
Delineation of Waters of the U.S.

SCHELLINGER BURBANK AVENUE DEVELOPMENT PROJECT SANTA ROSA, SONOMA COUNTY, CALIFORNIA

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June 2018



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1.0 INTRODUCTION

1.1 Study Background

On May 10, 2018, WRA Inc. (WRA) conducted a routine level wetland delineation at the site of an approximately 14.83-acre property owned by Schellinger Homes, Inc. in Sonoma County, California (Study Area, Figure 1). The purpose of the delineation was to determine the presence and extent of wetlands and non-wetland waters potentially subject to federal jurisdiction under Section 404 of the Clean Water Act. This report presents the methods and results of the delineation.

1.2 Regulatory Background

Section 404 of the Clean Water Act gives the U.S. Environmental Protection Agency (EPA) and the U.S. Army Corps of Engineers (Corps) regulatory and permitting authority regarding discharge of dredged or fill material into “navigable waters of the United States.” Section 502(7) of the Clean Water Act defines navigable waters as “waters of the United States, including territorial seas.” Section 328 of Chapter 33 in the Code of Federal Regulations (CFR) defines the term “waters of the United States” as it applies to the jurisdictional limits of the authority of the Corps under the Clean Water Act. A summary of this definition of “waters of the U.S.” in 33 CFR 328.3 includes (1) waters used for commerce; (2) interstate waters and wetlands; (3) “other waters” such as intrastate lakes, rivers, streams, and wetlands; (4) impoundments of waters; (5) tributaries to the above waters; (6) territorial seas; and (7) wetlands adjacent to waters. Therefore, for purposes of the determining Corps jurisdiction under the Clean Water Act, “navigable waters” as defined in the Clean Water Act are the same as “waters of the U.S.” defined in the CFR.

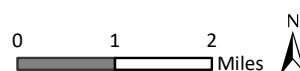
The limits of Corps jurisdiction under Section 404 as given in 33 CFR Section 328.4 are as follows: (a) *Territorial seas*: three nautical miles in a seaward direction from the baseline; (b) *Tidal waters of the U.S.*: high tide line or to the limit of adjacent non-tidal waters; (c) *Non-tidal waters of the U.S.*: ordinary high water mark or to the limit of adjacent wetlands; (d) *Wetlands*: to the limit of the wetland.

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Figure 1. Study Area Location

Schellinger Santa Rosa Biological
Resources Assessment
Sonoma County, California



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2.0 METHODS

Prior to conducting field surveys, reference materials were reviewed, including the *Soil Survey of Sonoma County* (USDA 1972), online soil data (CSRL 2018, USDA 2018a), National Wetland Inventory (NWI) data (USFWS 2018), rainfall data (UCANR 2018), WETS precipitation data (USDA 2018b), the Santa Rosa USGS 7.5' quadrangle (USGS 1980), and aerial photos of the site (Google Earth 2018, NETR 2018). WRA also assessed the topography of the site using fine-scale Lidar data from the Sonoma County Vegetation Mapping and Lidar Program (sonomavegmap.com). Topographic data were used to develop field maps with 0.5-foot contours, as well as a “heat map” visualizing topographic gradients at the site.

A focused evaluation of indicators of wetlands and other waters was performed in the Study Area on May 10, 2018. The methods used in this study to delineate jurisdictional wetlands and waters are based on the *U.S. Army Corps of Engineers Wetlands Delineation Manual* (“Corps Manual”; Environmental Laboratory 1987) and the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region* (“Arid West Supplement”; Corps 2008). The routine method for wetland delineation described in the Corps Manual was used to identify areas potentially subject to Corps Section 404 jurisdiction within the Study Area. A general description of the Study Area, including plant communities present, topography, and land use was also generated during the delineation visits. The methods for evaluating the presence of wetlands and other “waters of the U.S.” employed during the site visit are described in detail below.

2.1 Wetlands

The Study Area was evaluated for the presence or absence of indicators of the three wetland parameters described in the Corps Manual (Environmental Laboratory 1987) and Arid West Supplement (Corps 2008).

The Federal Code of Regulations defines wetlands as:

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

40 CFR 230.3 and 33 CFR 328.3(b)

The three parameters used to delineate wetlands are the presence of: (1) hydrophytic vegetation, (2) wetland hydrology, and (3) hydric soils. According to the Corps Manual, for areas not considered “problem areas” or “atypical situations”:

....[E]vidence of a minimum of one positive wetland indicator from each parameter (hydrology, soil, and vegetation) must be found in order to make a positive wetland determination.

Environmental Laboratory (1987)

Data on vegetation, hydrology, and soils collected at sample points during the delineation site visit was reported on Arid West Supplement data forms. Once an area was determined to be a potential jurisdictional wetland, its boundaries were delineated using GPS equipment with sub-

meter accuracy. The areas of potential jurisdictional wetlands were measured digitally using ArcGIS software. Indicators described in the Arid West Supplement were used to make wetland determinations at each sample point in the Study Area and are summarized below.

Vegetation

Plant species observed in the Study Area were identified using the Jepson Manual, Second Edition (Baldwin et al. 2012), A Flora of Sonoma County (Best et al. 1996), and the Jepson eFlora (Jepson Flora Project 2018). Plants were assigned a wetland indicator status according to the National Wetland Plant List (NWPL; Lichvar et al. 2016). Where differences in nomenclature occur between the Jepson Manual or the Jepson eFlora and the NWPL, the species name as it occurred in the NWPL is listed in brackets. Other relevant synonyms may also be provided in brackets.

Wetland indicator statuses listed in the NWPL are based on the expected frequency of occurrence in wetlands as shown in Table 1 below.

Table 1. Wetland Indicator Classification

Classification (Abbreviation)	Definition*	Hydrophytic Species? (Y/N)
Obligate (OBL)	Almost always is a hydrophyte, rarely in uplands	Y
Facultative Wetland (FACW)	Usually is a hydrophyte but occasionally found in uplands	Y
Facultative (FAC)	Commonly occurs as either a hydrophyte or non-hydrophyte	Y
Facultative Upland (FACU)	Occasionally is a hydrophyte but usually occurs in uplands	N
Upland/Not Listed (UPL/NL)	Rarely is a hydrophyte, almost always in uplands	N

*See Lichvar et al. (2016)

The presence of hydrophytic vegetation was then determined based on indicator tests described in the Arid West Supplement. The Arid West Supplement requires that a three-step process be conducted to determine if hydrophytic vegetation is present. The procedure first requires the delineator to apply the “50/20 rule” (Indicator 1; Dominance Test) described in the manual. To apply the “50/20 rule”, dominant species are chosen independently from each stratum of the community. Dominant species are determined for each vegetation stratum from a sampling plot of an appropriate size surrounding the sample point. Dominants are the most abundant species that individually or collectively account for more than 50 percent of the total vegetative cover in the stratum, plus any other species that, by itself, accounts for at least 20 percent of the total vegetative cover. If greater than 50 percent of the dominant species have an OBL, FACW, or FAC status, the sample point meets the hydrophytic vegetation criterion.

If the sample point fails Indicator 1 and both hydric soils and wetland hydrology are not present, then the sample point does not meet the hydrophytic vegetation criterion, unless the site is a problematic wetland situation. However, if the sample point fails Indicator 1 but hydric soils and wetland hydrology are both present, the delineator must apply Indicator 2.

Indicator 2 is known as the Prevalence Index. The prevalence index is a weighted average of the wetland indicator status for all plant species within the sampling plot. Each indicator status is given a numeric code (OBL = 1, FACW = 2, FAC = 3, FACU = 4, and UPL = 5). Indicator 2 requires the delineator to estimate the percent cover of each species in every stratum of the community and sum the cover estimates for any species that is present in more than one stratum. The delineator must then organize all species into groups according to their wetland indicator status and calculate the Prevalence Index using the following formula, where A equals total percent cover:

$$PI = \frac{A_{OBL} + 2A_{FACW} + 3A_{FAC} + 4A_{FACU} + 5A_{UPL}}{A_{OBL} + A_{FACW} + A_{FAC} + A_{FACU} + A_{UPL}}$$

The Prevalence Index will yield a number between 1 and 5. If the Prevalence Index is equal to or less than 3, the sample point meets the hydrophytic vegetation criterion. However, if the community fails Indicator 2, the delineator must proceed to Indicator 3.

Indicator 3 is known as Morphological Adaptations. If more than 50 percent of the individuals of a FACU species have morphological adaptations for life in wetlands, that species is considered to be a hydrophyte and its indicator status should be reassigned to FAC. If such observations are made, the delineator must recalculate Indicators 1 and 2 using a FAC indicator status for this species. The sample point meets the hydrophytic vegetation criterion if either test is satisfied.

Hydrology

The Corps jurisdictional wetland hydrology criterion is satisfied if an area is inundated or saturated for a period sufficient to create anoxic soil conditions during the growing season (a minimum of 14 consecutive days in the Arid West region). Evidence of wetland hydrology can include primary indicators, such as visible inundation or saturation, drift deposits, oxidized root channels, and salt crusts, or secondary indicators such as the FAC-neutral test, presence of a shallow aquitard, or crayfish burrows. The Arid West Supplement contains 16 primary hydrology indicators and 10 secondary hydrology indicators. Only one primary indicator is required to meet the wetland hydrology criterion; however, if secondary indicators are used, at least two secondary indicators must be present to conclude that an area has wetland hydrology.

The presence or absence of the primary or secondary indicators described in the Arid West Supplement was utilized to determine if sample points within the Study Area met the wetland hydrology criterion.

Prior to conducting fieldwork, WRA conducted an analysis of current and long-term rainfall levels using the WETS guidance provided by the USDA (1995). Long-term average rainfall levels were determined from the National Climate Data Center (NCDC) weather station in Santa Rosa (SNTAROSA.C, NCDC #7965). Current rainfall levels were determined from the same weather station.

Soils

The Natural Resource Conservation Service (NRCS) defines a hydric soil as follows:

A hydric soil is a soil that formed under conditions of saturation, flooding, or ponding long enough during the growing season to develop anaerobic conditions in the upper part.

Federal Register July 13, 1994,
U.S. Department of Agriculture, NRCS

Soils formed over long periods of time under wetland (anaerobic) conditions often possess characteristics that indicate they meet the definition of hydric soils. Hydric soils can have a hydrogen sulfide (rotten egg) odor, low chroma matrix color, generally designated 0, 1, or 2, used to identify them as hydric, presence of redox concentrations, gleyed or depleted matrix, or high organic matter content.

Specific indicators that can be used to determine whether a soil is hydric for the purposes of wetland delineation are provided in the NRCS *Field Indicators of Hydric Soils in the U.S., Version 8.1* (USDA 2017). The Arid West Supplement provides a list of 23 of these hydric soil indicators which are known to occur in the Arid West region. Soil samples were collected and described according to the methodology provided in the Arid West Supplement. Soil chroma and values were determined by utilizing a standard Munsell soil color chart (Munsell Color 2009). Hydric soils were determined to be present if any of the soil samples met one or more of the 23 hydric soil indicators described in the Arid West Supplement.

2.2 Non-Wetland Waters

This study also evaluated the presence of non-wetland waters of the U.S. (i.e., waters other than wetlands) potentially subject to U.S. Army Corps of Engineers jurisdiction under Section 404 of the Clean Water Act. Other areas, besides wetlands, subject to Corps jurisdiction include lakes, rivers and streams (including intermittent streams) in addition to all areas below the HTL in areas subject to tidal influence. Jurisdiction in non-tidal areas extends to the ordinary high water mark (OHWM) defined as:

...that line on the shore established by the fluctuations of water and indicated by physical characteristics such as clear, natural line impresses on the bank, shelving, changes in the characteristics of the soil, destruction of terrestrial vegetation, the presence of litter and debris, or other appropriate means that consider the characteristics of the surrounding areas.

Federal Register Vol. 51, No. 219,
Part 328.3 (e). November 13, 1986

Identification of the ordinary high water mark followed the Corps Regulatory Guidance Letter No. 05-05, *Ordinary High Water Mark Identification* (Corps 2005).

3.0 STUDY AREA DESCRIPTION

The Study Area consists of approximately 14.83-acres of predominantly vacant land dominated by non-native grassland with seasonal wetland, and seasonal wetland ditch also present. The Study Area also includes previously developed areas including one existing single-family residence, and two converted barn storage facilities along with associated driveways and hardscape, and a horse corral in the southernmost parcel. The Study Area is bordered by City-owned parkland and single-family residential development to the north, and single-family residential development to the south, east and west. Undeveloped portions of the Study Area are routinely and continuously disturbed by disking, mowing, and/or livestock grazing in the southernmost parcel.

Vegetation

Vegetation within the Study Area consisted primarily of ruderal, non-native grass and herbaceous species. Dominant vegetation in areas determined to be uplands included wild oats (*Avena fatua*, NL), slim oat (*Avena barbata*, NL), Italian ryegrass (*Festuca perennis*, FAC; also present in wetlands), Harding grass (*Phalaris aquatica*, FACU), and field bindweed (*Convolvulus arvensis*, NL).

Dominant vegetation in seasonal wetland areas included hydrophytic grasses and forbs such as Annual semaphore grass (*Pleuropogon californicus* var. *californicus*, OBL), and Italian ryegrass, with other hydrophytic herbaceous species present in lower densities including curly dock (*Rumex crispus*, FAC), and Mediterranean barley (*Hordeum marinum* ssp. *gussoneanum*, FAC).

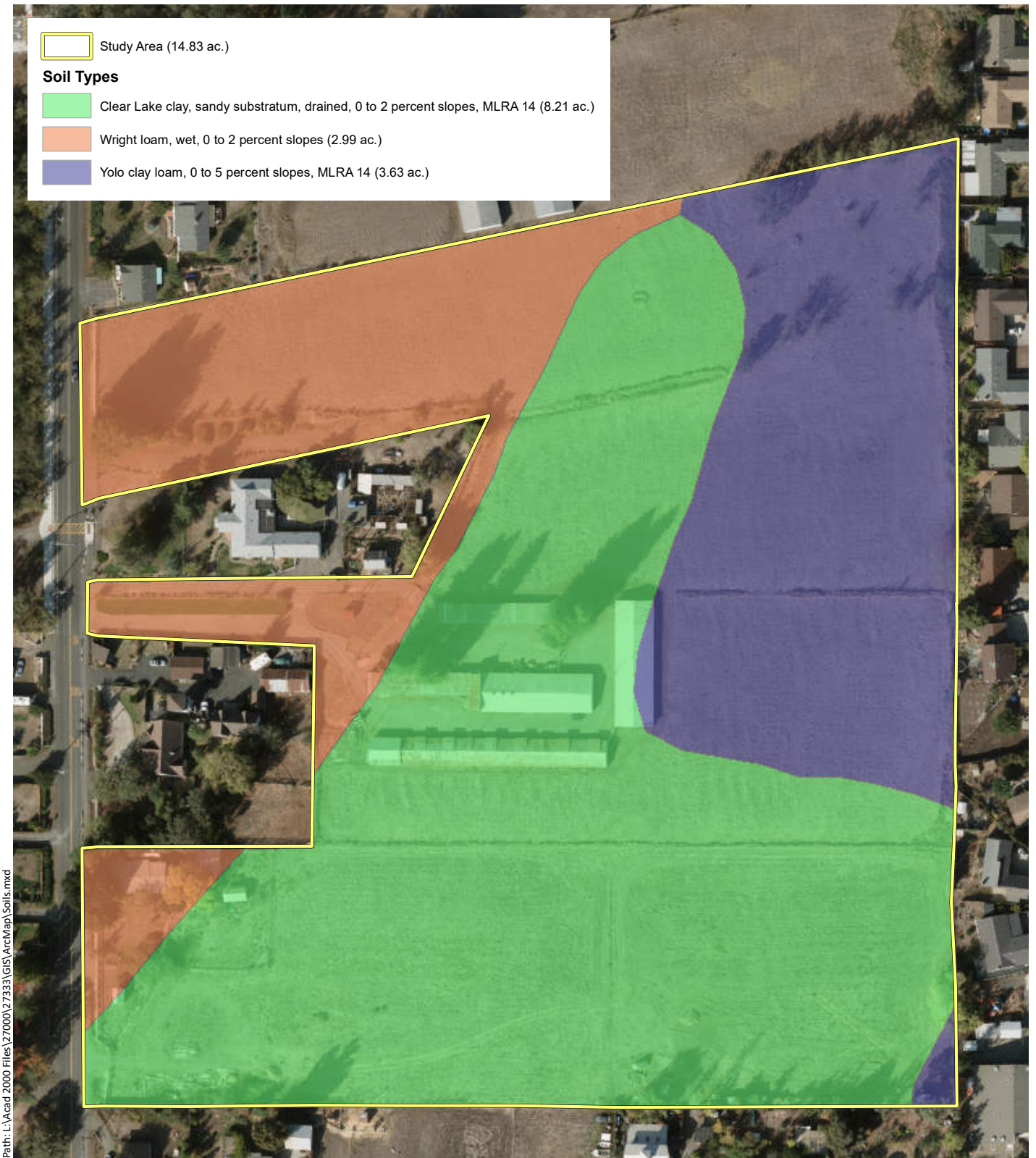
Italian ryegrass was the dominant species across the site. As a non-native, invasive grass, Italian ryegrass (FAC) is adapted to a wide range of soil and hydrologic conditions and commonly occurs in both upland and wetland positions on the Santa Rosa Plain. Where it occurs in wetlands (i.e., when it is acting as a hydrophyte), Italian ryegrass is generally robust and often displays adventitious roots. The presence or absence of adventitious roots was used to help determine when this species was acting as a hydrophyte and when it was acting as an upland species.

Soils

The topography in the Study Area is very level, with elevations ranging from approximately 130 feet above mean sea level (amsl) in the northeast corner of the site, to approximately 123 feet amsl in the southwest corner of the site. SoilWeb (USDA 2018) indicates that the Study Area contains three native soil types including: Wright loam, wet, 0 to 2 percent slopes; Yolo clay loam, 0 to 5 percent slopes; and Clear Lake clay, sandy substratum, drained, 0 to 2 percent slopes (Figure 2). Generally, observed soils within undeveloped portions of the Study Area were native with no suspected areas of imported soil. Soil series that make up the soil mapping units are described below.

Wright Series: The Wright series consists of somewhat poorly drained and moderately well drained loams that have a clay subsoil. These soils are underlain by old valley plain alluvium of mixed origin such as volcanic and marine sediment. Within Sonoma County these soils are mostly undulating, and are on low terraces, mainly on the central Santa Rosa Plain, and south of the town of Sonoma. In a typical profile, the surface layer is very dark grayish brown (10YR 3/2) loam with common medium prominent strong brown mottles (7.5YR 5/6), about 15 inches thick. This is underlain by a strongly acidic dark grayish brown (10YR 4/2) sandy clay loam. This is underlain by various clay loam to clay layers to a depth of 98 inches. Wright loam, wet, 0 to 2 percent

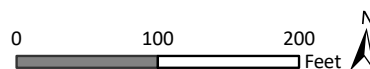
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Sources: Esri Streaming - NAIP 2016, WRA | Prepared By: smortensen, 6/8/2018

Figure 2. Soils in the Study Area

Schellinger Burbank Avenue Development Project
Sonoma County, California



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slopes is listed as a hydric soil.

Clear Lake Series: The Clear Lake series consists of clays that formed under poorly drained conditions. These soils are underlain by alluvium from basic and sedimentary rock. They are on plains and flat basin areas. In a typical profile, the surface layer is black (N 4/0) or very dark gray (10YR 3/1) clay, about 39 inches thick. This is underlain by a dark-gray moderately alkaline clay that has light gray mottles, black (10YR 2/1) when moist. At a depth of about 46 inches, it is gray and light brownish-gray, moderately alkaline clay. At a depth of about 60 inches, it is light gray to white, mildly alkaline sandy clay loam. Clear Lake clay, sandy substratum, drained, 0 to 2 percent slopes is not listed as a hydric soil.

Yolo Series: The Yolo series consists of well drained loams underlain by recent alluvium from sandstone and shale. In a typical profile, the surface layer is neutral very dark grayish brown (10YR 3/2) to dark brown (10YR 3/3) silt loam, about 26 inches thick. This is underlain by various mildly alkaline silt loam or silty clay loam layers to a depth of 65 inches. Yolo clay loam, 0 to 5 percent slopes is not listed as a hydric soil.

Hydrology

The Study Area is located entirely within the Russian River watershed (HUC 18010110). Natural hydrologic sources for the Study Area include precipitation and surface run-off from adjacent lands. The nearest blue-line water feature is an unnamed intermittent stream approximately 0.07 miles northwest of the Study Area, known locally as Roseland Creek. Roseland Creek flows in a southwesterly direction and is tributary to Laguna de Santa Rosa and eventually the Russian River (USGS 1980).

The long-term average annual rainfall, as determined from the WETS table for the National Climate Data Center (NCDC) weather station in Santa Rosa (SNTAROSA.C, NCDC #7965), is approximately 30.74 inches. A comparison of current rainfall levels from the closest weather station to the Study Area (SNTAROSA.C, NCDC #7965) with the long-term average rainfall data (i.e., the WETS table) showed that rainfall conditions were wet to normal during the site visit. Precipitation levels for the preceding three month period were above normal, with a wet April, and March, and a dry February. However, the overall precipitation total for the 2018 water year to date (October 1, 2017 to May 10, 2018), was normal with 23.26 inches of rainfall (75 percent of normal). Worksheets for the WETS analyses are included in Appendix E.

4.0 RESULTS

The extent of areas potentially subject to Section 404 jurisdiction within the Study Area are summarized in Table 2 and depicted in Appendix A. A description of these potentially jurisdictional areas is provided in the following sections. Vegetation, soils and hydrology data collected during delineation site visits are reported on standard Corps Arid West Region data forms included in Appendix B. Photographs of representative portions of the Study Area and sample points are shown in Appendix C. A list of plant species observed during the site visit is included in Appendix D.

Table 2. Summary of Potential Section 404 Jurisdictional Features within the Study Area

Habitat Type	Size (acres/linear feet)
Section 404 Wetlands	
Seasonal Wetlands (PEMC)	0.16
Seasonal Wetland Ditch (PEMC)	0.09
TOTAL	0.25 acre

4.1 Wetlands

Seasonal wetlands, and seasonal wetland ditches (NWI classification = PEMC, palustrine emergent wetland, seasonally flooded) identified as potentially jurisdictional wetlands were present in the northern and western portion of the Study Area (Appendix A). Seasonal wetlands included two depressional wetland features (SW-1, and SW-2), surrounded by non-native annual grasslands. Seasonal wetland ditches included a long, linear, man-made drainage ditch within the interior of the site (SWD-1), and a roadside ditch along Burbank Avenue in the City right-of-way (SWD-2). No other wetland types were present.

Table 3. Wetlands Present within Study Area

Habitat Type	Size (acres)
Section 404 Wetlands	
SW-1 (PEMC)	0.11
SW-2 (PEMC)	0.05
SWD-1 (PEMC)	0.08
SWD-2 (PEMC)	0.01
TOTAL	0.25 acre

Seasonal wetlands within the Study Area were dominated by facultative to obligate wetland species including annual semaphore grass (OBL), and Italian ryegrass (FAC). Soils in areas identified as seasonal wetlands generally met the hydric soil indicator F6 (Redox Dark Surface). These soils generally had a very dark brown (10YR 2/2) matrix color with prominent redox

concentrations in the matrix and along pore linings. Hydrology indicators included direct observation of saturation, as well as biotic crusts, and drift deposits.

With the exception of the linear, concave man-made ditch feature, the Study Area is flat, resulting in broad wetland-upland transition zones. The border between seasonal wetland and upland communities was determined primarily by shifts in vegetation, micro-topography, presence of hydrology indicators (e.g. biotic crusts), and changes in contrasts between redoximorphic features and matrix colors (i.e. from prominent or distinct to faint). Because the Study Area is dominated by Italian ryegrass, which is an invasive species that can tolerate a wide range of soil and hydrologic conditions, understory species were used to help determine when vegetation was hydrophytic and when it was not. When understory species had ratings of FACW or OBL, the Italian ryegrass was determined to be acting as a hydrophyte. When understory species had ratings of FACU or UPL, the Italian ryegrass was determined to be acting as an upland species. In addition, the presence of adventitious roots on Italian ryegrass was also used to determine when this species was acting as a hydrophyte and when it was not.

The linear, man-made ditch feature, was determined to be wetland based on the dominance of wetland vegetation, and presence of wetland hydrology indicators. However, soils within this feature contained a very dark brown (10YR 2/2) matrix color, but were typically lacking redoximorphic features. Soils were presumed to be hydric and were considered naturally problematic within seasonal wetland ditch features. These features may lack hydric soil indicators due to seasonal ponding and limited saturation depth.

All wetlands presented in this report are likely to be considered jurisdictional by the Corps as they meet the three parameters as described in the Corps Manual and are assumed to ultimately drain into the Russian River, a Traditional Navigable Waters (TNW) of the U.S. These wetlands are also likely to be considered jurisdictional by the Regional Water Quality Control Board under the Porter-Cologne Act and Section 401 of the CWA.

4.2 Non-Wetland Waters

The Study Area does not contain non-wetland waters features.

5.0 CONCLUSION

The Study Area was determined to contain 0.25 acres of wetlands that may be subject to Corps jurisdiction under Section 404 of the Clean Water Act. These features are also likely to be considered jurisdictional by the RWQCB under the Porter-Cologne Act and Section 401 of the CWA. The wetland areas are seasonal wetlands, and seasonal wetland ditches dominated by hydrophytic vegetation composed of FAC-, FACW- and OBL-classified plants and containing indicators of hydric soils and wetland hydrology; it is assumed that these wetlands ultimately drain into the Russian River, a TNW of the U.S.

The conclusion of this delineation is based on conditions observed at the time of the field surveys conducted on May 10, 2018. The final determination of wetland boundaries for regulatory purposes is the sole responsibility of the agencies that regulate development in wetlands. Therefore, the results of this report should be verified by the appropriate regulatory agencies prior to any construction activities at the site.

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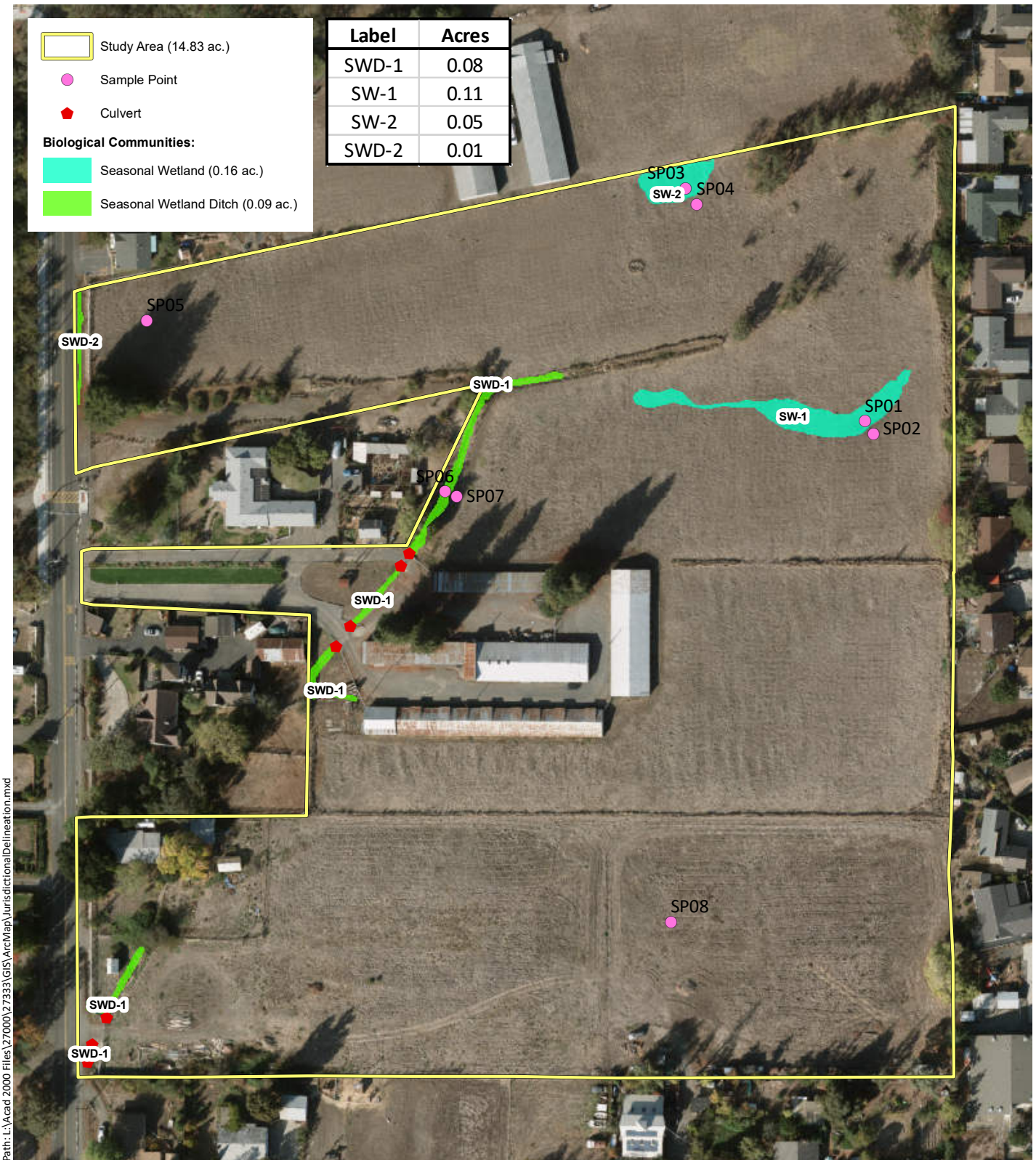
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Appendix A

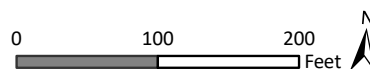
Preliminary Section 404 Jurisdictional Map

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Appendix A. Preliminary Section 404 Jurisdiction Map

Schellinger Burbank Avenue Development Project
Sonoma County, California



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Appendix B

Arid West Wetland Delineation Data Sheets

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Wetland Determination Data Form - Arid West Region

Project/Site Schellinger Burbank Avenue City Santa Rosa County Sonoma Sampling Date 5/10/2018
 Applicant/Owner Schellinger Brothers State CA Sampling Point SP01
 Investigator(s) Scott Batiuk, Scott Yarger Section, Township, Range Landgrant: Cabeza de Santa Rosa
 Landform (hillslope, terrace, etc.) Santa Rosa Plain Local Relief (concave, convex, none) Concave Slope(%) 2
 Subregion(LRR) LRR C (Medit. CA) Lat: 38.42132905 Long: -122.7317651 Datum: WGS 84
 Soil Map Unit Name Yolo clay loam, 0 to 5 percent slopes, MLRA 14 NWI classification N/A

Are climatic/hydrologic conditions on-site typical for this time of year? ☒ Yes ☐ No (If no, explain in remarks)
 Are any of the following significantly disturbed? ☐ Vegetation ☐ Soil ☐ Hydrology Are "Normal Circumstances" present? ☒ Yes ☐ No
 Are any of the following naturally problematic? ☐ Vegetation ☐ Soil ☐ Hydrology (If needed, explain any answers in remarks)

SUMMARY OF FINDINGS - Attach site map showing sample point locations, transects, important features, etc.

Hydrophytic Vegetation Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Hydric Soil Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Wetland Hydrology Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Is the Sampled Area within a Wetland? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
Remarks: SP01 is a wetland sample point paired with upland sample point SP02. The sample point is located in a seasonal wetland depression. The boundary of the seasonal wetland was delineated based on shifts in topography, vegetation composition, and hydrology indicators. Precipitation levels for the preceding three month period were above normal, with a wet April and March, and a dry February. However, the overall precipitation total for the 2018 water year to date (October 1, 2017 to May 10, 2018), was normal with 23.26 inches of rainfall (75 percent of normal).	

VEGETATION (use scientific names)

TREE STRATUM	Plot Size:	N/A	Absolute % cover	Dominant Species?	Indicator Status	
1. _____						Dominance Test Worksheet Number of Dominant Species that are OBL, FACW, or FAC? <u>1</u> (A) Total number of dominant species across all strata? <u>1</u> (B) % of dominant species that are OBL, FACW, or FAC? <u>100</u> (A/B)
2. _____						
3. _____						
4. _____						
Tree Stratum Total Cover: _____						
SAPLING/SHRUB STRATUM	Plot Size:	N/A				Prevalence Index Worksheet Total % cover of: _____ Multiply by: _____ OBL species _____ x1 _____ FACW species _____ x2 _____ FAC species _____ x3 _____ FACU species _____ x4 _____ UPL species _____ x5 _____ Column Totals _____ (A) _____ (B) Prevalence Index = B/A = _____
1. _____						
2. _____						
3. _____						
4. _____						
Sapling/Shrub Stratum Total Cover: _____						
HERB STRATUM	Plot Size:	5 ft. radius				Hydrophytic Vegetation Indicators <input checked="" type="checkbox"/> Dominance Test is >50% <input type="checkbox"/> Prevalence Index is <= 3.0 ¹ <input type="checkbox"/> Morphological adaptations (provide supporting data in remarks) <input type="checkbox"/> Problematic hydrophytic vegetation ¹ (explain) ¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
1. <i>Pleuropogon californicus</i> var. <i>californicus</i>			45	Yes	OBL	
2. <i>Festuca perennis</i>			10	No	FAC	
3. _____						
4. _____						
5. _____						
6. _____						
7. _____						
8. _____						
Herb Stratum Total Cover: <u>55</u>						
WOODY VINE STRATUM	Plot Size:					Hydrophytic Vegetation Present ? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
1. _____						
2. _____						
Woody Vines Total Cover: _____						
% Bare ground in herb stratum <u>30</u> % cover of biotic crust <u>10</u>						

Remarks: Thatch is 5 percent. Sample point meets hydrophytic vegetation indicator.

SOIL

Sampling Point SP01

Profile description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)								
Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ¹		
0-16	10YR 2/2	90	5YR 3/4	10	C	M, PL	Clay loam	Prominent redox concentrations.

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix. ²Location: PL=Pore Lining, RC=Root Channel, M=Matrix

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)	Indicators for Problematic Hydric Soils ³ :
<input type="checkbox"/> Histosol (A1) <input type="checkbox"/> Histic Epipedon (A2) <input type="checkbox"/> Black Histic (A3) <input type="checkbox"/> Hydrogen Sulfide (A4) <input type="checkbox"/> Stratified Layers (A5)(LRR C) <input type="checkbox"/> 1cm Muck (A9)(LRR D) <input type="checkbox"/> Depleted Below Dark Surface (A11) <input type="checkbox"/> Thick Dark Surface (A12) <input type="checkbox"/> Sandy Mucky Mineral (S1) <input type="checkbox"/> Sandy Gleyed Matrix (S4)	<input type="checkbox"/> Sandy Redox (S5) <input type="checkbox"/> Stripped Matrix (S6) <input type="checkbox"/> Loamy Mucky Mineral (F1) <input type="checkbox"/> Loamy Gleyed Matrix (F2) <input type="checkbox"/> Depleted Matrix (F3) <input checked="" type="checkbox"/> Redox Dark Surface (F6) <input type="checkbox"/> Depleted Dark Surface (F7) <input type="checkbox"/> Redox Depressions (F8) <input type="checkbox"/> Vernal Pools (F9)
	<input type="checkbox"/> 1cm Muck (A9) (LRR C) <input type="checkbox"/> 2cm Muck (A10)(LRR B) <input type="checkbox"/> Reduced Vertic (F18) <input type="checkbox"/> Red Parent Material (TF2) <input type="checkbox"/> Other (explain in remarks)

³Indicators of hydric vegetation and wetland hydrology must be present.

Restrictive Layer (if present): Type: <u>N/A</u> Depth (inches): _____	Hydric Soil Present ? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
---	--

Remarks: Sample point meets Redox Dark Surface (F6) hydric soil indicator.

HYDROLOGY

Wetland Hydrology Indicators:	Secondary Indicators (2 or more required)
Primary Indicators (any one indicator is sufficient) <input type="checkbox"/> Surface Water (A1) <input type="checkbox"/> High Water Table (A2) <input checked="" type="checkbox"/> Saturation (A3) <input type="checkbox"/> Water Marks (B1)(Nonriverine) <input type="checkbox"/> Sediment Deposits (B2)(Nonriverine) <input checked="" type="checkbox"/> Drift Deposits (B3)(Nonriverine) <input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Water-Stained Leaves (B9)	<input type="checkbox"/> Salt Crust (B11) <input checked="" type="checkbox"/> Biotic Crust (B12) <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 PLoWed Soils (C6) <input type="checkbox"/> Other (Explain in Remarks)
Field Observations: Surface water present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth (inches): _____ Water table present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth (inches): _____ Saturation Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Depth (inches): <u>0</u> (includes capillary fringe)	<input type="checkbox"/> Water Marks (B1)(Riverine) <input type="checkbox"/> Sediment Deposits (B2)(Riverine) <input type="checkbox"/> Drift Deposits (B3)(Riverine) <input type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Dry-Season Water Table (C2) <input type="checkbox"/> Thin Muck Surface (C7) <input type="checkbox"/> Crayfish Burrows (C8) <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) <input type="checkbox"/> Shallow Aquitard (D3) <input type="checkbox"/> FAC-Neutral Test (D5)
Wetland Hydrology Present ? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
Describe recorded data (stream gauge, monitoring well, aerial photos, etc.) if available.	
Remarks: Water table not observed at 16 inches but assumed to be present due to topographic position of sample point and uniform saturation throughout soil profile.	

Wetland Determination Data Form - Arid West Region

Project/Site Schellinger Burbank Avenue City Santa Rosa County Sonoma Sampling Date 5/10/2018
 Applicant/Owner Schellinger Brothers State CA Sampling Point SP02
 Investigator(s) Scott Batiuk, Scott Yarger Section, Township, Range Landgrant: Cabeza de Santa Rosa
 Landform (hillslope, terrace, etc.) Santa Rosa Plain Local Relief (concave, convex, none) Convex Slope(%) 2
 Subregion(LRR) LRR C (Medit. CA) Lat: 38.42129672 Long: -122.7317319 Datum: WGS 84
 Soil Map Unit Name Yolo clay loam, 0 to 5 percent slopes, MLRA 14 NWI classification N/A

Are climatic/hydrologic conditions on-site typical for this time of year? ☒ Yes ☐ No (If no, explain in remarks)
 Are any of the following significantly disturbed? ☐ Vegetation ☐ Soil ☐ Hydrology Are "Normal Circumstances" present? ☒ Yes ☐ No
 Are any of the following naturally problematic? ☐ Vegetation ☐ Soil ☐ Hydrology (If needed, explain any answers in remarks)

SUMMARY OF FINDINGS - Attach site map showing sample point locations, transects, important features, etc.

Hydrophytic Vegetation Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Hydric Soil Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Wetland Hydrology Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Is the Sampled Area within a Wetland? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Remarks: SP02 is an upland sample point paired with wetland point SP01. Wetland border delineated based on change in topographic position, vegetation composition, and hydrology indicators. Precipitation levels for the preceding three month period were above normal, with a wet April, and March, and a dry February. However, the overall precipitation total for the 2018 water year to date (October 1, 2017 to May 10, 2018), was normal with 23.26 inches of rainfall (75 percent of normal).	

VEGETATION (use scientific names)

TREE STRATUM	Plot Size:	Absolute % cover	Dominant Species?	Indicator Status	
1. _____	<u>N/A</u>	_____	_____	_____	Dominance Test Worksheet Number of Dominant Species that are OBL, FACW, or FAC? <u>1</u> (A) Total number of dominant species across all strata? <u>2</u> (B) % of dominant species that are OBL, FACW, or FAC? <u>50</u> (A/B)
2. _____		_____	_____	_____	
3. _____		_____	_____	_____	
4. _____		_____	_____	_____	
Tree Stratum Total Cover: _____					
SAPLING/SHRUB STRATUM	Plot Size:				Prevalence Index Worksheet Total % cover of: _____ Multiply by: _____ OBL species _____ x1 _____ FACW species _____ x2 _____ FAC species _____ x3 _____ FACU species _____ x4 _____ UPL species _____ x5 _____ Column Totals _____ (A) _____ (B) Prevalence Index = B/A = _____
1. _____	<u>N/A</u>	_____	_____	_____	
2. _____		_____	_____	_____	
3. _____		_____	_____	_____	
4. _____		_____	_____	_____	
Sapling/Shrub Stratum Total Cover: _____					
HERB STRATUM	Plot Size:				Hydrophytic Vegetation Indicators <input type="checkbox"/> Dominance Test is >50% <input type="checkbox"/> Prevalence Index is <= 3.0 ¹ <input type="checkbox"/> Morphological adaptations (provide supporting data in remarks) <input type="checkbox"/> Problematic hydrophytic vegetation ¹ (explain) ¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
1. <i>Festuca perennis</i>	<u>5 ft. radius</u>	<u>60</u>	<u>Yes</u>	<u>FAC</u>	
2. <i>Avena fatua</i>		<u>30</u>	<u>Yes</u>	<u>NL</u>	
3. <i>Vicia sativa</i>		<u>Tr</u>	<u>No</u>	<u>FACU</u>	
4. <i>Lactuca serriola</i>		<u>Tr</u>	<u>No</u>	<u>FACU</u>	
5. _____		_____	_____	_____	
6. _____		_____	_____	_____	
7. _____		_____	_____	_____	
8. _____		_____	_____	_____	
Herb Stratum Total Cover: <u>90</u>					
WOODY VINE STRATUM	Plot Size:				
1. _____		_____	_____	_____	
2. _____		_____	_____	_____	
Woody Vines Total Cover: _____					
% Bare ground in herb stratum <u>10</u> % cover of biotic crust _____					

Remarks: Sample point does not meet hydrophytic vegetation indicator.

SOIL

Sampling Point SP02

Profile description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)								
Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ¹		
0-12	10YR 2/2	100					Clay loam.	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix. ²Location: PL=Pore Lining, RC=Root Channel, M=Matrix

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.) <input type="checkbox"/> Histosol (A1) <input type="checkbox"/> Histic Epipedon (A2) <input type="checkbox"/> Black Histic (A3) <input type="checkbox"/> Hydrogen Sulfide (A4) <input type="checkbox"/> Stratified Layers (A5)(LRR C) <input type="checkbox"/> 1cm Muck (A9)(LRR D) <input type="checkbox"/> Depleted Below Dark Surface (A11) <input type="checkbox"/> Thick Dark Surface (A12) <input type="checkbox"/> Sandy Mucky Mineral (S1) <input type="checkbox"/> Sandy Gleyed Matrix (S4)	<input type="checkbox"/> Sandy Redox (S5) <input type="checkbox"/> Stripped Matrix (S6) <input type="checkbox"/> Loamy Mucky Mineral (F1) <input type="checkbox"/> Loamy Gleyed Matrix (F2) <input type="checkbox"/> Depleted Matrix (F3) <input type="checkbox"/> Redox Dark Surface (F6) <input type="checkbox"/> Depleted Dark Surface (F7) <input type="checkbox"/> Redox Depressions (F8) <input type="checkbox"/> Vernal Pools (F9)	Indicators for Problematic Hydric Soils³: <input type="checkbox"/> 1cm Muck (A9) (LRR C) <input type="checkbox"/> 2cm Muck (A10)(LRR B) <input type="checkbox"/> Reduced Vertic (F18) <input type="checkbox"/> Red Parent Material (TF2) <input type="checkbox"/> Other (explain in remarks)
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³Indicators of hydric vegetation and wetland hydrology must be present.

Restrictive Layer (if present): Type: <u>N/A</u> Depth (inches): _____	Hydric Soil Present ? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
---	--

Remarks: No hydric soil indicators observed.

HYDROLOGY

Wetland Hydrology Indicators: Primary Indicators (any one indicator is sufficient)		Secondary Indicators (2 or more required)
<input type="checkbox"/> Surface Water (A1) <input type="checkbox"/> High Water Table (A2) <input type="checkbox"/> Saturation (A3) <input type="checkbox"/> Water Marks (B1)(Nonriverine) <input type="checkbox"/> Sediment Deposits (B2)(Nonriverine) <input type="checkbox"/> Drift Deposits (B3)(Nonriverine) <input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Water-Stained Leaves (B9)	<input type="checkbox"/> Salt Crust (B11) <input type="checkbox"/> Biotic Crust (B12) <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 PLoed Soils (C6) <input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> Water Marks (B1)(Riverine) <input type="checkbox"/> Sediment Deposits (B2)(Riverine) <input type="checkbox"/> Drift Deposits (B3)(Riverine) <input type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Dry-Season Water Table (C2) <input type="checkbox"/> Thin Muck Surface (C7) <input type="checkbox"/> Crayfish Burrows (C8) <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) <input type="checkbox"/> Shallow Aquitard (D3) <input type="checkbox"/> FAC-Neutral Test (D5)

Field Observations: Surface water present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth (inches): _____ Water table present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth (inches): _____ Saturation Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth (inches): _____ (includes capillary fringe)	Wetland Hydrology Present ? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
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Describe recorded data (stream guage, monitoring well, aerial photos, etc.) if available.

Remarks: No wetland hydrology indicators observed.

Wetland Determination Data Form - Arid West Region

Project/Site Schellinger Burbank Avenue City Santa Rosa County Sonoma Sampling Date 5/10/2018
 Applicant/Owner Schellinger Brothers State CA Sampling Point SP03
 Investigator(s) Scott Batiuk, Scott Yarger Section, Township, Range Landgrant: Cabeza de Santa Rosa
 Landform (hillslope, terrace, etc.) Santa Rosa Plain Local Relief (concave, convex, none) Concave Slope(%) 2
 Subregion(LRR) LRR C (Medit. CA) Lat: 38.42190378 Long: -122.7324483 Datum: WGS 84
 Soil Map Unit Name Clear Lake clay, sandy substratum, drained, 0 to 2 percent slopes, MLRA NWI classification N/A

Are climatic/hydrologic conditions on-site typical for this time of year? ☒ Yes ☐ No (If no, explain in remarks)
 Are any of the following significantly disturbed? ☐ Vegetation ☐ Soil ☐ Hydrology Are "Normal Circumstances" present? ☒ Yes ☐ No
 Are any of the following naturally problematic? ☐ Vegetation ☐ Soil ☐ Hydrology (If needed, explain any answers in remarks)

SUMMARY OF FINDINGS - Attach site map showing sample point locations, transects, important features, etc.

Hydrophytic Vegetation Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Hydric Soil Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Wetland Hydrology Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Is the Sampled Area within a Wetland? <input type="checkbox"/> Yes <input type="checkbox"/> No
Remarks: SP03 is a wetland sample point paired with upland point SP04. Sample point is located in a seasonal wetland depression. The border of the seasonal wetland was delineated based on shifts in topography, vegetation composition, and hydrology indicators. Precipitation levels for the preceding three month period were above normal, with a wet April, and March, and a dry February. However, the overall precipitation total for the 2018 water year to date (October 1, 2017 to May 10, 2018), was normal with 23.26 inches of rainfall (75 percent of normal).	

VEGETATION (use scientific names)

TREE STRATUM	Plot Size:	N/A	Absolute % cover	Dominant Species?	Indicator Status	
1. _____						Dominance Test Worksheet Number of Dominant Species that are OBL, FACW, or FAC? <u>1</u> (A) Total number of dominant species across all strata? <u>1</u> (B) % of dominant species that are OBL, FACW, or FAC? <u>100</u> (A/B)
2. _____						
3. _____						
4. _____						
Tree Stratum Total Cover: _____						Prevalence Index Worksheet Total % cover of: _____ Multiply by: _____ OBL species _____ x1 _____ FACW species _____ x2 _____ FAC species _____ x3 _____ FACU species _____ x4 _____ UPL species _____ x5 _____ Column Totals _____ (A) _____ (B) Prevalence Index = B/A = _____
SAPLING/SHRUB STRATUM Plot Size: N/A						
1. _____						
2. _____						
3. _____						
4. _____						
Sapling/Shrub Stratum Total Cover: _____						
HERB STRATUM Plot Size: 5 ft. radius						
1. <i>Festuca perennis</i>			85	Yes	FAC	Hydrophytic Vegetation Indicators <input checked="" type="checkbox"/> Dominance Test is >50% <input type="checkbox"/> Prevalence Index is <= 3.0 ¹ <input type="checkbox"/> Morphological adaptations (provide supporting data in remarks) <input type="checkbox"/> Problematic hydrophytic vegetation ¹ (explain) ¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
2. <i>Rumex crispus</i>			5	No	FAC	
3. <i>Hordeum marinum ssp. gussoneanum</i>			2	No	FAC	
4. _____						
5. _____						
6. _____						
7. _____						
8. _____						
Herb Stratum Total Cover: 92						
WOODY VINE STRATUM Plot Size: _____						
1. _____						Hydrophytic Vegetation Present ? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
2. _____						
Woody Vines Total Cover: _____						
% Bare ground in herb stratum <u>3</u> % cover of biotic crust <u>5</u>						

Remarks: Sample point meets hydrophytic vegetation indicator.

SOIL

Sampling Point SP03

Profile description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)							
Depth (inches)	Matrix		Redox Features			Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹		
0-4	10YR 2/2	100					Loamy clay
4-13	10YR 2/2	93	5YR 3/4	7	C	PL, M	Loamy clay

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix. ²Location: PL=Pore Lining, RC=Root Channel, M=Matrix

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.) <input type="checkbox"/> Histosol (A1) <input type="checkbox"/> Histic Epipedon (A2) <input type="checkbox"/> Black Histic (A3) <input type="checkbox"/> Hydrogen Sulfide (A4) <input type="checkbox"/> Stratified Layers (A5)(LRR C) <input type="checkbox"/> 1cm Muck (A9)(LRR D) <input type="checkbox"/> Depleted Below Dark Surface (A11) <input type="checkbox"/> Thick Dark Surface (A12) <input type="checkbox"/> Sandy Mucky Mineral (S1) <input type="checkbox"/> Sandy Gleyed Matrix (S4)	<input type="checkbox"/> Sandy Redox (S5) <input type="checkbox"/> Stripped Matrix (S6) <input type="checkbox"/> Loamy Mucky Mineral (F1) <input type="checkbox"/> Loamy Gleyed Matrix (F2) <input type="checkbox"/> Depleted Matrix (F3) <input checked="" type="checkbox"/> Redox Dark Surface (F6) <input type="checkbox"/> Depleted Dark Surface (F7) <input type="checkbox"/> Redox Depressions (F8) <input type="checkbox"/> Vernal Pools (F9)	Indicators for Problematic Hydric Soils³: <input type="checkbox"/> 1cm Muck (A9) (LRR C) <input type="checkbox"/> 2cm Muck (A10)(LRR B) <input type="checkbox"/> Reduced Vertic (F18) <input type="checkbox"/> Red Parent Material (TF2) <input type="checkbox"/> Other (explain in remarks)
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³Indicators of hydric vegetation and wetland hydrology must be present.

Restrictive Layer (if present): Type: <u>N/A</u> Depth (inches): _____	Hydric Soil Present ? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
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Remarks: Sample point meets Redox Dark Surface (F6) hydric soil indicator.

HYDROLOGY

Wetland Hydrology Indicators: Primary Indicators (any one indicator is sufficient)		Secondary Indicators (2 or more required)
<input type="checkbox"/> Surface Water (A1) <input type="checkbox"/> High Water Table (A2) <input checked="" type="checkbox"/> Saturation (A3) <input type="checkbox"/> Water Marks (B1)(Nonriverine) <input type="checkbox"/> Sediment Deposits (B2)(Nonriverine) <input type="checkbox"/> Drift Deposits (B3)(Nonriverine) <input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Water-Stained Leaves (B9)	<input type="checkbox"/> Salt Crust (B11) <input checked="" type="checkbox"/> Biotic Crust (B12) <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 PLoWed Soils (C6) <input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> Water Marks (B1)(Riverine) <input type="checkbox"/> Sediment Deposits (B2)(Riverine) <input type="checkbox"/> Drift Deposits (B3)(Riverine) <input type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Dry-Season Water Table (C2) <input type="checkbox"/> Thin Muck Surface (C7) <input type="checkbox"/> Crayfish Burrows (C8) <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) <input type="checkbox"/> Shallow Aquitard (D3) <input type="checkbox"/> FAC-Neutral Test (D5)

Field Observations: Surface water present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth (inches): _____ Water table present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth (inches): _____ Saturation Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Depth (inches): <u>0</u> (includes capillary fringe)	Wetland Hydrology Present ? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
--	--

Describe recorded data (stream guage, monitoring well, aerial photos, etc.) if available.

Remarks: Water table not observed at 16 inches but assumed to be present due to topographic position of sample point and uniform saturation throughout soil profile.

Wetland Determination Data Form - Arid West Region

Project/Site Schellinger Burbank Avenue City Santa Rosa County Sonoma Sampling Date 5/10/2018
 Applicant/Owner Schellinger Brothers State CA Sampling Point SP04
 Investigator(s) Scott Batiuk, Scott Yarger Section, Township, Range Landgrant: Cabeza de Santa Rosa
 Landform (hillslope, terrace, etc.) Santa Rosa Plain Local Relief (concave, convex, none) None Slope(%) 0
 Subregion(LRR) LRR C (Medit. CA) Lat: 38.42186373 Long: -122.7324054 Datum: WGS 84
 Soil Map Unit Name Clear Lake clay, sandy substratum, drained, 0 to 2 percent slopes, MLRA NWI classification N/A

Are climatic/hydrologic conditions on-site typical for this time of year? ☒ Yes ☐ No (If no, explain in remarks)
 Are any of the following significantly disturbed? ☐ Vegetation ☐ Soil ☐ Hydrology Are "Normal Circumstances" present? ☒ Yes ☐ No
 Are any of the following naturally problematic? ☐ Vegetation ☐ Soil ☐ Hydrology (If needed, explain any answers in remarks)

SUMMARY OF FINDINGS - Attach site map showing sample point locations, transects, important features, etc.

Hydrophytic Vegetation Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Hydric Soil Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Wetland Hydrology Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Is the Sampled Area within a Wetland? <input type="checkbox"/> Yes <input type="checkbox"/> No
Remarks: SP04 is an upland point paired with wetland sample point SP03 taken at the edge of a seasonal wetland depression in relatively flat, slightly mesic non-native annual grassland. Precipitation levels for the preceding three month period were above normal, with a wet April, and March, and a dry February. However, the overall precipitation total for the 2018 water year to date (October 1, 2017 to May 10, 2018), was normal with 23.26 inches of rainfall (75 percent of normal).	

VEGETATION (use scientific names)

TREE STRATUM	Plot Size:	Absolute % cover	Dominant Species?	Indicator Status	
1. _____	<u>N/A</u>				Dominance Test Worksheet Number of Dominant Species that are OBL, FACW, or FAC? <u>1</u> (A) Total number of dominant species across all strata? <u>1</u> (B) % of dominant species that are OBL, FACW, or FAC? <u>100</u> (A/B)
2. _____					
3. _____					
4. _____					
Tree Stratum Total Cover: _____					
SAPLING/SHRUB STRATUM	Plot Size:				Prevalence Index Worksheet Total % cover of: _____ Multiply by: _____ OBL species _____ x1 _____ FACW species _____ x2 _____ FAC species _____ x3 _____ FACU species _____ x4 _____ UPL species _____ x5 _____ Column Totals _____ (A) _____ (B) Prevalence Index = B/A = _____
1. _____	<u>N/A</u>				
2. _____					
3. _____					
4. _____					
Sapling/Shrub Stratum Total Cover: _____					
HERB STRATUM	Plot Size:				Hydrophytic Vegetation Indicators <input checked="" type="checkbox"/> Dominance Test is >50% <input type="checkbox"/> Prevalence Index is <= 3.0 ¹ <input type="checkbox"/> Morphological adaptations (provide supporting data in remarks) <input type="checkbox"/> Problematic hydrophytic vegetation ¹ (explain) ¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
1. <i>Festuca perennis</i>	<u>5 ft. radius</u>	<u>85</u>	<u>Yes</u>	<u>FAC</u>	
2. <i>Vicia sativa</i>		<u>5</u>	<u>No</u>	<u>FACU</u>	
3. <i>Bromus hordeaceus</i>		<u>Tr</u>	<u>No</u>	<u>FACU</u>	
4. _____					
5. _____					
6. _____					
7. _____					
8. _____					
Herb Stratum Total Cover: _____					
WOODY VINE STRATUM	Plot Size:				
1. _____					
2. _____					
Woody Vines Total Cover: _____					
% Bare ground in herb stratum <u>10</u> % cover of biotic crust _____					
Hydrophytic Vegetation Present ? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No					

Remarks: Sample point meets hydrophytic vegetation indicator.

SOIL

Sampling Point SP04

Profile description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)								
Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ¹		
0-14	10YR 2/2	100	5YR 3/4	Tr	C	M	Clay loam.	Trace redox concentrations.

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix. ²Location: PL=Pore Lining, RC=Root Channel, M=Matrix

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.) <input type="checkbox"/> Histosol (A1) <input type="checkbox"/> Histic Epipedon (A2) <input type="checkbox"/> Black Histic (A3) <input type="checkbox"/> Hydrogen Sulfide (A4) <input type="checkbox"/> Stratified Layers (A5)(LRR C) <input type="checkbox"/> 1cm Muck (A9)(LRR D) <input type="checkbox"/> Depleted Below Dark Surface (A11) <input type="checkbox"/> Thick Dark Surface (A12) <input type="checkbox"/> Sandy Mucky Mineral (S1) <input type="checkbox"/> Sandy Gleyed Matrix (S4)	<input type="checkbox"/> Sandy Redox (S5) <input type="checkbox"/> Stripped Matrix (S6) <input type="checkbox"/> Loamy Mucky Mineral (F1) <input type="checkbox"/> Loamy Gleyed Matrix (F2) <input type="checkbox"/> Depleted Matrix (F3) <input type="checkbox"/> Redox Dark Surface (F6) <input type="checkbox"/> Depleted Dark Surface (F7) <input type="checkbox"/> Redox Depressions (F8) <input type="checkbox"/> Vernal Pools (F9)	Indicators for Problematic Hydric Soils³: <input type="checkbox"/> 1cm Muck (A9) (LRR C) <input type="checkbox"/> 2cm Muck (A10)(LRR B) <input type="checkbox"/> Reduced Vertic (F18) <input type="checkbox"/> Red Parent Material (TF2) <input type="checkbox"/> Other (explain in remarks)
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³Indicators of hydric vegetation and wetland hydrology must be present.

Restrictive Layer (if present): Type: <u>N/A</u> Depth (inches): _____	Hydric Soil Present ? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
---	--

Remarks: Sample point contains only a trace amount of redoximorphic concentrations and does not meet any hydric soil indicator.

HYDROLOGY

Wetland Hydrology Indicators: Primary Indicators (any one indicator is sufficient)		Secondary Indicators (2 or more required)
<input type="checkbox"/> Surface Water (A1) <input type="checkbox"/> High Water Table (A2) <input type="checkbox"/> Saturation (A3) <input type="checkbox"/> Water Marks (B1)(Nonriverine) <input type="checkbox"/> Sediment Deposits (B2)(Nonriverine) <input type="checkbox"/> Drift Deposits (B3)(Nonriverine) <input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Water-Stained Leaves (B9)	<input type="checkbox"/> Salt Crust (B11) <input type="checkbox"/> Biotic Crust (B12) <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 PLoWed Soils (C6) <input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> Water Marks (B1)(Riverine) <input type="checkbox"/> Sediment Deposits (B2)(Riverine) <input type="checkbox"/> Drift Deposits (B3)(Riverine) <input type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Dry-Season Water Table (C2) <input type="checkbox"/> Thin Muck Surface (C7) <input type="checkbox"/> Crayfish Burrows (C8) <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) <input type="checkbox"/> Shallow Aquitard (D3) <input type="checkbox"/> FAC-Neutral Test (D5)

Field Observations: Surface water present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth (inches): _____ Water table present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth (inches): _____ Saturation Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth (inches): _____ (includes capillary fringe)	Wetland Hydrology Present ? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
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Describe recorded data (stream guage, monitoring well, aerial photos, etc.) if available.

Remarks: Soil sample dry. No wetland hydrology indicators observed.

Wetland Determination Data Form - Arid West Region

Project/Site Schellinger Burbank Avenue City Santa Rosa County Sonoma Sampling Date 5/10/2018
 Applicant/Owner Schellinger Brothers State CA Sampling Point SP05
 Investigator(s) Scott Batiuk, Scott Yarger Section, Township, Range Landgrant: Cabeza de Santa Rosa
 Landform (hillslope, terrace, etc.) Santa Rosa Plain Local Relief (concave, convex, none) None Slope(%) 0
 Subregion(LRR) LRR C (Medit. CA) Lat: 38.42141427 Long: -122.7342301 Datum: WGS 84
 Soil Map Unit Name Wright loam, wet, 0 to 2 percent slopes NWI classification N/A

Are climatic/hydrologic conditions on-site typical for this time of year? ☒ Yes ☐ No (If no, explain in remarks)
 Are any of the following significantly disturbed? ☐ Vegetation ☐ Soil ☐ Hydrology Are "Normal Circumstances" present? ☒ Yes ☐ No
 Are any of the following naturally problematic? ☐ Vegetation ☐ Soil ☐ Hydrology (If needed, explain any answers in remarks)

SUMMARY OF FINDINGS - Attach site map showing sample point locations, transects, important features, etc.

Hydrophytic Vegetation Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Hydric Soil Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Wetland Hydrology Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Is the Sampled Area within a Wetland? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Remarks: SP05 is an upland sample point located in a flat, slightly mesic grassland area that contained a darker aerial signature on aerial images (Google Earth 2018) than surrounding areas. Sample point meets hydrophytic vegetation indicator but lacks hydric soil and wetland hydrology. Precipitation levels for the preceding three month period were above normal, with a wet April, and March, and a dry February. However, the overall precipitation total for the 2018 water year to date (October 1, 2017 to May 10, 2018), was normal with 23.26 inches of rainfall (75 percent of normal)	

VEGETATION (use scientific names)

TREE STRATUM	Plot Size:	N/A	Absolute % cover	Dominant Species?	Indicator Status	
1. _____						Dominance Test Worksheet Number of Dominant Species that are OBL, FACW, or FAC? <u>1</u> (A) Total number of dominant species across all strata? <u>1</u> (B) % of dominant species that are OBL, FACW, or FAC? <u>100</u> (A/B)
2. _____						
3. _____						
4. _____						
Tree Stratum Total Cover: _____						
SAPLING/SHRUB STRATUM	Plot Size:	N/A				Prevalence Index Worksheet Total % cover of: _____ Multiply by: _____ OBL species _____ x1 _____ FACW species _____ x2 _____ FAC species _____ x3 _____ FACU species _____ x4 _____ UPL species _____ x5 _____ Column Totals _____ (A) _____ (B) Prevalence Index = B/A = _____
1. _____						
2. _____						
3. _____						
4. _____						
Sapling/Shrub Stratum Total Cover: _____						
HERB STRATUM	Plot Size:	5 ft. radius				Hydrophytic Vegetation Indicators <input checked="" type="checkbox"/> Dominance Test is >50% <input type="checkbox"/> Prevalence Index is <= 3.0 ¹ <input type="checkbox"/> Morphological adaptations (provide supporting data in remarks) <input type="checkbox"/> Problematic hydrophytic vegetation ¹ (explain) ¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
1. <i>Festuca perennis</i>			95	Yes	FAC	
2. <i>Convolvulus arvensis</i>			Tr	No	NL	
3. _____						
4. _____						
5. _____						
6. _____						
7. _____						
8. _____						
Herb Stratum Total Cover: <u>95</u>						
WOODY VINE STRATUM	Plot Size:					Hydrophytic Vegetation Present ? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
1. _____						
2. _____						
Woody Vines Total Cover: _____						
% Bare ground in herb stratum _____ % cover of biotic crust _____						

Remarks: Sample point meets hydrophytic vegetation indicator.

SOIL

Sampling Point SP05

Profile description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)								
Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ¹		
0-14	10YR 2/2	97	7.5YR 3/2	3	C	M, PL	Loamy clay	Faint redox concentrations.

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix. ²Location: PL=Pore Lining, RC=Root Channel, M=Matrix

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.) <input type="checkbox"/> Histosol (A1) <input type="checkbox"/> Histic Epipedon (A2) <input type="checkbox"/> Black Histic (A3) <input type="checkbox"/> Hydrogen Sulfide (A4) <input type="checkbox"/> Stratified Layers (A5)(LRR C) <input type="checkbox"/> 1cm Muck (A9)(LRR D) <input type="checkbox"/> Depleted Below Dark Surface (A11) <input type="checkbox"/> Thick Dark Surface (A12) <input type="checkbox"/> Sandy Mucky Mineral (S1) <input type="checkbox"/> Sandy Gleyed Matrix (S4)	<input type="checkbox"/> Sandy Redox (S5) <input type="checkbox"/> Stripped Matrix (S6) <input type="checkbox"/> Loamy Mucky Mineral (F1) <input type="checkbox"/> Loamy Gleyed Matrix (F2) <input type="checkbox"/> Depleted Matrix (F3) <input type="checkbox"/> Redox Dark Surface (F6) <input type="checkbox"/> Depleted Dark Surface (F7) <input type="checkbox"/> Redox Depressions (F8) <input type="checkbox"/> Vernal Pools (F9)	Indicators for Problematic Hydric Soils³: <input type="checkbox"/> 1cm Muck (A9) (LRR C) <input type="checkbox"/> 2cm Muck (A10)(LRR B) <input type="checkbox"/> Reduced Vertic (F18) <input type="checkbox"/> Red Parent Material (TF2) <input type="checkbox"/> Other (explain in remarks)
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³Indicators of hydric vegetation and wetland hydrology must be present.

Restrictive Layer (if present): Type: <u>N/A</u> Depth (inches): _____	Hydric Soil Present ? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
---	--

Remarks: Faint redox concentrations present. Sample point does not meet any hydric soil indicator.

HYDROLOGY

Wetland Hydrology Indicators: Primary Indicators (any one indicator is sufficient)		Secondary Indicators (2 or more required)
<input type="checkbox"/> Surface Water (A1) <input type="checkbox"/> High Water Table (A2) <input type="checkbox"/> Saturation (A3) <input type="checkbox"/> Water Marks (B1)(Nonriverine) <input type="checkbox"/> Sediment Deposits (B2)(Nonriverine) <input type="checkbox"/> Drift Deposits (B3)(Nonriverine) <input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Water-Stained Leaves (B9)	<input type="checkbox"/> Salt Crust (B11) <input type="checkbox"/> Biotic Crust (B12) <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 PLoWed Soils (C6) <input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> Water Marks (B1)(Riverine) <input type="checkbox"/> Sediment Deposits (B2)(Riverine) <input type="checkbox"/> Drift Deposits (B3)(Riverine) <input type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Dry-Season Water Table (C2) <input type="checkbox"/> Thin Muck Surface (C7) <input type="checkbox"/> Crayfish Burrows (C8) <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) <input type="checkbox"/> Shallow Aquitard (D3) <input type="checkbox"/> FAC-Neutral Test (D5)

Field Observations: Surface water present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth (inches): _____ Water table present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth (inches): _____ Saturation Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth (inches): _____ (includes capillary fringe)	Wetland Hydrology Present ? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
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Describe recorded data (stream guage, monitoring well, aerial photos, etc.) if available.

Remarks: No wetland hydrology indicators observed.

Wetland Determination Data Form - Arid West Region

Project/Site Schellinger Burbank Avenue City Santa Rosa County Sonoma Sampling Date 5/10/2018
 Applicant/Owner Schellinger Brothers State CA Sampling Point SP06
 Investigator(s) Scott Batiuk, Scott Yarger Section, Township, Range Landgrant: Cabeza de Santa Rosa
 Landform (hillslope, terrace, etc.) Santa Rosa Plain Local Relief (concave, convex, none) Concave Slope(%) 3
 Subregion(LRR) LRR C (Medit. CA) Lat: 38.42103436 Long: -122.7331642 Datum: WGS 84
 Soil Map Unit Name Wright loam, wet, 0 to 2 percent slopes NWI classification N/A

Are climatic/hydrologic conditions on-site typical for this time of year? ☒ Yes ☐ No (If no, explain in remarks)
 Are any of the following significantly disturbed? ☐ Vegetation ☐ Soil ☐ Hydrology Are "Normal Circumstances" present? ☒ Yes ☐ No
 Are any of the following naturally problematic? ☐ Vegetation ☒ Soil ☐ Hydrology (If needed, explain any answers in remarks)

SUMMARY OF FINDINGS - Attach site map showing sample point locations, transects, important features, etc.

Hydrophytic Vegetation Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Hydric Soil Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Wetland Hydrology Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Is the Sampled Area within a Wetland? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
Remarks: SP06 is a wetland sample point paired with upland sample point SP07. Sample point is located in a man-made, linear drainage ditch. Precipitation levels for the preceding three month period were above normal, with a wet April, and March, and a dry February. However, the overall precipitation total for the 2018 water year to date (October 1, 2017 to May 10, 2018), was normal with 23.26 inches of rainfall (75 percent of normal).	

VEGETATION (use scientific names)

TREE STRATUM	Plot Size:	N/A	Absolute % cover	Dominant Species?	Indicator Status	
1. _____						Dominance Test Worksheet Number of Dominant Species that are OBL, FACW, or FAC? <u>1</u> (A) Total number of dominant species across all strata? <u>1</u> (B) % of dominant species that are OBL, FACW, or FAC? <u>100</u> (A/B)
2. _____						
3. _____						
4. _____						
Tree Stratum Total Cover: _____						
SAPLING/SHRUB STRATUM	Plot Size:	N/A				Prevalence Index Worksheet Total % cover of: _____ Multiply by: _____ OBL species _____ x1 _____ FACW species _____ x2 _____ FAC species _____ x3 _____ FACU species _____ x4 _____ UPL species _____ x5 _____ Column Totals _____ (A) _____ (B) Prevalence Index = B/A = _____
1. _____						
2. _____						
3. _____						
4. _____						
Sapling/Shrub Stratum Total Cover: _____						
HERB STRATUM	Plot Size:	5 ft. radius				Hydrophytic Vegetation Indicators <input checked="" type="checkbox"/> Dominance Test is >50% <input type="checkbox"/> Prevalence Index is <= 3.0 ¹ <input type="checkbox"/> Morphological adaptations (provide supporting data in remarks) <input type="checkbox"/> Problematic hydrophytic vegetation ¹ (explain) ¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
1. <i>Festuca perennis</i>			65	Yes	FAC	
2. <i>Cyperus eragrostis</i>			10	No	FACW	
3. <i>Hordeum marinum ssp. gussoneanum</i>			5	No	FAC	
4. _____						
5. _____						
6. _____						
7. _____						
8. _____						
Herb Stratum Total Cover: <u>80</u>						
WOODY VINE STRATUM	Plot Size:					Hydrophytic Vegetation Present ? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
1. _____						
2. _____						
Woody Vines Total Cover: _____						
% Bare ground in herb stratum <u>15</u> % cover of biotic crust <u>5</u>						

Remarks: Sample point meets hydrophytic vegetation criterion.

SOIL

Sampling Point SP06

Profile description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)								
Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ¹		
0-12	10YR 2/2	100					Clay loam	
12-14	10YR 2/2	100					Clay loam	High cobble content. Compacted.

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix. ²Location: PL=Pore Lining, RC=Root Channel, M=Matrix

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)	Indicators for Problematic Hydric Soils ³ :
<input type="checkbox"/> Histosol (A1) <input type="checkbox"/> Histic Epipedon (A2) <input type="checkbox"/> Black Histic (A3) <input type="checkbox"/> Hydrogen Sulfide (A4) <input type="checkbox"/> Stratified Layers (A5)(LRR C) <input type="checkbox"/> 1cm Muck (A9)(LRR D) <input type="checkbox"/> Depleted Below Dark Surface (A11) <input type="checkbox"/> Thick Dark Surface (A12) <input type="checkbox"/> Sandy Mucky Mineral (S1) <input type="checkbox"/> Sandy Gleyed Matrix (S4)	<input type="checkbox"/> Sandy Redox (S5) <input type="checkbox"/> Stripped Matrix (S6) <input type="checkbox"/> Loamy Mucky Mineral (F1) <input type="checkbox"/> Loamy Gleyed Matrix (F2) <input type="checkbox"/> Depleted Matrix (F3) <input type="checkbox"/> Redox Dark Surface (F6) <input type="checkbox"/> Depleted Dark Surface (F7) <input type="checkbox"/> Redox Depressions (F8) <input type="checkbox"/> Vernal Pools (F9)
	<input type="checkbox"/> 1cm Muck (A9) (LRR C) <input type="checkbox"/> 2cm Muck (A10)(LRR B) <input type="checkbox"/> Reduced Vertic (F18) <input type="checkbox"/> Red Parent Material (TF2) <input checked="" type="checkbox"/> Other (explain in remarks)

³Indicators of hydric vegetation and wetland hydrology must be present.

Restrictive Layer (if present):	Hydric Soil Present ? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
Type: <u>Highly compacted cobble layer</u> Depth (inches): <u>14</u>	

Remarks: Soils are presumed to be hydric and are considered naturally problematic. The man-made, linear ditch feature contains hydrophytic vegetation and indicators of wetland hydrology, but this feature may lack hydric soil indicators due to seasonal ponding and limited saturation depth.

HYDROLOGY

Wetland Hydrology Indicators:	Secondary Indicators (2 or more required)
Primary Indicators (any one indicator is sufficient) <input type="checkbox"/> Surface Water (A1) <input type="checkbox"/> High Water Table (A2) <input type="checkbox"/> Saturation (A3) <input type="checkbox"/> Water Marks (B1)(Nonriverine) <input type="checkbox"/> Sediment Deposits (B2)(Nonriverine) <input type="checkbox"/> Drift Deposits (B3)(Nonriverine) <input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Water-Stained Leaves (B9)	<input type="checkbox"/> Salt Crust (B11) <input checked="" type="checkbox"/> Biotic Crust (B12) <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 PLoWed Soils (C6) <input type="checkbox"/> Other (Explain in Remarks)
Field Observations: Surface water present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth (inches): _____ Water table present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth (inches): _____ Saturation Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth (inches): _____ (includes capillary fringe)	<input type="checkbox"/> Water Marks (B1)(Riverine) <input type="checkbox"/> Sediment Deposits (B2)(Riverine) <input type="checkbox"/> Drift Deposits (B3)(Riverine) <input type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Dry-Season Water Table (C2) <input type="checkbox"/> Thin Muck Surface (C7) <input type="checkbox"/> Crayfish Burrows (C8) <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) <input type="checkbox"/> Shallow Aquitard (D3) <input type="checkbox"/> FAC-Neutral Test (D5)
Describe recorded data (stream guage, monitoring well, aerial photos, etc.) if available.	
Remarks: Sample point meets biotic crust (B12) wetland hydrology indicator.	

Wetland Determination Data Form - Arid West Region

Project/Site Schellinger Burbank Avenue City Santa Rosa County Sonoma Sampling Date 5/10/2018
 Applicant/Owner Schellinger Brothers State CA Sampling Point SP07
 Investigator(s) Scott Batiuk, Scott Yarger Section, Township, Range Landgrant: Cabeza de Santa Rosa
 Landform (hillslope, terrace, etc.) Santa Rosa Plain Local Relief (concave, convex, none) None Slope(%) 0
 Subregion(LRR) LRR C (Medit. CA) Lat: 38.42102583 Long: -122.733123 Datum: WGS 84
 Soil Map Unit Name Wright loam, wet, 0 to 2 percent slopes NWI classification N/A

Are climatic/hydrologic conditions on-site typical for this time of year? ☒ Yes ☐ No (If no, explain in remarks)
 Are any of the following significantly disturbed? ☐ Vegetation ☐ Soil ☐ Hydrology Are "Normal Circumstances" present? ☒ Yes ☐ No
 Are any of the following naturally problematic? ☐ Vegetation ☐ Soil ☐ Hydrology (If needed, explain any answers in remarks)

SUMMARY OF FINDINGS - Attach site map showing sample point locations, transects, important features, etc.

Hydrophytic Vegetation Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Hydric Soil Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Wetland Hydrology Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Is the Sampled Area within a Wetland? <input type="checkbox"/> Yes <input type="checkbox"/> No
Remarks: SP07 is an upland sample point paired with wetland sample point SP06. Sample point is located near the edge of a man-made, linear drainage ditch. Precipitation levels for the preceding three month period were above normal, with a wet April, and March, and a dry February. However, the overall precipitation total for the 2018 water year to date (October 1, 2017 to May 10, 2018), was normal with 23.26 inches of rainfall (75 percent of normal).	

VEGETATION (use scientific names)

TREE STRATUM	Plot Size:	Absolute % cover	Dominant Species?	Indicator Status	
1. _____	<u>N/A</u>	_____	_____	_____	Dominance Test Worksheet Number of Dominant Species that are OBL, FACW, or FAC? <u>1</u> (A) Total number of dominant species across all strata? <u>1</u> (B) % of dominant species that are OBL, FACW, or FAC? <u>100</u> (A/B)
2. _____		_____	_____	_____	
3. _____		_____	_____	_____	
4. _____		_____	_____	_____	
Tree Stratum Total Cover: _____					
SAPLING/SHRUB STRATUM	Plot Size:				Prevalence Index Worksheet Total % cover of: _____ Multiply by: _____ OBL species _____ x1 _____ FACW species _____ x2 _____ FAC species _____ x3 _____ FACU species _____ x4 _____ UPL species _____ x5 _____ Column Totals _____ (A) _____ (B) Prevalence Index = B/A = _____
1. _____	<u>N/A</u>	_____	_____	_____	
2. _____		_____	_____	_____	
3. _____		_____	_____	_____	
4. _____		_____	_____	_____	
Sapling/Shrub Stratum Total Cover: _____					
HERB STRATUM	Plot Size:				Hydrophytic Vegetation Indicators <input checked="" type="checkbox"/> Dominance Test is >50% <input type="checkbox"/> Prevalence Index is <= 3.0 ¹ <input type="checkbox"/> Morphological adaptations (provide supporting data in remarks) <input type="checkbox"/> Problematic hydrophytic vegetation ¹ (explain) ¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
1. <i>Festuca perennis</i>	<u>5 ft. radius</u>	<u>80</u>	<u>Yes</u>	<u>FAC</u>	
2. <i>Avena fatua</i>		<u>7</u>	<u>No</u>	<u>NL</u>	
3. _____		_____	_____	_____	
4. _____		_____	_____	_____	
5. _____		_____	_____	_____	
6. _____		_____	_____	_____	
7. _____		_____	_____	_____	
8. _____		_____	_____	_____	
Herb Stratum Total Cover: <u>87</u>					
WOODY VINE STRATUM	Plot Size:				Hydrophytic Vegetation Present ? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
1. _____		_____	_____	_____	
2. _____		_____	_____	_____	
Woody Vines Total Cover: _____					
% Bare ground in herb stratum <u>0</u> % cover of biotic crust _____					

Remarks: Thatch is 13 percent.

SOIL

Sampling Point SP07

Profile description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)								
Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ¹		
0-12	10YR 2/2	100					Clay loam	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix. ²Location: PL=Pore Lining, RC=Root Channel, M=Matrix

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.) <input type="checkbox"/> Histosol (A1) <input type="checkbox"/> Histic Epipedon (A2) <input type="checkbox"/> Black Histic (A3) <input type="checkbox"/> Hydrogen Sulfide (A4) <input type="checkbox"/> Stratified Layers (A5)(LRR C) <input type="checkbox"/> 1cm Muck (A9)(LRR D) <input type="checkbox"/> Depleted Below Dark Surface (A11) <input type="checkbox"/> Thick Dark Surface (A12) <input type="checkbox"/> Sandy Mucky Mineral (S1) <input type="checkbox"/> Sandy Gleyed Matrix (S4)	<input type="checkbox"/> Sandy Redox (S5) <input type="checkbox"/> Stripped Matrix (S6) <input type="checkbox"/> Loamy Mucky Mineral (F1) <input type="checkbox"/> Loamy Gleyed Matrix (F2) <input type="checkbox"/> Depleted Matrix (F3) <input type="checkbox"/> Redox Dark Surface (F6) <input type="checkbox"/> Depleted Dark Surface (F7) <input type="checkbox"/> Redox Depressions (F8) <input type="checkbox"/> Vernal Pools (F9)	Indicators for Problematic Hydric Soils³: <input type="checkbox"/> 1cm Muck (A9) (LRR C) <input type="checkbox"/> 2cm Muck (A10)(LRR B) <input type="checkbox"/> Reduced Vertic (F18) <input type="checkbox"/> Red Parent Material (TF2) <input type="checkbox"/> Other (explain in remarks)
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³Indicators of hydric vegetation and wetland hydrology must be present.

Restrictive Layer (if present): Type: <u>N/A</u> Depth (inches): _____	Hydric Soil Present ? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
---	--

Remarks: Sample point does not meet hydric soil indicators.

HYDROLOGY

Wetland Hydrology Indicators: Primary Indicators (any one indicator is sufficient)		Secondary Indicators (2 or more required)
<input type="checkbox"/> Surface Water (A1) <input type="checkbox"/> High Water Table (A2) <input type="checkbox"/> Saturation (A3) <input type="checkbox"/> Water Marks (B1)(Nonriverine) <input type="checkbox"/> Sediment Deposits (B2)(Nonriverine) <input type="checkbox"/> Drift Deposits (B3)(Nonriverine) <input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Water-Stained Leaves (B9)		<input type="checkbox"/> Salt Crust (B11) <input type="checkbox"/> Biotic Crust (B12) <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 PLoWed Soils (C6) <input type="checkbox"/> Other (Explain in Remarks)
Field Observations: Surface water present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth (inches): _____ Water table present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth (inches): _____ Saturation Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth (inches): _____ (includes capillary fringe)		Wetland Hydrology Present ? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Describe recorded data (stream guage, monitoring well, aerial photos, etc.) if available.		
Remarks: Sample point does not contain wetland hydrology indicators.		

Wetland Determination Data Form - Arid West Region

Project/Site Schellinger Burbank Avenue City Santa Rosa County Sonoma Sampling Date 5/10/2018
 Applicant/Owner Schellinger Brothers State CA Sampling Point SP08
 Investigator(s) Scott Batiuk, Scott Yarger Section, Township, Range Landgrant: Cabeza de Santa Rosa
 Landform (hillslope, terrace, etc.) Santa Rosa Plain Local Relief (concave, convex, none) None Slope(%) 0
 Subregion(LRR) LRR C (Medit. CA) Lat: 38.41994468 Long: -122.7322601 Datum: WGS 84
 Soil Map Unit Name Clear Lake clay, sandy substratum, drained, 0 to 2 percent slopes, MLRA NWI classification N/A

Are climatic/hydrologic conditions on-site typical for this time of year? ☒ Yes ☐ No (If no, explain in remarks)
 Are any of the following significantly disturbed? ☐ Vegetation ☐ Soil ☐ Hydrology Are "Normal Circumstances" present? ☒ Yes ☐ No
 Are any of the following naturally problematic? ☐ Vegetation ☐ Soil ☐ Hydrology (If needed, explain any answers in remarks)

SUMMARY OF FINDINGS - Attach site map showing sample point locations, transects, important features, etc.

Hydrophytic Vegetation Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Hydric Soil Present? <input type="checkbox"/> Yes <input type="checkbox"/> No Wetland Hydrology Present? <input type="checkbox"/> Yes <input type="checkbox"/> No	Is the Sampled Area within a Wetland? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Remarks: Sample point is located in the middle of a field with a slightly darker aerial signature (Google Earth 2018). Precipitation levels for the preceding three month period were above normal, with a wet April, and March, and a dry February. However, the overall precipitation total for the 2018 water year to date (October 1, 2017 to May 10, 2018), was normal with 23.26 inches of rainfall (75 percent of normal).	

VEGETATION (use scientific names)

TREE STRATUM	Plot Size:	N/A	Absolute % cover	Dominant Species?	Indicator Status	
1. _____						Dominance Test Worksheet Number of Dominant Species that are OBL, FACW, or FAC? <u>0</u> (A) Total number of dominant species across all strata? <u>1</u> (B) % of dominant species that are OBL, FACW, or FAC? <u>0</u> (A/B)
2. _____						
3. _____						
4. _____						
Tree Stratum Total Cover: _____						Prevalence Index Worksheet Total % cover of: _____ Multiply by: _____ OBL species _____ x1 _____ FACW species _____ x2 _____ FAC species _____ x3 _____ FACU species _____ x4 _____ UPL species _____ x5 _____ Column Totals _____ (A) _____ (B) Prevalence Index = B/A = _____
SAPLING/SHRUB STRATUM Plot Size: N/A						
1. _____						
2. _____						
3. _____						
4. _____						
Sapling/Shrub Stratum Total Cover: _____						
HERB STRATUM Plot Size: 5 ft. radius						Hydrophytic Vegetation Indicators <input type="checkbox"/> Dominance Test is >50% <input type="checkbox"/> Prevalence Index is <= 3.0 ¹ <input type="checkbox"/> Morphological adaptations (provide supporting data in remarks) <input type="checkbox"/> Problematic hydrophytic vegetation ¹ (explain) ¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
1. <u>Avena fatua</u>		90	Yes	NL		
2. <u>Festuca perennis</u>		2	No	FAC		
3. <u>Bromus diandrus</u>		Tr	No	NL		
4. <u>Rumex crispus</u>		Tr	No	FAC		
5. <u>Hordeum marinum ssp. gussoneanum</u>		Tr	No	FAC		
6. <u>Convolvulus arvensis</u>		Tr	No	NL		
7. <u>Bromus hordeaceus</u>		Tr	No	FACU		
8. _____						
Herb Stratum Total Cover: _____						
WOODY VINE STRATUM Plot Size: _____						Hydrophytic Vegetation Present ? <input type="checkbox"/> Yes <input type="checkbox"/> No
1. _____						
2. _____						
Woody Vines Total Cover: _____						
% Bare ground in herb stratum _____ % cover of biotic crust _____						

Remarks:

SOIL

Sampling Point SP08

Profile description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)								
Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ¹		
0-12	10YR 3/1	100					Clay loam	Gravelly.

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix. ²Location: PL=Pore Lining, RC=Root Channel, M=Matrix

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.) <input type="checkbox"/> Histosol (A1) <input type="checkbox"/> Histic Epipedon (A2) <input type="checkbox"/> Black Histic (A3) <input type="checkbox"/> Hydrogen Sulfide (A4) <input type="checkbox"/> Stratified Layers (A5)(LRR C) <input type="checkbox"/> 1cm Muck (A9)(LRR D) <input type="checkbox"/> Depleted Below Dark Surface (A11) <input type="checkbox"/> Thick Dark Surface (A12) <input type="checkbox"/> Sandy Mucky Mineral (S1) <input type="checkbox"/> Sandy Gleyed Matrix (S4)	<input type="checkbox"/> Sandy Redox (S5) <input type="checkbox"/> Stripped Matrix (S6) <input type="checkbox"/> Loamy Mucky Mineral (F1) <input type="checkbox"/> Loamy Gleyed Matrix (F2) <input type="checkbox"/> Depleted Matrix (F3) <input type="checkbox"/> Redox Dark Surface (F6) <input type="checkbox"/> Depleted Dark Surface (F7) <input type="checkbox"/> Redox Depressions (F8) <input type="checkbox"/> Vernal Pools (F9)	Indicators for Problematic Hydric Soils³: <input type="checkbox"/> 1cm Muck (A9) (LRR C) <input type="checkbox"/> 2cm Muck (A10)(LRR B) <input type="checkbox"/> Reduced Vertic (F18) <input type="checkbox"/> Red Parent Material (TF2) <input type="checkbox"/> Other (explain in remarks)
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³Indicators of hydric vegetation and wetland hydrology must be present.

Restrictive Layer (if present): Type: <u>N/A</u> Depth (inches): _____	Hydric Soil Present ? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
---	--

Remarks: Sample point does not meet hydric soil indicators.

HYDROLOGY

Wetland Hydrology Indicators: Primary Indicators (any one indicator is sufficient)		Secondary Indicators (2 or more required)
<input type="checkbox"/> Surface Water (A1) <input type="checkbox"/> High Water Table (A2) <input type="checkbox"/> Saturation (A3) <input type="checkbox"/> Water Marks (B1)(Nonriverine) <input type="checkbox"/> Sediment Deposits (B2)(Nonriverine) <input type="checkbox"/> Drift Deposits (B3)(Nonriverine) <input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Water-Stained Leaves (B9)	<input type="checkbox"/> Salt Crust (B11) <input type="checkbox"/> Biotic Crust (B12) <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 PLoWed Soils (C6) <input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> Water Marks (B1)(Riverine) <input type="checkbox"/> Sediment Deposits (B2)(Riverine) <input type="checkbox"/> Drift Deposits (B3)(Riverine) <input type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Dry-Season Water Table (C2) <input type="checkbox"/> Thin Muck Surface (C7) <input type="checkbox"/> Crayfish Burrows (C8) <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) <input type="checkbox"/> Shallow Aquitard (D3) <input type="checkbox"/> FAC-Neutral Test (D5)

Field Observations: Surface water present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth (inches): _____ Water table present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth (inches): _____ Saturation Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth (inches): _____ (includes capillary fringe)	Wetland Hydrology Present ? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
---	--

Describe recorded data (stream guage, monitoring well, aerial photos, etc.) if available.

Remarks: No hydrology indicators observed.

Appendix C

Representative Photographs of the Study Area

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Photograph 1. Photograph depicting seasonal wetland SW-1, dominated by annual semaphore grass (*Pleuropogon californicus* var. *californicus*, OBL).



Photograph 2. Photograph depicting wetland soil sample at SP01 (SW-1), which meets Redox Dark Surface (F6) hydric soil indicator.



Photograph 3. Photograph depicting wetland sample point SP03, located in seasonal wetland SW-2. The seasonal wetland is dominated by Italian ryegrass (*Festuca perennis*, FAC).



Photograph 4. Photograph depicting typical uplands within the Study Area dominated by non-native annual grasses including wild oats (*Avena fatua*, NL), and slim oat (*A. barbata*, NL).



Photograph 4. Photograph depicting wetland point SP06 located in seasonal wetland ditch SWD-1.



Photograph 5. Photograph depicting upland sample point SP05. Sample point was taken in a slightly mesic grassland area with a slightly darker aerial signature than surrounding areas. The sample point was dominated by Italian ryegrass (*Festuca perennis*, FAC), but did not contain wetland hydrology or hydric soil indicators.

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Appendix D

Plant Species Observed in the Study Area

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Appendix D. Plant Species Observed in the Study Area on May 10, 2018.

Family	Scientific Name	Common Name	Origin	Form	Wetland Indicator Status¹
Amaranthaceae	<i>Amaranthus albus</i>	Amaranth	non-native	annual herb	FACU
Amaranthaceae	<i>Amaranthus deflexus</i>	Large fruited amaranth	non-native	annual herb	-
Anacardiaceae	<i>Toxicodendron diversilobum</i>	Poison oak	native	vine, shrub	FACU
Apiaceae	<i>Daucus carota</i>	Carrot	non-native (invasive)	perennial herb	UPL
Apiaceae	<i>Daucus pusillus</i>	Wild carrot	native	annual herb	-
Apiaceae	<i>Foeniculum vulgare</i>	Fennel	non-native (invasive)	perennial herb	-
Apocynaceae	<i>Nerium oleander</i>	Oleander	non-native (invasive)	tree	-
Asparagaceae	<i>Asparagus officinalis</i> ssp. <i>officinalis</i>	Asparagus	non-native	perennial herb	FACU
Asteraceae	<i>Baccharis pilularis</i> ssp. <i>consanguinea</i>	Coyote brush	native	shrub	-
Asteraceae	<i>Centaurea calcitrapa</i>	Purple star thistle	non-native (invasive)	annual, perennial herb	-
Asteraceae	<i>Centaurea solstitialis</i>	Yellow starthistle	non-native (invasive)	annual herb	-
Asteraceae	<i>Cichorium intybus</i>	Chicory	non-native	perennial herb	FACU

Family	Scientific Name	Common Name	Origin	Form	Wetland Indicator Status¹
Asteraceae	<i>Erigeron canadensis</i>	Canada horseweed	native	annual herb	FACU
Asteraceae	<i>Helminthotheca echinoides</i>	Bristly ox-tongue	non-native (invasive)	annual, perennial herb	FAC
Asteraceae	<i>Hypochaeris glabra</i>	Smooth cats ear	non-native (invasive)	annual herb	-
Asteraceae	<i>Lactuca serriola</i>	Prickly lettuce	non-native (invasive)	annual herb	FACU
Asteraceae	<i>Pseudognaphalium luteoalbum</i>	Jersey cudweed	non-native	annual herb	FAC
Asteraceae	<i>Sonchus asper</i> ssp. <i>asper</i>	Sow thistle	non-native (invasive)	annual herb	FAC
Asteraceae	<i>Sonchus oleraceus</i>	Sow thistle	non-native	annual herb	UPL
Asteraceae	<i>Taraxacum officinale</i>	Red seeded dandelion	non-native (invasive)	perennial herb	FACU
Asteraceae	<i>Tragopogon porrifolius</i>	Salsify	non-native	perennial herb	-
Asteraceae	<i>Xanthium spinosum</i>	Spiny cocklebur	native	annual herb	FACU
Brassicaceae	<i>Brassica nigra</i>	Black mustard	non-native (invasive)	annual herb	-
Brassicaceae	<i>Capsella bursa-pastoris</i>	Shepherd's purse	non-native	annual herb	FACU
Brassicaceae	<i>Cardamine hirsuta</i>	Hairy bitter cress	non-native	annual herb	FACU

Family	Scientific Name	Common Name	Origin	Form	Wetland Indicator Status ¹
Brassicaceae	<i>Hirschfeldia incana</i>	Mustard	non-native (invasive)	perennial herb	-
Brassicaceae	<i>Lepidium latifolium</i>	Perennial pepperweed	non-native (invasive)	perennial herb	FAC
Brassicaceae	<i>Raphanus sativus</i>	Jointed charlock	non-native (invasive)	annual, biennial herb	-
Cactaceae	<i>Opuntia ficus-indica</i>	Tuna	non-native	shrub (stem succulent)	-
Caryophyllaceae	<i>Spergularia rubra</i>	Purple sand spurry	non-native	annual, perennial herb	FAC
Chenopodiaceae	<i>Atriplex prostrata</i>	Fat-hen	non-native	annual herb	FACW
Convolvulaceae	<i>Convolvulus arvensis</i>	Field bindweed	non-native (invasive)	perennial herb, vine	-
Crassulaceae	<i>Crassula connata</i>	Sand pygmy weed	native	annual herb	FAC
Cyperaceae	<i>Cyperus eragrostis</i>	Tall cyperus	native	perennial grasslike herb	FACW
Dipsacaceae	<i>Dipsacus sativus</i>	Indian teasel	non-native (invasive)	biennial herb	-
Euphorbiaceae	<i>Croton setiger</i>	Turkey-mullein	native	perennial herb	-

Family	Scientific Name	Common Name	Origin	Form	Wetland Indicator Status¹
Euphorbiaceae	<i>Euphorbia maculata</i>	Spotted spurge	non-native	annual herb	UPL
Euphorbiaceae	<i>Euphorbia</i> sp.	-	-	-	-
Fagaceae	<i>Quercus agrifolia</i>	Coast live oak	native	tree	-
Fagaceae	<i>Quercus lobata</i>	Valley oak	native	tree	FACU
Geraniaceae	<i>Erodium moschatum</i>	Whitestem filaree	non-native (invasive)	annual herb	-
Juglandaceae	<i>Juglans regia</i>	English walnut	non-native	tree	-
Juncaceae	<i>Juncus bufonius</i>	Common toad rush	native	annual grasslike herb	FACW
Juncaginaceae	<i>Triglochin maritima</i>	Seaside arrow grass	native	perennial herb (aquatic)	OBL
Lythraceae	<i>Lythrum hyssopifolia</i>	Hyssop loosestrife	non-native	annual, perennial herb	OBL
Malvaceae	<i>Malva</i> sp.	-	-	-	-
Moraceae	<i>Morus alba</i>	Mulberry	non-native	tree	FACU
Onagraceae	<i>Epilobium brachycarpum</i>	Willow herb	native	annual herb	-

Family	Scientific Name	Common Name	Origin	Form	Wetland Indicator Status¹
Onagraceae	<i>Epilobium ciliatum</i>	Slender willow herb	native	perennial herb	FACW
Papaveraceae	<i>Eschscholzia californica</i>	California poppy	native	annual, perennial herb	-
Phrymaceae	<i>Mimulus latidens</i>	Broad toothed monkeyflower	native	annual herb	OBL
Plantaginaceae	<i>Kickxia elatine</i>	Sharp point fluellin	non-native	perennial herb	UPL
Plantaginaceae	<i>Plantago lanceolata</i>	Ribwort	non-native (invasive)	perennial herb	FAC
Plantaginaceae	<i>Plantago major</i>	Common plantain	non-native	perennial herb	FAC
Poaceae	<i>Alopecurus pratensis</i>	Meadow foxtail	non-native	perennial grass	FACW
Poaceae	<i>Avena barbata</i>	Slim oat	non-native (invasive)	annual, perennial grass	-
Poaceae	<i>Briza minor</i>	Little rattlesnake grass	non-native	annual grass	FAC
Poaceae	<i>Bromus diandrus</i>	Ripgut brome	non-native (invasive)	annual grass	-
Poaceae	<i>Bromus hordeaceus</i>	Soft chess	non-native (invasive)	annual grass	FACU
Poaceae	<i>Cynodon dactylon</i>	Bermuda grass	non-native (invasive)	perennial grass	FACU

Family	Scientific Name	Common Name	Origin	Form	Wetland Indicator Status¹
Poaceae	<i>Digitaria sanguinalis</i>	Crabgrass	non-native	annual grass	FACU
Poaceae	<i>Elymus triticoides</i>	Beardless wild rye	native	perennial grass	FAC
Poaceae	<i>Festuca arundinacea</i>	Reed fescue	non-native (invasive)	perennial grass	FACU
Poaceae	<i>Festuca bromoides</i>	Brome fescue	non-native	annual grass	FACU
Poaceae	<i>Festuca perennis</i>	Italian rye grass	non-native	annual, perennial grass	FAC
Poaceae	<i>Hordeum marinum</i> ssp. <i>gussoneanum</i>	Barley	non-native (invasive)	annual grass	FAC
Poaceae	<i>Phalaris aquatica</i>	Harding grass	non-native (invasive)	perennial grass	FACU
Poaceae	<i>Pleuropogon californicus</i> var. <i>californicus</i>	Annual semaphoregrass	native	annual grass	OBL
Poaceae	<i>Poa annua</i>	Annual blue grass	non-native	annual grass	FAC
Poaceae	<i>Polypogon monspeliensis</i>	Annual beard grass	non-native (invasive)	annual grass	FACW
Polygonaceae	<i>Polygonum aviculare</i>	Prostrate knotweed	non-native	annual, perennial herb	FAC

Family	Scientific Name	Common Name	Origin	Form	Wetland Indicator Status¹
Polygonaceae	<i>Rumex acetosella</i>	Sheep sorrel	non-native (invasive)	perennial herb	FACU
Polygonaceae	<i>Rumex californicus</i>	California dock	native	perennial herb	FACW
Polygonaceae	<i>Rumex crispus</i>	Curly dock	non-native (invasive)	perennial herb	FAC
Portulacaceae	<i>Portulaca oleracea</i>	Common purslane	non-native	annual herb	FAC
Rosaceae	<i>Prunus cerasifera</i>	Cherry plum	non-native (invasive)	tree	-
Rosaceae	<i>Prunus dulcis</i>	Almond	non-native	tree	-
Rosaceae	<i>Rubus armeniacus</i>	Himalayan blackberry	non-native (invasive)	shrub	FAC
Verbenaceae	<i>Phyla nodiflora</i>	Common lippia	native	perennial herb	FACW

All species identified using the *Jepson Manual II: Vascular Plants of California* (Baldwin et al. 2012), *Jepson eFlora* (Jepson Flora Project [eds.] 2017), and *A Flora of Sonoma County* (Best et al. 1996); Nomenclature follows *Jepson eFlora*.

¹Lichvar, R.W.,D.L., Banks, N.C. Melvin, and W.N. Kirchner. 2016. The National Wetland Plant List: 2016 Wetland Ratings. Phytoneuron 2016-30: 1-17

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Appendix E

WETS Analysis Worksheets

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WETS historic data from climate station: Santa Rosa

2018 Observed rainfall data from climate station: Santa Rosa

Date of site visit: May 10, 2018

		Rainfall Data from WETS							
	Month	3 yrs in 10 less than	Average	3 yrs in 10 more than	Observed rainfall (inches)	Condition (dry, wet, normal)	Condition Value	Weighting factor	product of previous two columns
1st month prior	April	0.91	1.74	2.13	4.22	wet	3	3	9
2nd month prior	March	1.97	4.74	5.77	6.82	wet	3	2	6
3rd month prior	February	2.67	5.97	7.28	0.3	dry	1	1	1
								SUM=	16

Note: If sum is:

6-9	prior period has been drier than normal
10-14	prior period has been normal
15-18	prior period has been wetter than normal

Condition Values: Dry=1
Normal=2
Wet=3