACW</u>	
3. _____				
4. _____				
<u>45</u> = Total Cover				
<b>Herb Stratum (Plot size: _____)</b>				
1. _____				
2. _____				
3. _____				
4. _____				
5. _____				
6. _____				
7. _____				
8. _____				
9. _____				
10. _____				
11. _____				
_____ = Total Cover				
<b>Woody Vine Stratum (Plot size: _____)</b>				
1. _____				
2. _____				
_____ = Total Cover				
% Bare Ground in Herb Stratum <u>100</u>				
Remarks: <u>1-2 inch layer of leaf litter. Adventitious roots on willows.</u>				

**SOIL**

Sampling Point: TP2W

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

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
① 0-6"	10YR 2/1	80	5YR 5/6	20	CS	M/PL	L	organic layer oxidized
② 6-24"	2.5YR 2/1	90	10YR 5/4	10	CS	M	SIL	root layers
			S-2				Δ 2 hue 5-2	
	Ca							
							FB =	Horizon 1 10YR 2/1 (-) 5YR 5/6
								Δ hue - 2
								Δ 5/6 - 2/1 - 3/5
								Prominent

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

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

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

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

<sup>3</sup>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:

**HYDROLOGY**

**Wetland Hydrology Indicators:**

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

**Field Observations:**

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

Water Table Present? Yes  No  Depth (inches): 14"

Saturation Present? Yes  No  Depth (inches): 6"

(Includes capillary fringe)

**Wetland Hydrology Present?** Yes  No

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

Remarks: adventitious roots. depression approximately 15' in diameter  
Tested positive to alpha-alpha dipyridyl solution



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

Project/Site: Emerald Family Farms City/County: Humboldt Co. Sampling Date: 8/26/16  
 Applicant/Owner: S&S Cornerstone Development State: CA Sampling Point: TP2 U  
 Investigator(s): Greg O'Connell, Cindy Wilcox Section, Township, Range: S-20 & B3, T7N, R5E  
 Landform (hillslope, terrace, etc.): hill slope Local relief (concave, convex, none): Convex Slope (%): \_\_\_\_\_  
 Subregion (LRR): LRR A Lat: 40.9429° Long: -123.6270° Datum: Humboldt  
 Soil Map Unit Name: Typic Xero-fluvents Riverwash association NWI classification: none

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? NO Are "Normal Circumstances" present? Yes  No \_\_\_\_\_  
 Are Vegetation \_\_\_\_\_, Soil \_\_\_\_\_, or Hydrology \_\_\_\_\_ naturally problematic? NO (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No _____ Hydric Soil Present? Yes _____ No <input checked="" type="checkbox"/> Wetland Hydrology Present? Yes _____ No <input checked="" type="checkbox"/>	Is the Sampled Area within a Wetland? Yes _____ No <input checked="" type="checkbox"/>
Remarks: <u>Above average annual rain fall. On hill slope above TP2U on cut bank. Atypical amount of clay in texture. Brought in from another source.</u>	

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

Tree Stratum (Plot size: <u>30</u> )	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:
1. <u>Salix lasiolepis</u>	<u>40</u>	<u>Y</u>	<u>FACW</u>	Number of Dominant Species That Are OBL, FACW, or FAC: <u>3</u> (A)
2. <u>Salix lasiolepis</u>				Total Number of Dominant Species Across All Strata: <u>3</u> (B)
3. _____				Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100</u> (A/B)
4. _____				<b>Prevalence Index worksheet:</b>
<u>40</u> = Total Cover				
<b>Sapling/Shrub Stratum (Plot size: <u>5</u>)</b>				OBL species _____ x 1 = _____
1. <u>Rubus armeniacus</u>	<u>45</u>	<u>Y</u>	<u>FAC</u>	FACW species _____ x 2 = _____
2. <u>Salix lasiolepis</u>	<u>15</u>	<u>Y</u>	<u>FACW</u>	FAC species _____ x 3 = _____
3. _____				FACU species _____ x 4 = _____
4. _____				UPL species _____ x 5 = _____
5. _____				Column Totals: _____ (A) _____ (B)
<u>60</u> = Total Cover				Prevalence Index = B/A = _____
<b>Herb Stratum (Plot size: <u>5</u>)</b>				<b>Hydrophytic Vegetation Indicators:</b>
1. <u>Ø</u>				<input type="checkbox"/> 1 - Rapid Test for Hydrophytic Vegetation
2. <u>Ø</u>				<input checked="" type="checkbox"/> 2 - Dominance Test is >50%
3. _____				<input type="checkbox"/> 3 - Prevalence Index is ≤3.0 <sup>1</sup>
4. _____				<input type="checkbox"/> 4 - Morphological Adaptations <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet)
5. _____				<input type="checkbox"/> 5 - Wetland Non-Vascular Plants <sup>1</sup>
6. _____				<input type="checkbox"/> Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)
7. _____				<sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
8. _____				<b>Hydrophytic Vegetation Present?</b> Yes <input checked="" type="checkbox"/> No _____
9. _____				
10. _____				
11. _____				
_____ = Total Cover				
<b>Woody Vine Stratum (Plot size: _____)</b>				
1. <u>Ø</u>				
2. <u>Ø</u>				
_____ = Total Cover				
% Bare Ground in Herb Stratum <u>100</u>				
Remarks: <u>11-2 inch leaf litter</u>				



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

Project/Site: Emerald Family Farms City/County: Humboldt Co. Sampling Date: 8/26/16  
 Applicant/Owner: S&S Cornerstone Development State: CA Sampling Point: TP3W  
 Investigator(s): Greg O'Connell, Cindy Wilcox Section, Township, Range: S-20 & 33, T7N, R5E  
 Landform (hillslope, terrace, etc.): drainage Local relief (concave, convex, none): concave Slope (%): 0-2  
 Subregion (LRR): LRR A Lat: 40.9429° Long: -123.6270° Datum: Humboldt  
 Soil Map Unit Name: Typic Xerofluvents-Riverwash association NWI classification: none

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? No Are "Normal Circumstances" present? Yes  No   
 Are Vegetation , Soil , or Hydrology  naturally problematic? No (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Hydric Soil Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Is the Sampled Area within a Wetland? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
Remarks: <u>Above average annual rain fall</u>	

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

Tree Stratum (Plot size: <u>30</u> )	Absolute % Cover	Dominant Species?	Indicator Status	
1. <u>Populus trichocarpa (bakeriana)</u>	<u>25</u>	<u>Y</u>	<u>FAC</u>	<b>Dominance Test worksheet:</b> Number of Dominant Species That Are OBL, FACW, or FAC: <u>5</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>100</u> (A/B)
2. <u>Salix lasiolepis</u>	<u>35</u>	<u>Y</u>	<u>FACW</u>	
3. _____				<b>Prevalence Index worksheet:</b> Total % Cover of: _____ Multiply by: _____ OBL species _____ x 1 = _____ FACW species _____ x 2 = _____ FAC species _____ x 3 = _____ FACU species _____ x 4 = _____ UPL species _____ x 5 = _____ Column Totals: _____ (A) _____ (B) Prevalence Index = B/A = _____
4. _____				
5. _____				
6. _____				
<u>60</u> = Total Cover				
Sapling/Shrub Stratum (Plot size: <u>5</u> )	Absolute % Cover	Dominant Species?	Indicator Status	
1. <u>Salix lasiolepis</u>	<u>20</u>	<u>Y</u>	<u>FACW</u>	<b>Hydrophytic Vegetation Indicators:</b> ___ 1 - Rapid Test for Hydrophytic Vegetation ___ 2 - Dominance Test is >50% ___ 3 - Prevalence Index is ≤3.0 <sup>1</sup> ___ 4 - Morphological Adaptations <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet) ___ 5 - Wetland Non-Vascular Plants <sup>1</sup> ___ Problematic Hydrophytic Vegetation <sup>1</sup> (Explain) <sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
2. <u>Rubus armeniacus</u>	<u>15</u>	<u>Y</u>	<u>FAC</u>	
3. _____				
4. _____				
5. _____				
6. _____				
<u>35</u> = Total Cover				
Herb Stratum (Plot size: <u>5</u> )	Absolute % Cover	Dominant Species?	Indicator Status	
1. <u>Juncus effusus</u>	<u>5</u>	<u>Y</u>	<u>FACW</u>	<b>Hydrophytic Vegetation Present?</b> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
2. _____				
3. _____				
4. _____				
5. _____				
6. _____				
7. _____				
8. _____				
9. _____				
10. _____				
11. _____				
<u>5</u> = Total Cover				
Woody Vine Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	
1. _____				
2. _____				
<u>0</u> = Total Cover				
% Bare Ground in Herb Stratum <u>95</u>				
Remarks: <u>1" leaf litter &amp; dried algal mats</u>				

SOIL

Sampling Point: TP3W

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

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-4"	2.5Y 7/1	100					gravelly LS	
4-12"	2.5Y 7/1	90	2.5Y 6/8	10	CS	m	gravelly LS	slight increase in moisture ~12"
							Δ hve = ∅	
							Δ value = 1	prominent
							Δ chr = 7	

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

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

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

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

<sup>3</sup>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:  
*berm down stream blocking flow*

HYDROLOGY

**Wetland Hydrology Indicators:**

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

**Field Observations:**

Surface Water Present? Yes  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:  
*Using algal mats to determine extent of wetland depression*

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

Project/Site: Emerald Family Farms City/County: Humboldt Co. Sampling Date: 9/1/16  
 Applicant/Owner: S&S Cornerstone Development State: CA Sampling Point: TP34  
 Investigator(s): Greg O'Connell, Cindy Wilcox Section, Township, Range: S.20 & 33, T7N, R5E  
 Landform (hillslope, terrace, etc.): drainage bed Local relief (concave, convex, none): flat Slope (%): 3  
 Subregion (LRR): LRR A Lat: 40.9429° Long: -123.6270° Datum: Humboldt  
 Soil Map Unit Name: Typic Xerafluvents-Riverwash association NWI classification: none

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? N Are "Normal Circumstances" present? Yes  No   
 Are Vegetation , Soil , or Hydrology  naturally problematic? N (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Hydric Soil Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Wetland Hydrology Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Is the Sampled Area within a Wetland? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
Remarks: <u>Above average annual rain fall.</u>	

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

Tree Stratum (Plot size: <u>30'</u> )	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:
1. <u>Salix lasiolepis</u>	<u>20</u>	<u>Y</u>	<u>FACW</u>	Number of Dominant Species That Are OBL, FACW, or FAC: _____ (A)
2. _____				Total Number of Dominant Species Across All Strata: _____ (B)
3. _____				Percent of Dominant Species That Are OBL, FACW, or FAC: _____ (A/B)
4. _____				
_____ = Total Cover				
Sapling/Shrub Stratum (Plot size: <u>5</u> )	Absolute % Cover	Dominant Species?	Indicator Status	Prevalence Index worksheet:
1. <u>Rubus armeniacus</u>	<u>60</u>	<u>Y</u>	<u>FAC</u>	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 = _____
2. <u>Salix lasiolepis</u>	<u>5</u>	<u>N</u>	<u>FACW</u>	
3. _____				
4. _____				
5. _____				
<u>70</u> = Total Cover				
Herb Stratum (Plot size: <u>5</u> )	Absolute % Cover	Dominant Species?	Indicator Status	Hydrophytic Vegetation Indicators:
1. <u>Cyperus eragrostis</u>	<u>5</u>	<u>Y</u>	<u>FACW</u>	___ 1 - Rapid Test for Hydrophytic Vegetation ___ 2 - Dominance Test is >50% ___ 3 - Prevalence Index is ≤3.0 <sup>1</sup> ___ 4 - Morphological Adaptations <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet) ___ 5 - Wetland Non-Vascular Plants <sup>1</sup> ___ Problematic Hydrophytic Vegetation <sup>1</sup> (Explain) <sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
2. <u>Agrostis exarata</u>	<u>5</u>	<u>Y</u>	<u>FACW</u>	
3. _____				
4. _____				
5. _____				
6. _____				
7. _____				
8. _____				
9. _____				
10. _____				
11. _____				
<u>10</u> = Total Cover				
Woody Vine Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	Hydrophytic Vegetation Present?
1. _____				Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
2. _____				
_____ = Total Cover				
% Bare Ground in Herb Stratum <u>90</u>				
Remarks: <u>a lot of leaf debris &amp; dead Rubus cane litter</u>				

**SOIL**

Sampling Point: TP3U

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

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-6	2.5Y 3/3	100	10YR 8/2	21	CS	M	LS	roots. Redox color in profile
6-24	2.5Y 3/2	80					LS	on roots
	10.5YR 4/3	20						

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

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

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

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

<sup>3</sup>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:

**HYDROLOGY**

**Wetland Hydrology Indicators:**

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

**Field Observations:**

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

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

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

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

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

Remarks:

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

Project/Site: Emerald Family Farms City/County: Humboldt Co. Sampling Date: 8/20/16  
 Applicant/Owner: S&S Cornerstone Development State: CA Sampling Point: TP4  
 Investigator(s): Greg O'Connell, Cindy Wilcox Section, Township, Range: S-20 & 33, T7N, R5E  
 Landform (hillslope, terrace, etc.): drainage Local relief (concave, convex, none): concave Slope (%): 2-5%  
 Subregion (LRR): LRR A Lat: 40.9429° Long: -123.6270° Datum: Humboldt  
 Soil Map Unit Name: Typic Xero-fluvents-Riverwash Association NWI classification: none

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? NO Are "Normal Circumstances" present? Yes  No   
 Are Vegetation , Soil , or Hydrology  naturally problematic? NO (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Hydric Soil Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Wetland Hydrology Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Is the Sampled Area within a Wetland? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
Remarks: <u>Above average annual rain fall. Lowest spot in drainage w/in 90' Fill material, greater than 5yrs (google). Drainage approximately 12' wide</u>	

**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: <u>5</u> )				
1. <u>Rubus armeniacus</u>	<u>66</u>	<u>Y</u>	<u>FAC</u>	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
_____ = Total Cover				
Herb Stratum (Plot size: <u>5</u> )				
1. <u>Avena sativa</u>	<u>80</u>	<u>Y</u>	<u>UPL</u>	
2. <u>Elymus glaucus</u>	<u>10</u>	<u>N</u>	<u>FACW</u>	
3. <u>Elymus caput-medusae</u>	<u>2</u>	<u>N</u>	<u>NL</u>	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
9. _____	_____	_____	_____	
10. _____	_____	_____	_____	
11. _____	_____	_____	_____	
<u>92</u> = Total Cover				
Woody Vine Stratum (Plot size: _____)				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
_____ = Total Cover				
% Bare Ground in Herb Stratum <u>8</u>				
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 (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<sup>1</sup>

4 - Morphological Adaptations<sup>1</sup> (Provide supporting data in Remarks or on a separate sheet)

5 - Wetland Non-Vascular Plants<sup>1</sup>

Problematic Hydrophytic Vegetation<sup>1</sup> (Explain)

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

**Hydrophytic Vegetation Present?** Yes  No



**SOIL**

Sampling Point: \_\_\_\_\_

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

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-2"								TP4 grassy area indicating way
2-24"	10YR 3/2	100					gravelly SL	

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

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

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

**Restrictive Layer (if present):**

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

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

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

Remarks: Had to start several pits before finding a site w/o metal debris  
 Min 20'. Pit w/ woody debris & loose gravelly sandy loam. 3" diameter metal  
 pipe at side of pit - Old log pond.

**HYDROLOGY**

**Wetland Hydrology Indicators:**

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

**Field Observations:**

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

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

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

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

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

Remarks:



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

Project/Site: Emerald Family Farms City/County: Humboldt Co. Sampling Date: 8/26/16  
 Applicant/Owner: S&S Cornerstone Development State: CA Sampling Point: TP5  
 Investigator(s): Greg O'Connell, Cindy Wilcox Section, Township, Range: S.20 & 33, T7N, R5E  
 Landform (hillslope, terrace, etc.): drainage Local relief (concave, convex, none): concave Slope (%): 2-5  
 Subregion (LRR): LRR A Lat: 40.9429° Long: -123.6270° Datum: Humboldt  
 Soil Map Unit Name: Typic Xero-fluvents - riverwash association NWI classification: none

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? NO Are "Normal Circumstances" present? Yes  No   
 Are Vegetation , Soil , or Hydrology  naturally problematic? NO (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Hydric Soil Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Wetland Hydrology Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Is the Sampled Area within a Wetland? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
Remarks: <u>Above average annual rain fall. Most of the branch of this drainage has recent fill material. Soils forming on recent loose material. Appears &gt; 5yrs from Google images.</u>	

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

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:
1. <u>Ø</u>				Number of Dominant Species That Are OBL, FACW, or FAC: <u>1</u> (A)
2. <u>Ø</u>				Total Number of Dominant Species Across All Strata: <u>2</u> (B)
3. _____				Percent of Dominant Species That Are OBL, FACW, or FAC: <u>50</u> (A/B)
4. _____				<b>Prevalence Index worksheet:</b> Total % Cover of: _____ Multiply by: OBL species _____ x 1 = _____ FACW species _____ x 2 = _____ FAC species _____ x 3 = _____ FACU species _____ x 4 = _____ UPL species _____ x 5 = _____ Column Totals: _____ (A) _____ (B) Prevalence Index = B/A = _____
5. _____				
<b>Sapling/Shrub Stratum (Plot size: <u>5</u>)</b>				
1. <u>Rubus armeniacus</u>	<u>70</u>	<u>Y</u>	<u>FAC</u>	
2. _____				
3. _____				
4. _____				
5. _____				
<b>Herb Stratum (Plot size: <u>5</u>)</b>				
1. <u>Avena sativa</u>	<u>30</u>	<u>Y</u>	<u>UPL</u>	
2. <u>Brassica nigra</u>	<u>5</u>	<u>N</u>	<u>NL</u>	
3. _____				
4. _____				
5. _____				
6. _____				
7. _____				
8. _____				
9. _____				
10. _____				
11. _____				
<b>Woody Vine Stratum (Plot size: _____)</b>				
1. <u>Ø</u>				
2. _____				
<b>% Bare Ground in Herb Stratum <u>65</u></b>				
Hydrophytic Vegetation Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>				
Remarks: <u>Layer of old cane braked - old fire present within veg plot.</u>				

**SOIL**

Sampling Point: TP5

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

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-7"	10YR 3/2	100						
7-24"	10YR 3/2	99	10YR 5/8	<1%	Rm	m		

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

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

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

**Restrictive Layer (if present):**

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

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

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

Remarks: very dry loose soil

**HYDROLOGY**

**Wetland Hydrology Indicators:**

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

**Field Observations:**

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

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

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

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

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

Remarks:

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

Project/Site: Emerald Family Farms City/County: Humboldt Co. Sampling Date: 8/26/16  
 Applicant/Owner: S&S Cornerstone Development State: CA Sampling Point: TP6  
 Investigator(s): Greg O'Connell, Cindy Wilcox Section, Township, Range: S-20 & 33, T7N, R5E  
 Landform (hillslope, terrace, etc.): terrace Local relief (concave, convex, none): flat Slope (%): 0-2  
 Subregion (LRR): LRR A Lat: 40.9429° Long: -123.6270° Datum: Humboldt  
 Soil Map Unit Name: Typic Xerofluvents Riverwash Association NWI classification: none  
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes  No  (If no, explain in Remarks.)  
 Are Vegetation , Soil , or Hydrology  significantly disturbed? Are "Normal Circumstances" present? Yes  No   
 Are Vegetation , Soil , or Hydrology  naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Hydric Soil Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Wetland Hydrology Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Is the Sampled Area within a Wetland? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
Remarks: <u>Above average annual rain fall</u> <u>Not as disturbed as soil further north.</u>	

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

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	
1. _____				<b>Dominance Test worksheet:</b> Number of Dominant Species That Are OBL, FACW, or FAC: <u>2</u> (A) Total Number of Dominant Species Across All Strata: <u>2</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100</u> (A/B)
2. <u>Ø</u>				
3. _____				
4. _____				
_____ = Total Cover				<b>Prevalence Index worksheet:</b> Total % Cover of: _____ Multiply by: OBL species _____ x 1 = _____ FACW species _____ x 2 = _____ FAC species _____ x 3 = _____ FACU species _____ x 4 = _____ UPL species _____ x 5 = _____ Column Totals: _____ (A) _____ (B) Prevalence Index = B/A = _____
<b>Sapling/Shrub Stratum (Plot size: <u>5</u>)</b>				
1. <u>Rubus armeniacus</u>	<u>70</u>	<u>Y</u>	<u>FAC</u>	
2. _____				
3. _____				
<u>70</u> = Total Cover				
<b>Herb Stratum (Plot size: <u>5</u>)</b>				
1. <u>Poa pratensis</u>	<u>50</u>	<u>Y</u>	<u>FAC</u>	
2. <u>Elymus glaucus</u>	<u>10</u>	<u>N</u>	<u>FACU</u>	
3. <u>Dactylis aegyptia</u>	<u>2</u>	<u>N</u>	<u>FACU</u>	
4. <u>Dactylis glomerata</u>	<u>2</u>	<u>N</u>	<u>FACU</u>	
5. _____				
6. _____				
7. _____				
8. _____				
9. _____				
10. _____				
11. _____				
<u>64</u> = Total Cover				
<b>Woody Vine Stratum (Plot size: _____)</b>				
1. _____				
2. <u>Ø</u>				
_____ = Total Cover				
<b>% Bare Ground in Herb Stratum <u>36</u></b>				
Remarks: _____				

SOIL

Sampling Point: TP6

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

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-2"	10YR 4/3	100			C	m	SL	Krotovinas - 1-2" roots
2-24"	7.5YR 4/4	100	7.5YR 8/1	<1%	C	m	SL	w/ occ. gravel very dry

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

<b>Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)</b>		<b>Indicators for Problematic Hydric Soils<sup>3</sup>:</b>	
<input type="checkbox"/> Histosol (A1)	<input type="checkbox"/> Sandy Redox (S5)	<input type="checkbox"/> 2 cm Muck (A10)	
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Stripped Matrix (S6)	<input type="checkbox"/> Red Parent Material (TF2) <b>NO</b>	
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Loamy Mucky Mineral (F1) (except MLRA 1)	<input type="checkbox"/> Very Shallow Dark Surface (TF12)	
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Loamy Gleyed Matrix (F2)	<input type="checkbox"/> Other (Explain in Remarks)	
<input type="checkbox"/> Depleted Below Dark Surface (A11)	<input type="checkbox"/> Depleted Matrix (F3)		
<input type="checkbox"/> Thick Dark Surface (A12)	<input type="checkbox"/> Redox Dark Surface (F6)		
<input type="checkbox"/> Sandy Mucky Mineral (S1)	<input type="checkbox"/> Depleted Dark Surface (F7)		
<input type="checkbox"/> Sandy Gleyed Matrix (S4)	<input type="checkbox"/> Redox Depressions (F8)		

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

**Restrictive Layer (if present):**

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

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

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

Remarks: *farther north soils disturbed - recent grading? with loose loamy duff. The TP6 soils appear undisturbed > 5yrs still in the Rubus armen. zone, thought by D of F & W to be a potential wetland area. Soil color much redder than described in local soil descrip. (Typic Xerofluvents - Riverwash, or older Eberborgs series name)*

HYDROLOGY

**Wetland Hydrology Indicators:**

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

**Field Observations:**

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

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

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

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

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

Remarks: