DRAFT AQUATIC RESOURCE DELINEATION REPORT

7340 28th Street, Rio Linda, CA
June 12, 2022

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1. Executive Summary

The County of Sacramento requires Pulltail, Inc. to provide an Aquatic Resource Delineation study prior to the construction of a truck trailer storage facility at the proposed Project site located at 7340 28th Street, Rio Linda, CA 95673. Pulltail, Inc. has tasked Soar Environmental Consulting Inc. to provide the Aquatic Resource Delineation study. Preliminary data was collected prior to the initial site visit. The Aquatic Resource Delineation was performed in accordance with the United States Army Corps of Engineers *1987 Corps of Engineers Wetlands Delineation Manual*, the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region (Version 2.0)*. Hydrophytic vegetation, wetland hydrology, and hydric soils were examined to determine the presence of potential wetlands as defined by the U.S. Army Corps of Engineers. On June 10 and June 12, Soar Environmental Consulting Inc. biologist, Danielle Aparicio, conducted the field site visit to delineate all potential wetlands. The findings of each parameter (hydrophytic vegetation, wetland hydrology, and hydric soils) and corresponding indicators are evaluated and described in this report.

Two potential jurisdictional wetlands, 0.27-acres total, were evaluated and delineated on site.

A stormwater drainage runs along the entire length of the southern Project boundary then turns northwest and runs across the Project site, exiting onto the roadside ditch along the western boundary. An isolated swale is located against the eastern Project boundary. The two wetland features are unlikely to be defined as jurisdictional waters under the Clean Water Act, Section 404 as neither wetland is connected to or adjacent to jurisdictional waters, though the final decision will be made by the United State Army Corps of Engineers.

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Acronyms and Abbreviations

CWA	Clean Water Act
NRCS	Natural Resources Conservation Service
NWPL	National Wetland Plant List
OHWM	ordinary high water mark
USACE	United States Army Corps of Engineers
USDA	United States Department of Agriculture
USFWS	United States Fish and Wildlife Service
USGS	United States Geologic Survey
WETS	Climate Analysis for Wetlands
WOTUS	Waters of the United States

2. Introduction

2.1. Purpose and Scope of Report

Pulltail, Inc. (Client) proposes to obtain a grading permit to construct a truck trailer storage facility (Project) at 7340 28th Street, Rio Linda, CA 95673, on a 10-acre lot. Sacramento County (County), per the California Environmental Quality Act (CEQA), requires the Client to provide multiple environmental technical studies, including an Aquatic Resource Delineation study. The County will use the technical studies in its review for granting a grading permit. The Client contracted Soar Environmental Consulting, Inc. (Soar Environmental) to perform an Aquatic Resource Delineation of the Project site in accordance with Section 404 of the Clean Water Act (CWA).

On June 10 and June 12, 2022, Soar Environmental biologist, Danielle Aparicio, conducted a wetland delineation for potential aquatic resources within the 10-acre Project site. The purpose of this survey was to document the location and extent of waters, including wetlands, that may qualify as jurisdictional Waters of the United States (WOTUS) by the U.S. Army Corps of Engineers (USACE) and to avoid or minimize impacts to aquatic resources during the design and construction of the Project. For purposes of Section 10 of the Rivers and Harbors Act of 1899, the lateral limits of jurisdiction over non-tidal water bodies extend to the ordinary high water mark (OHWM), in the absence of adjacent wetlands. When adjacent wetlands are present, CWA Section 404 jurisdiction extends beyond the OHWM to the limits of the adjacent wetlands.

The delineation was conducted in accordance with the *1987 Corps of Engineers Wetlands Delineation Manual*, the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region (Version 2.0)* (USACE 2008b), and the 2008 *A Field Guide to the Identification of the Ordinary High Water Mark in the Arid West Region of the Western United States* (USACE 2008a). The USACE is ultimately responsible for determining the limits of the jurisdiction, and this report has been prepared to assist the USACE with their final determination.

2.2. Project Site Location

The Project site is located at 7340 28th Street, Rio Linda, in Sacramento County, California, APN 208-0071-008, Township 10 North, Range 5 East of the Mount Diablo Principal Meridian, USGS 7.5-minute Rio Linda Quadrangle. The Project site is surrounded by residential properties to the north and west, trailer and boat storage facilities to the east and south, and open fields to the SW corner.

To reach the Project site from the CA-99, take I-80 E, exit Watt Ave and head north, left on Elkhorn Blvd, right onto 28th Street.

3. Methodology

On June 10 and June 12, 2022, Soar Environmental biologist Danielle Aparicio performed a survey for wetland delineation purposes on the Project property. The survey was performed in accordance with USACE guidelines and consisted of preliminary data research, a field survey, and GPS boundary determination and digital mapping using ArcGIS Collector and ArcGIS ESRI.

3.1. Preliminary Data Gathering

Prior to conducting the field survey, the following information sources were reviewed:

- USGS 7.5-degree minute topographic quadrangle maps and Google Earth aerial photography;
- USDA NRCS web soil survey maps;
- United States Fish and Wildlife Service (USFWS) National Wetland Inventory (NWI) Maps;
- NRCS WETS Table using data from Sacramento Metropolitan Airport station;
- USACE National Wetland Plant List 2016 (Lichvar e al. 2016), in the Sacramento District

3.2. Determination Procedures

The purpose of the field determination was to identify all water features that are subject to federal jurisdiction within the Project area and, if present, to determine the boundary of each water feature.

The biologist surveyed within the Project boundary for any aquatic resource, searching for indicators of any potential wetlands in accordance with the *1987 USACE Wetlands Delineation Manual* and *Arid West Regional Supplement*. A subject area was determined to be a wetland if all three required parameters (hydrophytic vegetation, wetland hydrology, hydric soils) were present. At a minimum, one positive indicator for each parameter must be found to make a positive wetland determination. Ms. Aparicio searched for changes in land topography, vegetation, and hydrology indicators that could potentially constitute a positive wetland indicator. Paired soil pits were dug near boundary lines where potential wetland and upland habitats were observed.

4. Site Conditions

The 10-acre Project area was surveyed and field verified by walking transects. The primary plant community types within the Project site is grasslands and ruderal. Land use within the Project site is unknown due to the inactivity of the parcel for the last 30 years. The Project site has a slope gradient of 0 to 2% with upland hillslopes and depressional swales. Vegetation is undisturbed.

According to the United States Department of Agriculture (USDA) National Resources Conservation Service (NRCS) Climate Analysis for Wetlands (WETS) rainfall data from the Sacramento Metropolitan Airport station (Appendix F) and the WETS table analysis in **Table 1** below, the volume of precipitation in the three months prior to the initial site visit (March-May) was drier than normal for the same timeframe of the previous 30 years. There was no surface water present during the site visit, though visible inundation was observed in previous years on aerial imagery on Google Earth.

A stormwater pipe is located on the southeast corner of the Project site and flows into a drainage ditch. The stormwater drainage ditch runs along the entire length of the southern Project boundary then turns northwest and runs across the Project site, exiting into the roadside ditch along the western boundary.

Table 1 – WETS Data Analysis

	Month	30% chance precip less than	Avg Precip	30% chance precip more than	Observed rainfall (inches)	Condition (dry, wet, normal)	Condition Value*	Weighing factor	Product of Previous two columns
1st month prior	May	0.19	0.51	0.56	0.09	dry	1	3	3
2nd month prior	April	0.43	1.27	1.52	0.71	normal	2	2	4
3rd month prior	March	1.01	2.44	2.97	1.43	normal	2	1	2
								SUM**	9

** 1 = Dry, 2 = Normal, 3 = Wet.*
*** 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.*

4.1. Hydrophytic Vegetation

Hydrophytic vegetation, also known as wetland plants, is present when the plant community is dominated by species that can tolerate prolonged inundation or substrate saturation during the growing period. Wetland plants are identified by using the National Wetland Plant List (Lichvar, 2016) and applying the wetland indicator status. Once each plant species is identified with their corresponding indicator status, the dominance test is applied. If the calculation from the dominance test (indicator 1) is over 50 percent, then hydrophytic vegetation is present. However, if the dominance test fails and in the case of positive indicators for both wetland hydrology and hydric soils are present, then the prevalence index (indicator 2) is applied which takes more than just the dominant species but all plant species into consideration. In addition, plant morphological adaptations (indicator 3) can be used when both wetland hydrology and hydric soils are present.

At the time of this evaluation the dominant vegetation consisted of annual grasses and herbs. Vegetation found within the Project site along with their correlating National Wetland Plant List (NWPL) status is listed in **Table 2**.

Paired wetland and upland sample plots (four plots total) were evaluated and documented in the Wetland Determination Data Forms (**Attachment D**). The results of the two wetland sample plot calculations passed the dominance test, concluding that hydrophytic vegetation is present within those plots (1-W and 2-W). Sampling plot 1-W was within the stormwater drainage and had a dominate species of *Lolium perenne* with FAC wetland indicator status. Sampling plot 2-W was within the isolated swale and had two dominate species of *Eleocharis palustris* and *Polygonum aviculare*, with OBL and FAC wetland indicator

status respectively. Sampling points outside of the wetlands (1-UP and 2-UP) did not meet neither the dominance test or the prevalence index, and therefore did not have hydrophytic vegetation present.

Table 2 – List of All Plants Identified During the Field Survey within the Study Area

Scientific Name	Common Name	NWPL Indicator Status
Ailanthus altissimo	Tree-of-heaven	FACU
Avena fatua	Common wild oat	UPL
Bromus diandrus	Great brome	UPL
Centaurea solstitialis	Yellow star-thistle	UPL
Eleocharis palustris	Common spike rush	OBL
Eucalyptus citroidora	Lemon scented gum	UPL
Hordeum murinum	Wall barley	FACU
Lactuca serriola	Prickly Lettuce	FACU
Lolium perenne	Perennial ryegrass	FAC
Polygonum aviculare	Common knotgrass	FAC
Polypogon monspeliensis	Annual rabbitsfoot grass	FACW
Vicia villosa	Hairy vetch	UPL

Indicator Status Description:
OBL—Obligate wetland plants, occurrence in wetlands >99%
FACW—Facultative wetland plants, occurrence in wetlands 67-99%
FAC—Facultative plants, occurrence in wetlands 34-66%
FACU—Facultative upland plants, occurrence in wetlands 1-33%
UPL—Obligate upland plants, occurrence in wetlands <1%

4.2. Wetland Hydrology

Wetland hydrology refers to the presence of water at or above the soil surface for a sufficient period of the year to significantly influence the plant types and soils that occur in the area. When surveys are conducted at a time of year when surface water, water table, or saturated soils cannot be observed, evidence of wetland hydrology is based on observation of the hydrologic indicators described in the wetland delineation manual. Evidence of wetland hydrology can include primary indicators such as surface soil cracks, nonriverine water marks, and nonriverine drift deposits, or secondary indicators such as drainage patterns or crayfish burrows. The occurrence of at least one primary indicator or two secondary indicators is required to confirm the presence of wetland hydrology.

During the site visits, there was no surface water present, no water table present inside the soil pits, and no saturation present throughout the Project site. Regardless, at least one primary indicator was observed at each wetland sampling point. Both aquatic resources had rocks with water marks (B1 primary indicator) and inundation visible on aerial imagery (B7 primary indicator) in 2018, 2016, and 2012. Sampling points outside of the wetlands did not have any wetland hydrology indicators and therefore did not have wetland hydrology present.

4.3. Hydric Soils

Hydric soil is a soil that formed under conditions of saturation, flooding or ponding long enough during the growing season to develop anaerobic conditions that support the growth and regeneration of hydrophytic vegetation. If the soil in an area is listed as hydric by the Natural Resources Conservation Service (NRCS), the area may have a wetland. Sample soil pits are dug in areas of interest that have positive indicators of wetland hydrology and hydrophytic vegetation. Once a soil pit is dug, the Munsell Soil Color Book (2009) and Field Indicators of Hydric Soils in the United States v 8.2 are used to confirm the profile description of the hydric soil by depth.

Analysis of the NRCS web soil survey showed two major type of soil units within the Project site. At 95%, the majority of the soil type is 144—Fiddyment fine sandy loam, 0 to 1 percent slopes with no hydric soil rating. At 5%, the remaining soil type is 145—Fiddyment fine sandy loam, 0 to 8 percent slopes with no hydric soil rating (Appendix B).

Two paired sampling points were dug near each wetland boundary line. The biologist used the 2009 Munsell Soil Color Book and the 2021 Pocket Guide to Hydric Soil Field Indicators Based on Field Indicators of Hydric Soils in the United States: A Guide for Identifying and Delineating Hydric Soils V 8.2 (2018) to determine the soil color (hue, value, and chroma) and indicators. Redoximorphic features and soil texture was documented.

The soil from sampling point 1-W was determined to be a hydric soil with positive indicator Redox Dark Surface (F6). The soil from sampling point 2-W was determined to be a hydric soil with positive indicator Redox Depressions (F8). The soil profile description that verifies those indicators is listed in **Table 3**. Sampling points outside of the wetlands did not have any hydric soil indicators and therefore did not have hydric soil present.

Table 3 – Soil Profile Description

Depth (inches)	Matrix		Redox Features				Texture	Sampling Point
	Color (moist)	%	Color (moist)	%	Type	Loc		
0-4	7.5 YR 3/2	92	5 YR 5/6	5	Concentration	Matrix	clay loam	1-W
			Gley 1 2.5/N	3	Concentration	Matrix		
4-14	7.5 YR 3/2	93	5 YR 5/8	6	Concentration	Matrix		
			Gley 2 2.5/5PB	1	Concentration	Matrix		
0-2	10 YR 3/2	92	5 YR 5/6	8	Concentration	Pore Lining	clay loam	2-W
2-16	7.5 YR 3/2	85	5 YR 4/6	15	Concentration	Matrix		

5. Results

The results of the aquatic resources found on the Project site are described below (**Table 4**). Two individual wetlands were observed and delineated using ArcGIS Collector and ArcGIS ESRI (**Attachment A**). A stormwater drainage that is along the southern boundary and runs northwest across the Project site, and an isolated swale located near the eastern boundary of the Project site were evaluated and delineated by positive wetland parameters.

Table 4 – Aquatic Resource Within the Survey Area

Aquatic Resource Name	Cowardin Classification Code*	Aquatic Resource Size (acre)	Aquatic Resource Size (feet)
Isolated Swale	U	0.06	116
Stormwater Drainage	U	0.21	964

Cowardin Classification Code: U

U: Uplands- Not a wetland or deepwater habitat of the United States as described by Cowardin

6. Conclusions

The findings and conclusions presented in this report, including the location and extent of waters subject to regulatory jurisdiction, represent the professional opinion of the consultant biologist. These findings and conclusions should be considered preliminary until verified by the appropriate regulatory agencies.

A subject area is determined to be a wetland if all three required parameters (hydrophytic vegetation, wetland hydrology, hydric soils) are present. At a minimum, one positive indicator for each parameter must be found in order to make a positive wetland determination.

During the survey, all three parameters were present within the isolated swale and the stormwater drainage. The water source of the isolated swale is not clear but is thought to come from the adjacent property stormwater run-off and accumulated in the swale within the Project boundary. The water source of the stormwater drainage comes from the stormwater drainage pipe located on the southeast corner of the Project site. The stormwater drainage flows along the southern ditch from east the west, then from south to northwest and into the roadside ditch that has a culvert connecting under 28th Street to the residential property on the west side of the street. The two wetland features are unlikely jurisdictional under the Clean Water Act, Section 404 as neither wetland is connected to or adjacent to jurisdictional waters, though the final decision will be made by the USACE.

7. References

Cowardin, L. M., V. Carter, and E. T. LaRoe. 1979. Classification of wetlands and deepwater habitats of the United States. Office of Biological Services, U.S. Fish and Wildlife Service, Washington, District of Columbia. 45pp.

Lichvar, R.W., D.L Banks, W. N. Kirchner, and N. C. Melvin. 2016. The National Wetland Plant List: 2016 wetland ratings. Phytoneuron 2016-30: 1-17. Published 28 April 2016.

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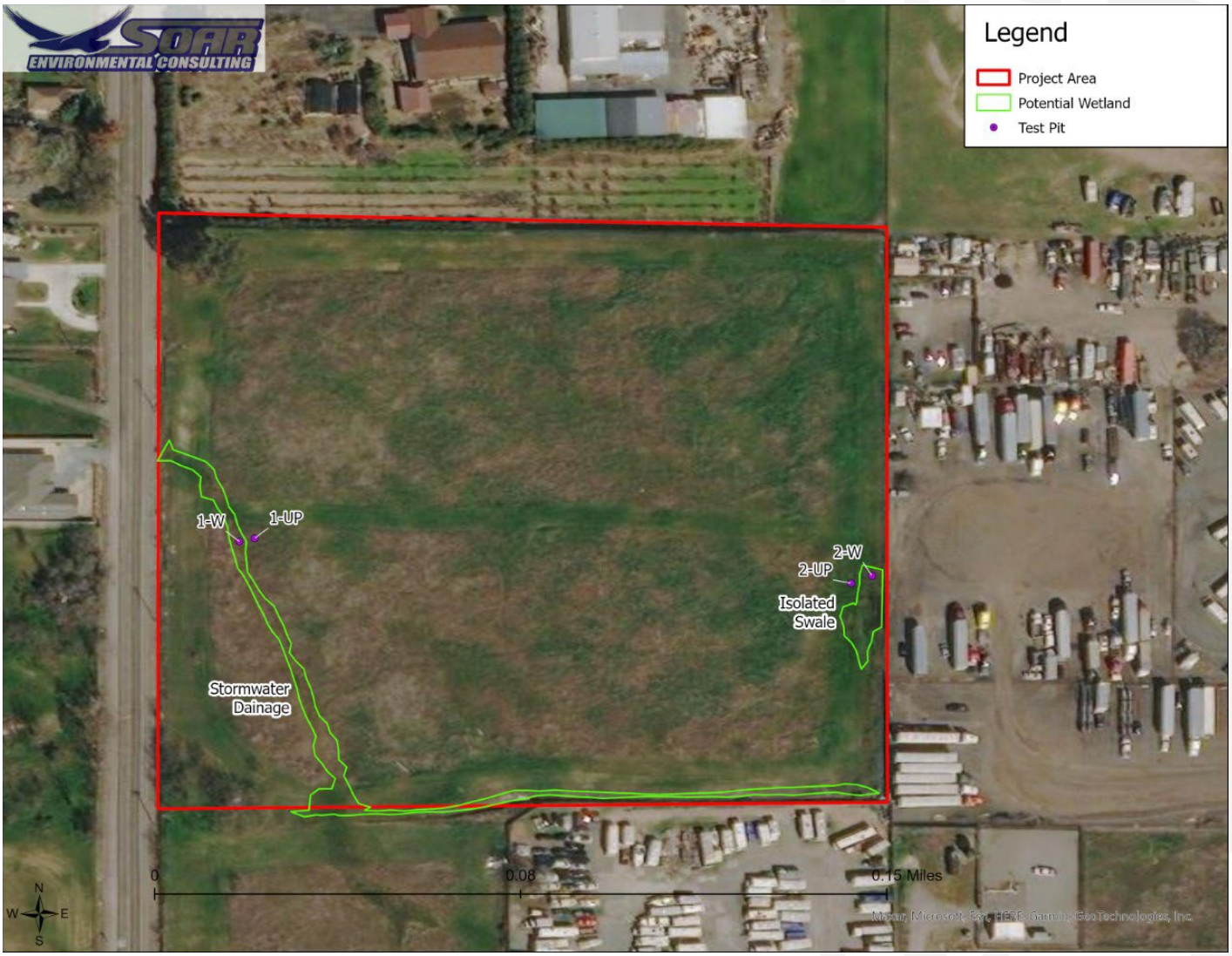
_____. 2008b. *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region (Version 2.0)*.

United States Department of Agriculture Natural Resources Conservation Service. Web Soil Survey. 2022a. https://websoilsurvey.sc.egov.usda.gov

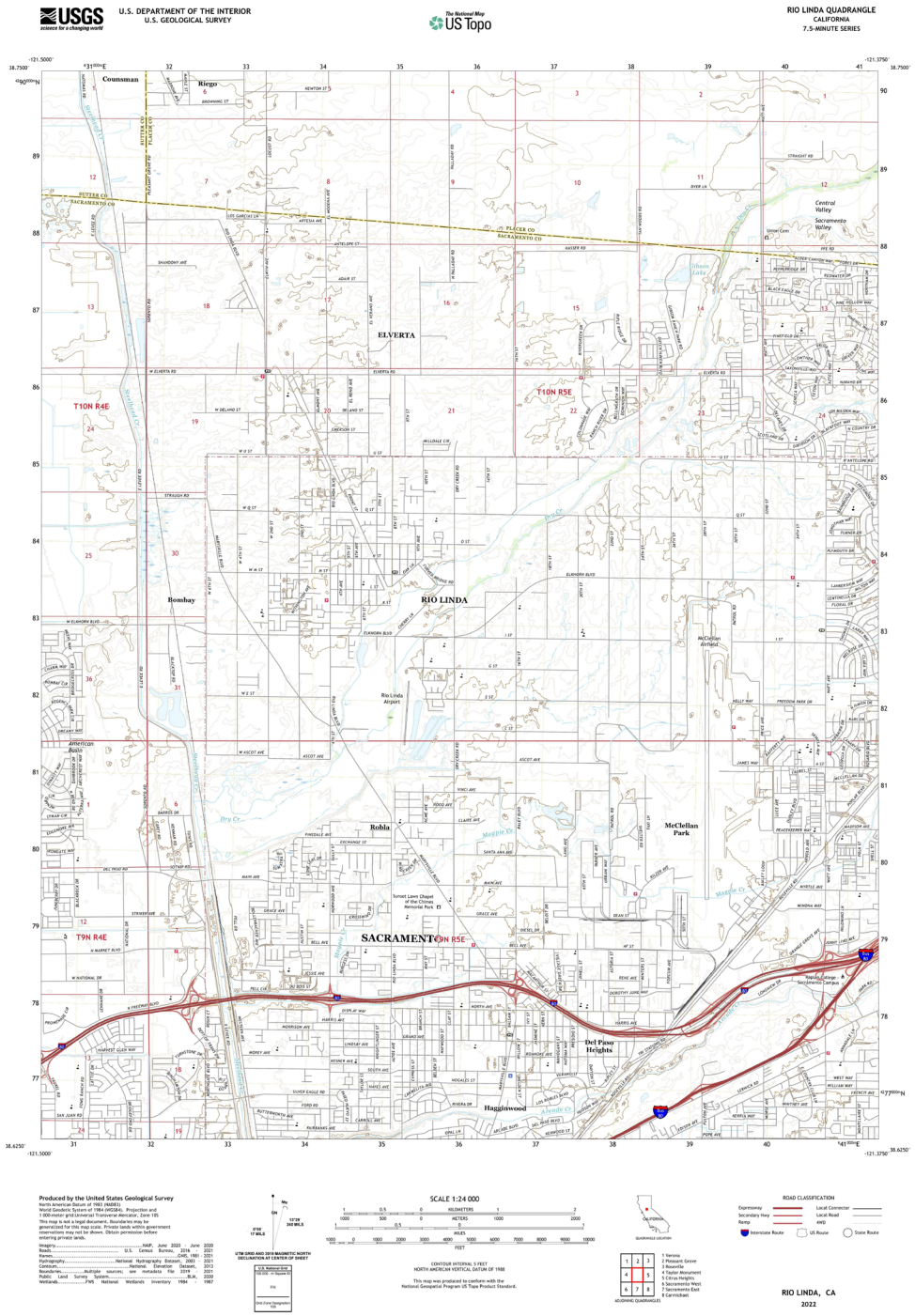
_____. 2022b. Climate Analysis for Wetlands (WETS), AgACIS, Sacramento County, Sacramento Metropolitan Airport Station. http://agacis.rcc-acis.org/?fips=06067.

United States Fish and Wildlife Service. National Wetlands Inventory. 2022. https://www.fws.gov/wetlands/

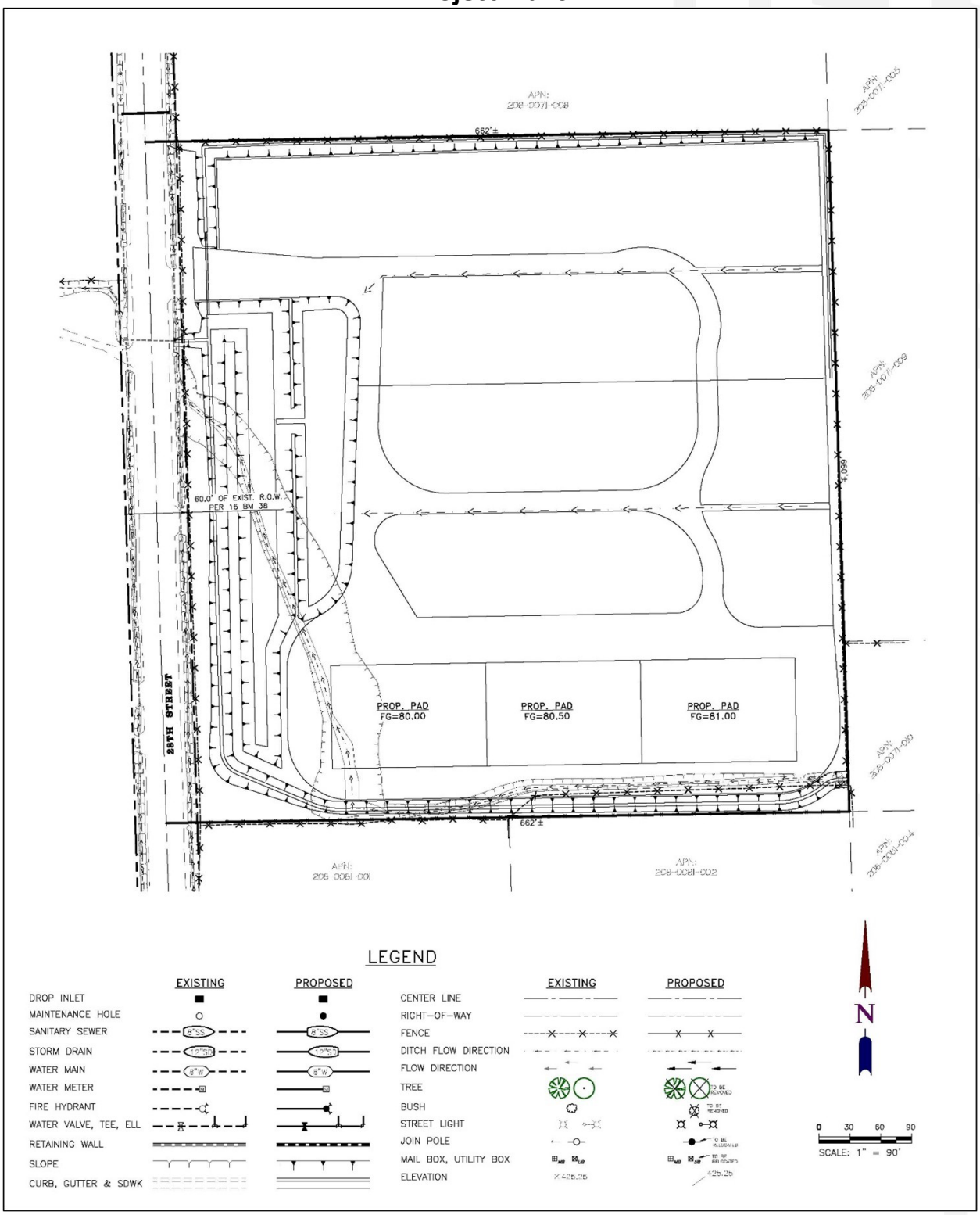
Appendix A: Aquatic Resources within the Project Area



Appendix B: Supporting Maps
Rio Linda Quadrangle



Appendix B: Supporting Maps
Project Plans



Appendix C: Photographs

Figure 1 – Roadside ditch and culvert connecting to stormwater drainage

Figure 2 – Within stormwater drainage, view towards 28th Street

Figure 3 – Within stormwater drainage, view south

Figure 4 – Stormwater drainage along southern boundary

Figure 5 – Stormwater drainage view east

Figure 6 – Stormwater drainage pipe in SE corner of Project boundary

Figure 7 – Isolated swale adjacent to eastern fence line

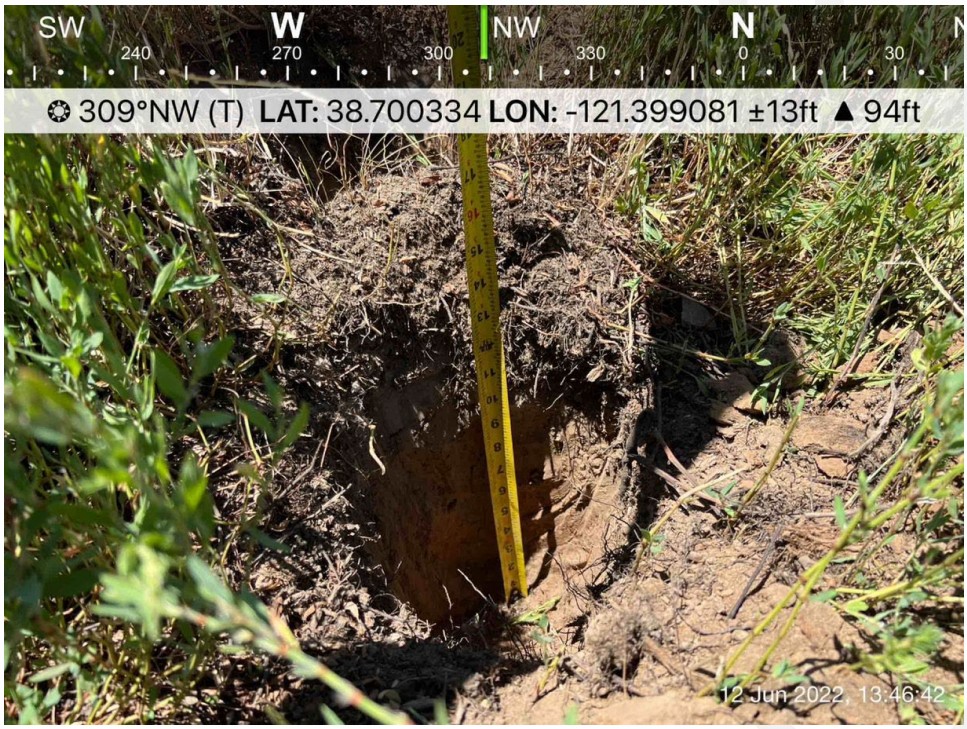


Figure 8 – 2-W soil pit sampling point, dug about 16 inches deep

Figure 9 – Water mark on rocks within 2-W sampling point

Figure 10 – Near center of site, view SW

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Appendix D: Wetland Determination Data Form

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: 7340 28th St | City/County: Rio Linda/Sacramento | Sampling Date: 6/10/2022
Applicant/Owner: Pulltail, Inc. | State: CA | Sampling Point: 1-W
Investigator(s): Danielle Aparicio | Section, Township, Range: Township 10 North, Range 5 East
Landform (hillslope, terrace, etc.): Depressional channel | Local relief (concave, convex, none): concave | Slope (%): 0-1
Subregion (LRR): | Lat: 38.700439 | Long: -121.401017 | Datum: Solocator
Soil Map Unit Name: 144-Fiddyment fine sandy loam | NWI classification: None
Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No ____ (If no, explain in Remarks.)
Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No ____
Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present?	Yes ✓ No ____	**Is the Sampled Area within a Wetland?** Yes ✓ No ____
Hydric Soil Present?	Yes ✓ No ____	
Wetland Hydrology Present?	Yes ✓ No ____	

Remarks:

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: ____)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	0 = Total Cover		
Sapling/Shrub Stratum (Plot size: ____)			
1.			
2.			
3.			
4.			
5.			
	0 = Total Cover		
Herb Stratum (Plot size: 6' circle)			
1. Lolium perenne	68	Y	FAC
2. Lactuca serriola	4	N	FACU
3. Rumex crispus	2	N	FAC
4.			
5.			
6.			
7.			
8.			
	74 = Total Cover		
Woody Vine Stratum (Plot size: ____)			
1.			
2.			
	0 = Total Cover		

% Bare Ground in Herb Stratum 0 % Cover of Biotic Crust 0

Dominance Test worksheet:
Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)
Total Number of Dominant Species Across All Strata: 1 (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species ____	x 1 = ____
FACW species ____	x 2 = ____
FAC species ____	x 3 = ____
FACU species ____	x 4 = ____
UPL species ____	x 5 = ____
Column Totals: ____ (A)	____ (B)

Prevalence Index = B/A = ____

Hydrophytic Vegetation Indicators:
✓ Dominance Test is >50%
___ Prevalence Index is ≤3.0[1]
___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? Yes ✓ No ____

Remarks:

US Army Corps of Engineers — Arid West – Version 2.0

SOIL

Sampling Point: 1-W

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-4	7.5 YR 3/2	92	5 YR 5/6	5	C	M	Clay Loam	
-	-	-	Gley 1 2.5/N	3	C	M	-	
4-14	7.5 YR 3/2	93	5 YR 5/8	6	C	M	Clay Loam	
-	-	-	Gley 2 2.5/5PB	1	C	M	-	

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

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

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR C**)
- ___ 1 cm Muck (A9) (**LRR D**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ✓ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR C**)
- ___ 2 cm Muck (A10) (**LRR B**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

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

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ✓ No _____

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

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

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ✓ Water Marks (B1) (**Nonriverine**)
- ___ Sediment Deposits (B2) (**Nonriverine**)
- ___ Drift Deposits (B3) (**Nonriverine**)
- ___ Surface Soil Cracks (B6)
- ✓ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water Marks (B1) (**Riverine**)
- ___ Sediment Deposits (B2) (**Riverine**)
- ___ Drift Deposits (B3) (**Riverine**)
- ✓ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ✓ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes _____ No ✓ Depth (inches): _____

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

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

Wetland Hydrology Present? Yes ✓ No _____

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

Remarks:

Aerial photos from Google Earth show signs of inundation in 2018, 2016, 2012
Water marks found on few rocks within potential wetland

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WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: 7340 28th St City/County: Rio Linda/Sacramento Sampling Date: 6/12/2022
Applicant/Owner: Pulltail, Inc. State: CA Sampling Point: 1-UP
Investigator(s): Danielle Aparicio Section, Township, Range: Township 10 North, Range 5 East
Landform (hillslope, terrace, etc.): hillslope Local relief (concave, convex, none): concave Slope (%): 2
Subregion (LRR): Lat: 38.700449 Long: -121.400970 Datum: Solocator
Soil Map Unit Name: 144-Fiddyment fine sandy loam NWI classification: None
Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No ____ (If no, explain in Remarks.)
Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No ____
Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present?	Yes ____ No ✓	**Is the Sampled Area within a Wetland?** Yes ____ No ✓
Hydric Soil Present?	Yes ____ No ✓	
Wetland Hydrology Present?	Yes ____ No ✓	

Remarks:

VEGETATION – Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: ____)			
1.			
2.			
3.			
4.			
	0 = Total Cover		
Sapling/Shrub Stratum (Plot size: ____)			
1.			
2.			
3.			
4.			
5.			
	0 = Total Cover		
Herb Stratum (Plot size: 6' circle)			
1. Bromus diandrus	20	Y	UPL
2. Vicia villosa	35	Y	UPL
3. Avena fatua	8	N	UPL
4. Centaurea solstitialis	10	N	UPL
5.			
6.			
7.			
8.			
	73 = Total Cover		
Woody Vine Stratum (Plot size: ____)			
1.			
2.			
	0 = Total Cover		

% Bare Ground in Herb Stratum 0 % Cover of Biotic Crust 0

Dominance Test worksheet:
Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)
Total Number of Dominant Species Across All Strata: 2 (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: 0 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	0	x 3 =	0
FACU species	0	x 4 =	0
UPL species	73	x 5 =	365
Column Totals:	73 (A)		365 (B)

Prevalence Index = B/A = 5

Hydrophytic Vegetation Indicators:
___ Dominance Test is >50%
___ Prevalence Index is ≤3.0[1]
___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? Yes ____ No ✓

Remarks:

SOIL

Sampling Point: 1-UP

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-4	10 YR 4/2	100	-	-	-	-	Sandy Loa	Large concrete & asphalt rocks
4-5	10 YR 3/3	100	-	-	-	-	Sandy Loa	Pebble sized rocks
5-16	10 YR 3/3	99	5 YR 5/6	1	C	M	Sandy Loa	

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

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

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR C**)
- ___ 1 cm Muck (A9) (**LRR D**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR C**)
- ___ 2 cm Muck (A10) (**LRR B**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

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

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes _____ No ✓

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

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

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1) (**Nonriverine**)
- ___ Sediment Deposits (B2) (**Nonriverine**)
- ___ Drift Deposits (B3) (**Nonriverine**)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water Marks (B1) (**Riverine**)
- ___ Sediment Deposits (B2) (**Riverine**)
- ___ Drift Deposits (B3) (**Riverine**)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes _____ No ✓ Depth (inches): _____

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

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

Wetland Hydrology Present? Yes _____ No ✓

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

Remarks:

1401 Fulton Street, Suite 918 Fresno, CA 93721
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WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: 7340 28th St City/County: Rio Linda/Sacramento Sampling Date: 6/12/2022
Applicant/Owner: Pulltail, Inc. State: CA Sampling Point: 2-W
Investigator(s): Danielle Aparicio Section, Township, Range: Township 10 North, Range 5 East
Landform (hillslope, terrace, etc.): swale Local relief (concave, convex, none): concave Slope (%): 0-1
Subregion (LRR): Lat: 38.700334 Long: -121.399081 Datum: Solocator
Soil Map Unit Name: 144-Fiddyment fine sandy loam NWI classification: None
Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No ____ (If no, explain in Remarks.)
Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No ____
Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present?	Yes ✓ No ____	**Is the Sampled Area within a Wetland?** Yes ✓ No ____
Hydric Soil Present?	Yes ✓ No ____	
Wetland Hydrology Present?	Yes ✓ No ____	

Remarks:

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: ____)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	0 = Total Cover		
Sapling/Shrub Stratum (Plot size: ____)			
1.			
2.			
3.			
4.			
5.			
	0 = Total Cover		
Herb Stratum (Plot size: 10' circle)			
1. Eleocharis palustris	40	Y	OBL
2. Polygonum aviculare	20	Y	FAC
3. Polypogon monspeliensis	12	N	FACW
4. Lolium perenne	9	N	FAC
5.			
6.			
7.			
8.			
	81 = Total Cover		
Woody Vine Stratum (Plot size: ____)			
1.			
2.			
	0 = Total Cover		

% Bare Ground in Herb Stratum 0 % Cover of Biotic Crust 0

Dominance Test worksheet:
Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)
Total Number of Dominant Species Across All Strata: 2 (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species ____	x 1 = ____
FACW species ____	x 2 = ____
FAC species ____	x 3 = ____
FACU species ____	x 4 = ____
UPL species ____	x 5 = ____
Column Totals: ____ (A)	____ (B)

Prevalence Index = B/A = ____

Hydrophytic Vegetation Indicators:
✓ Dominance Test is >50%
___ Prevalence Index is ≤3.0[1]
___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? Yes ✓ No ____

Remarks:

SOIL

Sampling Point: 2-W

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-2	10 YR 3/2	92	5 YR 5/6	8	C	PL	Clay Loam	
2-16	7.5 YR 3/2	85	5 YR 4/6	15	C	M	Clay Loam	

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

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

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR C**)
- ___ 1 cm Muck (A9) (**LRR D**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ✓ Redox Depressions (F8)
- ___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR C**)
- ___ 2 cm Muck (A10) (**LRR B**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

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

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ✓ No ___

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

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

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ✓ Water Marks (B1) (**Nonriverine**)
- ___ Sediment Deposits (B2) (**Nonriverine**)
- ___ Drift Deposits (B3) (**Nonriverine**)
- ___ Surface Soil Cracks (B6)
- ✓ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water Marks (B1) (**Riverine**)
- ___ Sediment Deposits (B2) (**Riverine**)
- ___ Drift Deposits (B3) (**Riverine**)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ✓ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ___ No ✓ Depth (inches): _____

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

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

Wetland Hydrology Present? Yes ✓ No ___

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

Remarks:

Concrete rocks near fence line have water marks

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WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: 7340 28th St City/County: Rio Linda/Sacramento Sampling Date: 6/12/2022
Applicant/Owner: Pulltail, Inc. State: CA Sampling Point: 2-UP
Investigator(s): Danielle Aparicio Section, Township, Range: Township 10 North, Range 5 East
Landform (hillslope, terrace, etc.): upland hillslope Local relief (concave, convex, none): none Slope (%): 2
Subregion (LRR): Lat: 38.700287 Long: -121.399063 Datum: Solocator
Soil Map Unit Name: 144-Fiddyment fine sandy loam NWI classification: None
Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No ____ (If no, explain in Remarks.)
Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No ____
Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present?	Yes ____ No ✓	**Is the Sampled Area within a Wetland?** Yes ____ No ✓
Hydric Soil Present?	Yes ____ No ✓	
Wetland Hydrology Present?	Yes ____ No ✓	

Remarks:

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: ____)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	0 = Total Cover		
Sapling/Shrub Stratum (Plot size: ____)			
1.			
2.			
3.			
4.			
5.			
	0 = Total Cover		
Herb Stratum (Plot size: 6' circle)			
1. Vicia villosa	36	Y	UPL
2. Lolium perenne	28	Y	FAC
3. Avena fatua	6	N	UPL
4.			
5.			
6.			
7.			
8.			
	70 = Total Cover		
Woody Vine Stratum (Plot size: ____)			
1.			
2.			
	0 = Total Cover		

% Bare Ground in Herb Stratum ____ % Cover of Biotic Crust ____

Dominance Test worksheet:
Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)
Total Number of Dominant Species Across All Strata: 2 (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: 50 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	28	x 3 =	84
FACU species	0	x 4 =	0
UPL species	42	x 5 =	210
Column Totals:	70 (A)		294 (B)

Prevalence Index = B/A = 4.2

Hydrophytic Vegetation Indicators:
___ Dominance Test is >50%
___ Prevalence Index is ≤3.0[1]
___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? Yes ____ No ✓

Remarks:

SOIL

Sampling Point: 2-UP

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-8	10 YR 3/2	99	10 YR 5/8	1	C	M	Loam	
8-17	10 YR 4/2	99	7.5 YR 5/8	1	C	M	Silty loam	

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

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

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR C**)
- ___ 1 cm Muck (A9) (**LRR D**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR C**)
- ___ 2 cm Muck (A10) (**LRR B**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

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

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes _____ No ✓

Remarks:

Redox features were not more than 1% at any depth layer

HYDROLOGY

Wetland Hydrology Indicators:

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

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1) (**Nonriverine**)
- ___ Sediment Deposits (B2) (**Nonriverine**)
- ___ Drift Deposits (B3) (**Nonriverine**)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water Marks (B1) (**Riverine**)
- ___ Sediment Deposits (B2) (**Riverine**)
- ___ Drift Deposits (B3) (**Riverine**)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes _____ No ✓ Depth (inches): _____

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

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

Wetland Hydrology Present? Yes _____ No ✓

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

Remarks:

Appendix E: WETS Data

WETS Table

WETS Station: SACRAMENTO METROPOLITAN AP, CA

Requested years: 1992 - 2022

Month	Avg Max Temp	Avg Min Temp	Avg Mean Temp	Avg Precip	30% chance precip less than	30% chance precip more than	Avg number days precip 0.10 or more	Avg Snowfall
Jan	55.9	38.0	46.9	2.95	1.07	3.43	6	-
Feb	60.9	39.9	50.4	2.98	1.57	3.53	6	-
Mar	66.2	43.0	54.6	2.44	1.01	2.97	5	-
Apr	72.4	45.9	59.2	1.27	0.43	1.52	3	-
May	81.6	52.0	66.8	0.51	0.19	0.56	2	-
Jun	89.1	57.1	73.1	0.14	0.00	0.11	1	-
Jul	93.6	59.6	76.6	0.00	0.00	0.00	0	-
Aug	92.5	58.7	75.6	0.03	0.00	0.00	0	-
Sep	88.6	55.7	72.1	0.09	0.00	0.09	0	-
Oct	78.2	48.7	63.5	0.99	0.27	0.98	2	-
Nov	64.2	41.7	53.0	1.67	1.07	2.00	4	-
Dec	55.7	37.6	46.6	3.34	1.08	3.99	7	-
Annual:					13.06	19.49		
Average	74.9	48.2	61.5	-	-	-	-	-
Total	-	-	-	16.42			35	-

GROWING SEASON DATES

Years with missing data:	24 deg = 8	28 deg = 8	32 deg = 8
Years with no occurrence:	24 deg = 22	28 deg = 2	32 deg = 0
Data years used:	24 deg = 23	28 deg = 23	32 deg = 23
Probability	24 F or higher	28 F or higher	32 F or higher
50 percent *	No occurrence	1/17 to 12/23: 340 days	2/24 to 11/26: 275 days
70 percent *	No occurrence	1/5 to 1/4: 364 days	2/16 to 12/4: 291 days
* Percent chance of the growing season occurring between the Beginning and Ending dates.			

STATS TABLE - total precipitation (inches)

Yr	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annl
1998					M1.76	0.14	T	T	0.21	M0.92	M2.49	0.65	6.17
1999	2.33	4.00	1.12	M2.07	0.07	T	MT	T	T	0.20	1.70	0.06	11.55
2000	5.81	7.91	1.72	1.34	0.62	0.02	0.00	T	0.15	1.21	0.89	0.54	20.21
2001	3.43	5.03	2.20	1.39	T	0.12	0.00	0.00	0.21	0.41	2.88	5.87	21.54
2002	2.44	0.89	2.80	0.36	1.14	T	T	0.00	0.00	0.00	2.52	7.33	17.48
2003	1.92	1.42	3.34	2.82	0.93	T	0.02	0.79	0.00	0.04	1.60	4.68	17.56
2004	1.90	7.04	0.73	0.17	0.08	T	T	0.00	0.22	2.15	2.90	3.61	18.80
2005	4.21	3.29	2.48	1.03	1.19	0.55	T	T	0.05	0.06	1.55	8.22	22.63
2006	2.63	1.84	4.46	3.38	0.38	T	T	0.00	T	0.	1.45	2.	17.

										04		97	15
2007	T	3.48	0.35	1.28	0.39	T	T	T	0.03	1.06	0.86	3.03	10.48
2008	M7.11	2.34	0.01	0.01	T	0.00	T	T	0.00	0.98	1.90	1.54	13.89
2009	1.09	4.51	2.15	0.67	0.92	0.43	T	0.00	0.14	3.18	0.63	2.47	16.19
2010	5.60	2.63	1.50	2.80	0.68	T	T	T	0.05	0.86	2.64	5.64	22.40
2011	1.35	3.74	6.54	0.04	1.43	1.37	0.00	0.00	T	1.08	0.94	0.06	16.55
2012	2.90	M1.14	3.66	1.91	0.06	0.04	0.05	T	T	1.12	3.41	6.14	20.43
2013	0.85	0.51	1.50	0.68	0.19	0.38	0.00	T	0.53	0.00	0.47	0.30	5.41
2014	0.16	3.02	1.10	1.53	0.19	0.00	T	0.04	0.37	0.91	1.22	8.04	16.58
2015	0.05	2.39	0.14	1.45	0.07	0.10	T	T	0.02	0.05	1.89	1.34	7.50
2016	M4.91	0.73	6.31	0.51	0.49	T	0.00	0.00	T	2.63	1.24	2.92	19.74
2017	9.38	6.50	2.79	3.11	0.14	M0.22	T	T	MT	0.26	1.95	0.09	24.44
2018	4.25	0.45	5.10	1.85	0.26	T	0.00	0.00	T	1.70	3.16	2.22	18.99
2019	4.66	7.71	4.06	M0.39	2.54	T	M0.00	0.00	M0.23	T	M0.46	5.36	25.41
2020	1.33	MT	1.67	0.85	0.40	T	0.00	T	0.00	T	0.66	1.09	6.00
2021	2.43	0.98	1.48	M0.03	T	0.00	M0.00	M0.00	0.01	4.92	0.56	M6.01	16.42
2022	0.03	T	1.43	0.71	0.09	M0.27							2.53
Notes: Data missing in any month have an "M" flag. A "T" indicates a trace of precipitation.													
Data missing for all days in a month or year is blank.													
Creation date: 2022-06-15													

Appendix F: Soil Map Unit

USDA **Natural Resources Conservation Service** | Web Soil Survey, National Cooperative Soil Survey | 6/15/2022 Page 1 of 3

Soil Map—Sacramento County, California
(7340 28th Street, Rio Linda, CA)

MAP LEGEND

Area of Interest (AOI)
- Area of Interest (AOI)

Soils
- Soil Map Unit Polygons
- Soil Map Unit Lines
- Soil Map Unit Points

Special Point Features
- Blowout
- Borrow Pit
- Clay Spot
- Closed Depression
- Gravel Pit
- Gravelly Spot
- Landfill
- Lava Flow
- Marsh or swamp
- Mine or Quarry
- Miscellaneous Water
- Perennial Water
- Rock Outcrop
- Saline Spot
- Sandy Spot
- Severely Eroded Spot
- Sinkhole
- Slide or Slip
- Sodic Spot
- Spoil Area
- Stony Spot
- Very Stony Spot
- Wet Spot
- Other
- Special Line Features

Water Features
- Streams and Canals

Transportation
- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

Background
- Aerial Photography

MAP INFORMATION

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

Warning: Soil Map may not be valid at this scale.

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

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

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

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

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

Soil Survey Area: Sacramento County, California
Survey Area Data: Version 20, Sep 3, 2021

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

Date(s) aerial images were photographed: May 11, 2019—May 12, 2019

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

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
144	Fiddyment fine sandy loam, 0 to 1 percent slopes	9.2	95.0%
145	Fiddyment fine sandy loam, 1 to 8 percent slopes	0.5	5.0%
Totals for Area of Interest		**9.7**	**100.0%**

Sacramento County, California

144—Fiddyment fine sandy loam, 0 to 1 percent slopes

Map Unit Setting

National map unit symbol: hhmm
Elevation: 50 to 280 feet
Mean annual precipitation: 19 inches
Mean annual air temperature: 61 degrees F
Frost-free period: 230 to 300 days
Farmland classification: Not prime farmland

Map Unit Composition

Fiddyment and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Fiddyment

Setting

Landform: Terraces
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Residuum weathered from sedimentary rock

Typical profile

H1 - 0 to 8 inches: fine sandy loam
H2 - 8 to 22 inches: loam
H3 - 22 to 30 inches: sandy clay loam
H4 - 30 to 36 inches: indurated
H5 - 36 to 40 inches: weathered bedrock

Properties and qualities

Slope: 0 to 1 percent
Depth to restrictive feature: 30 to 36 inches to duripan; 36 to 40 inches to paralithic bedrock
Drainage class: Well drained
Runoff class: High
Capacity of the most limiting layer to transmit water (Ksat): Very low (0.00 to 0.00 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water supply, 0 to 60 inches: Low (about 3.5 inches)

Interpretive groups

Land capability classification (irrigated): 3s
Land capability classification (nonirrigated): 3s
Hydrologic Soil Group: C

Ecological site: R017XY902CA - Duripan Vernal Pools
Hydric soil rating: No

Minor Components

Unnamed, hardpan
Percent of map unit: 8 percent
Hydric soil rating: No

Unnamed, loamy subsoils
Percent of map unit: 4 percent
Hydric soil rating: No

Unnamed, occasional flooded
Percent of map unit: 3 percent
Hydric soil rating: No

Data Source Information

Soil Survey Area: Sacramento County, California
Survey Area Data: Version 20, Sep 3, 2021

Sacramento County, California

145—Fiddyment fine sandy loam, 1 to 8 percent slopes

Map Unit Setting

National map unit symbol: hhmn
Elevation: 50 to 280 feet
Mean annual precipitation: 19 inches
Mean annual air temperature: 61 degrees F
Frost-free period: 230 to 300 days
Farmland classification: Not prime farmland

Map Unit Composition

Fiddyment and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Fiddyment

Setting

Landform: Hills
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Side slope
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Residuum weathered from sedimentary rock

Typical profile

H1 - 0 to 8 inches: fine sandy loam
H2 - 8 to 15 inches: loam
H3 - 15 to 28 inches: sandy clay loam
H4 - 28 to 40 inches: indurated
H5 - 40 to 44 inches: weathered bedrock

Properties and qualities

Slope: 1 to 8 percent
Depth to restrictive feature: 28 to 40 inches to duripan; 40 to 44 inches to paralithic bedrock
Drainage class: Well drained
Runoff class: Very high
Capacity of the most limiting layer to transmit water (Ksat): Very low (0.00 to 0.00 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water supply, 0 to 60 inches: Very low (about 2.7 inches)

Interpretive groups

Land capability classification (irrigated): 4e
Land capability classification (nonirrigated): 4e
Hydrologic Soil Group: D

Ecological site: R017XD047CA - LOAMY CLAYPAN
Hydric soil rating: No

Minor Components

Orangevale
Percent of map unit: 3 percent
Hydric soil rating: No

Redding
Percent of map unit: 3 percent
Hydric soil rating: No

Andregg
Percent of map unit: 3 percent
Hydric soil rating: No

Unnamed, deeper
Percent of map unit: 2 percent
Hydric soil rating: No

Unnamed, unloam subsoil
Percent of map unit: 2 percent
Hydric soil rating: No

Xerarents
Percent of map unit: 2 percent
Hydric soil rating: No

Data Source Information

Soil Survey Area: Sacramento County, California
Survey Area Data: Version 20, Sep 3, 2021