

**Glenn County Road 305 Bridge Replacement Project,
Bridge No. 11C-0091, Federal Aid No. BRLO-5911(056)**

**APPENDIX B
DELINEATION OF WATERS
OF THE UNITED STATES**

**County Road 305 over Watson
Creek Bridge Replacement Project**

Delineation of Waters of the United
States



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Project No 2272020025

December 2, 2019

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Executive Summary

On behalf of Glenn County Public Works Agency (County), Stantec Consulting Services Inc. (Stantec) conducted a delineation of waters of the United States occurring in the 6.28-acre County Road 305 over Watson Creek Bridge Replacement Project study area in Glenn County, California. The delineation was conducted in accordance with the *Corps of Engineers Wetlands Delineation Manual* (Environmental Laboratory 1987) and the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region* (U.S. Army Corps of Engineers 2008). The field delineation was conducted on June 14, 2019. A total of 0.557 acre of potential waters of the United States were mapped within the study area and include intermittent stream (0.147 acre, 255 linear feet) and seasonal wetland (0.410 acre).

The purpose of this delineation of waters of the United States is to document and describe potential waters of the United States to support a Preliminary Jurisdictional Determination from the United States Army Corps of Engineers (Corps). This delineation is subject to verification by the Corps, Sacramento District. Stantec advises all parties to treat the information contained herein as preliminary until the Corps provides written verification of the boundaries of its jurisdiction.

If the Corps wishes to conduct a field verification, the County requests that the Corps contact Kevin Cook-Guteriez, Assistant Engineer, Glenn County Public Works Agency by telephone at (530) 934-6530 or by email at KCook-Guteriez@countyofglenn.net to schedule a date and time to access the study area.

Abbreviations

County	Glenn County Public Works Agency
Corps	United States Army Corps of Engineers
GPS	Global Positioning System
NWI	National Wetlands Inventory
OHWM	Ordinary High Water Mark
Stantec	Stantec Consulting Services Inc.
USGS	United States Geological Survey

COUNTY ROAD 305 OVER WATSON CREEK BRIDGE REPLACEMENT PROJECT

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1.0 PROJECT LOCATION

The study area is in a rural area approximately 5.5 miles north of the community of Elk Creek in Glenn County, California and it consists of a 1,125-foot alignment along County Road 305. This location can be found on the *Chrome, California* 7.5-minute U.S. Geological Survey (USGS) quadrangle in Township 21N, Range 6E, Section 15. The approximate center of the study area is located at latitude 39.680275°, longitude -122.530174° (North American Datum 83). The study area location is shown in Figure 1.

To access the study area, from Interstate 5 in Willows, travel 20.5 miles west on CA-162. Turn right to stay on CA-162, continue straight on County Road 306 and travel approximately 5 miles to the intersection of County Road 305 & County Road 306. Turn right on County Road 305 where the Bridge crosses over Watson Creek approximately 360 feet east of the intersection of CR 305 & CR 306 (Figure 1).

2.0 ENVIRONMENTAL SETTING

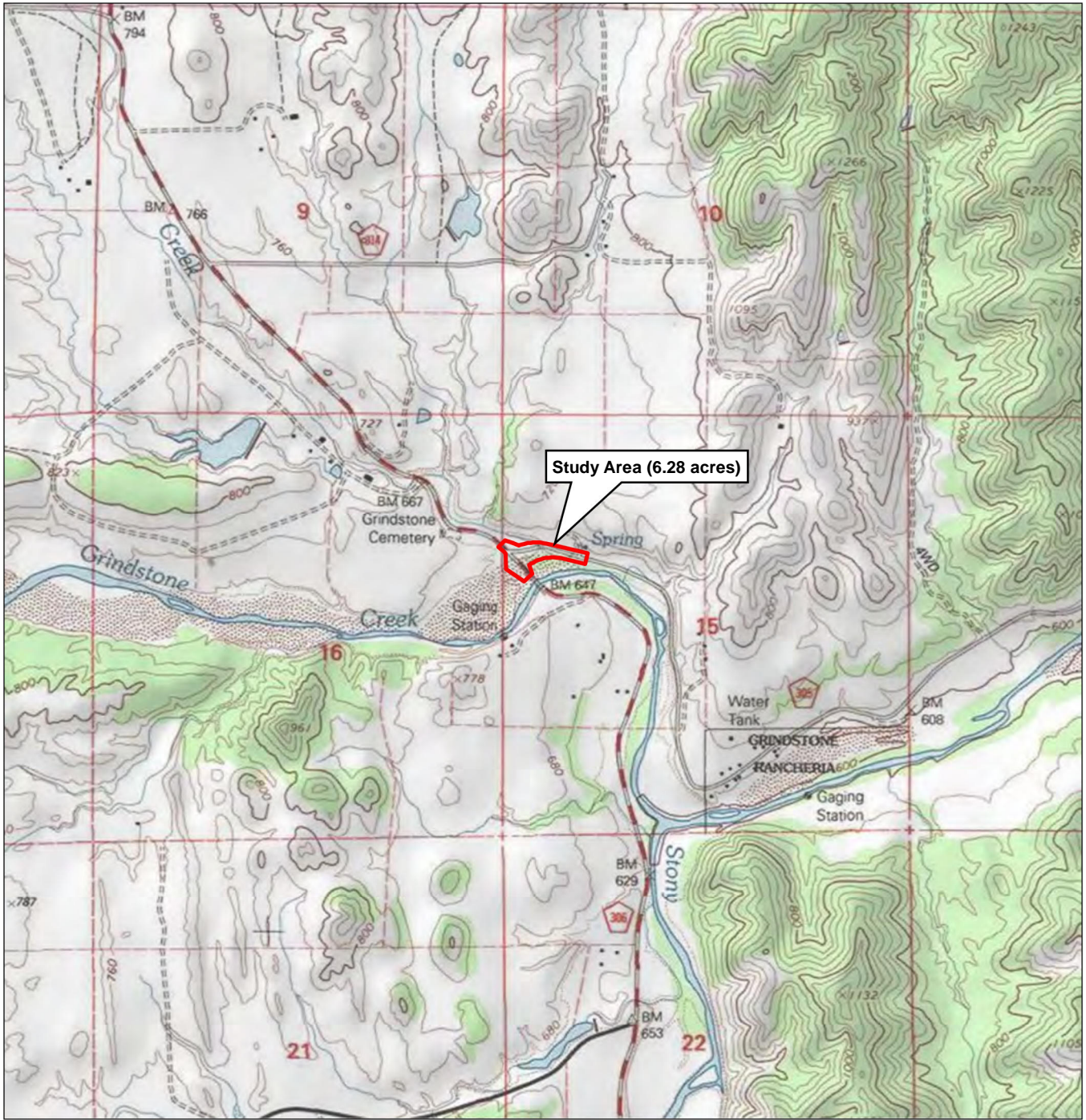
2.1 CURRENT/RECENT LAND USE

The study area is bounded by annual grassland which is grazed by cattle. There are two rural residences in the vicinity, one located approximately 0.15 mile north of the study area and one located approximately 0.15 mile south of the study area. County Road 305 serves as the only access to the Grindstone Rancheria, which is located approximately 0.4 mile to the southeast of the study area.

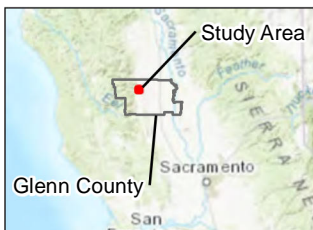
2.2 SITE TOPOGRAPHY AND ELEVATION

The topography of the study area immediately adjacent to Watson Creek consists of nearly level terraces. All adjacent land drains to Watson Creek and the seasonal wetland. The study area generally runs perpendicular to Watson Creek and curves to the south in the eastern and western portions, following the roadway alignment. The study area occurs at elevations between 639 and 648 feet.

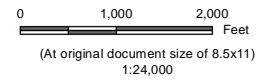
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Study Area (6.28 acres)



Study Area (6.28 acres)



Project Location T21N, R06E, S15 Prepared by TH on 2019-07-23
 Glenn County, CA TR by CF on 2019-07-25
 IR Review by MEW on 2019-07-26

Client/Project County of Glenn Public Works Agency 227202025 REVA
 County Road 305 over Watson Creek
 Bridge Replacement Project

Figure No. 1

Title Study Area Location

Figure 1

Disclaimer: This document has been prepared based on information provided by others as cited in the Notes section. Stantec has not verified the accuracy and/or completeness of this information and shall not be responsible for any errors or omissions which may be incorporated herein as a result. Stantec assumes no responsibility for data supplied in electronic format, and the recipient accepts full responsibility for verifying the accuracy and completeness of the data.

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2.3 CLIMATE

Historical data used to describe the climate were collected at Stony Gorge Reservoir, California approximately 6.5 miles south of the study area (Western Regional Climate Center 2019). The climate data are described below:

Type: The climate of the area is characterized as Mediterranean with moderate winters and hot, dry summers.

Precipitation: Precipitation in the study area primarily occurs as rain. The average annual rainfall is approximately 20 inches.

Air Temperature: Air temperatures in the study area range between an average January high of 55 degrees Fahrenheit (°F), and an average July high of 97°F. The annual average high is approximately 75°F.

Growing Season: The growing season (i.e., 50% probability of air temperature 28 °F or higher) in the study area is approximately 280 days and occurs between March and November.

2.4 HYDROLOGY/HYDROLOGIC FEATURES

The hydrologic features in the study area include an intermittent stream (Watson Creek) and a seasonal wetland. Watson Creek flows to Grindstone Creek approximately 145 feet downstream of the study area. Grindstone Creek flows southeast to Stony Creek approximately 0.85 mile downstream of the confluence with Watson Creek. Stony Creek flows approximately 10.5 river miles to Black Butte Reservoir and then approximately 26 river miles from Black Butte Dam to the Sacramento River, a traditional navigable water (TNW).

The seasonal wetland is located to the southeast of the County Road 305 and County Road 306 intersection. The feature is lower in elevation than the immediate surrounding area and does not appear to have direct surface water connection to Watson Creek or Grindstone Creek. Hydrology for these features is generally provided by sheet flow, snow melt, springs, and groundwater originating in the mountains to the west of the study area. Drainage in the study area is primarily from west to east.

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2.5 SOIL MAP UNITS

Soil map units in and around the study area are shown in Figure 2. Four soil map units occur within the study area and are described in Table 1.

Table 1. Soil Map Units

Map Unit Name	Map Unit Code	Drainage Class	Depth to Restrictive Layer	Hydric Soil
Gravelly alluvial lands	Gr	Excessively Drained	60 inches	Yes
Orland-Cortina complex	Ox	Well Drained	60 inches	No
Riverwash	Rh	Excessively Drained	60 inches	Yes
Terrace escarpments	TpF	None	60 inches	No

2.6 VEGETATION COMMUNITIES

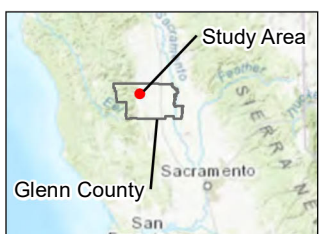
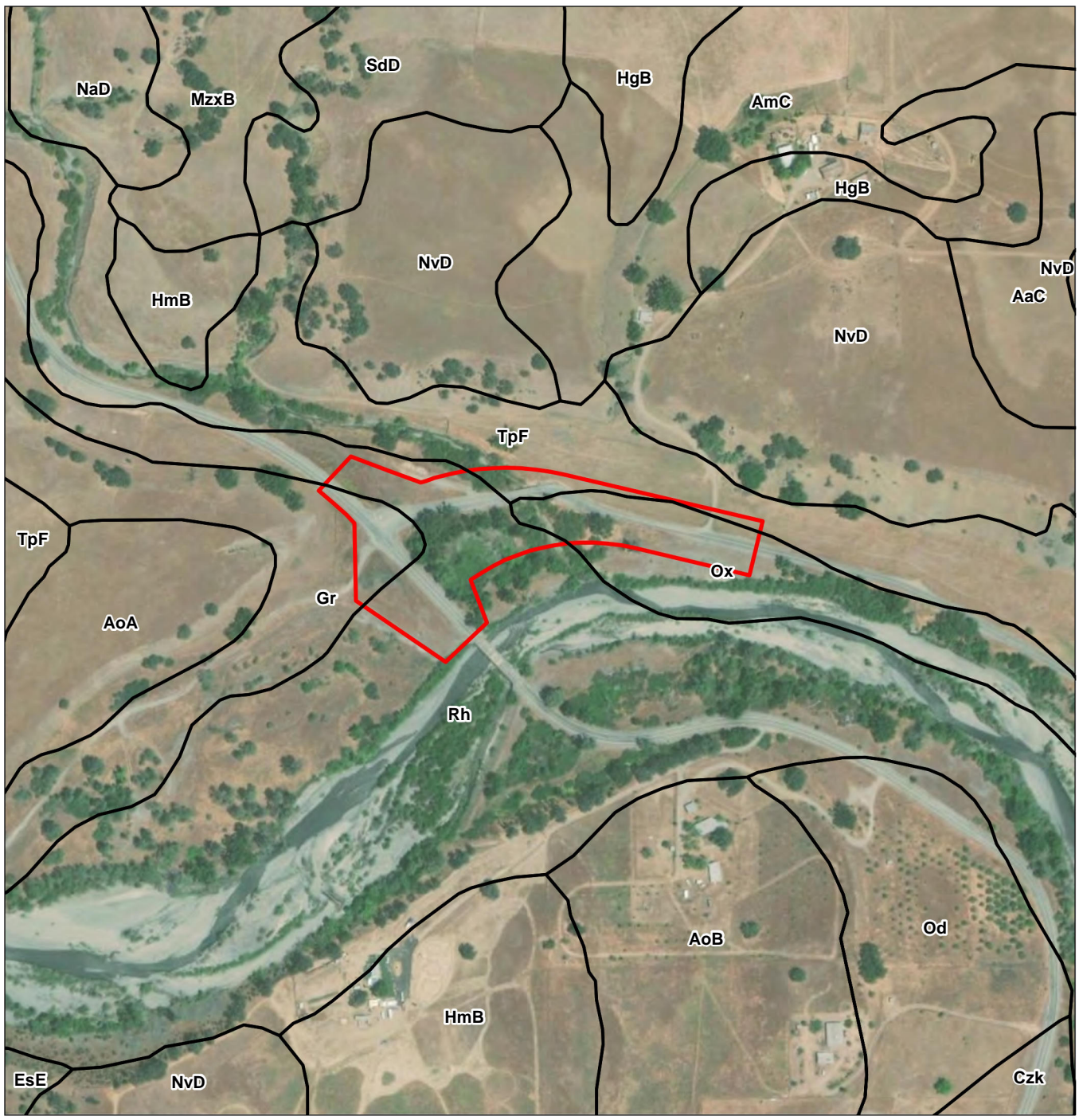
Vegetation communities are based on descriptions provided in *A Guide to Wildlife Habitats of California* (Mayer and Laudenslayer 1988). Five vegetation communities or other habitats occur in the study area: annual grassland, riverine, valley foothill riparian, seasonal wetland, and barren/ruderal.

Annual Grassland. Annual grassland habitat is located throughout the study area. Annual grassland habitat is characterized by a dense herbaceous layer and is dominated by introduced annual grasses and forbs, including wild oat (*Avena fatua*), ripgut brome (*Bromus diandrus*), soft chess (*B. hordeaceus*), rose clover (*Trifolium hirtum*), and yellow star-thistle (*Centaurea solstitialis*).

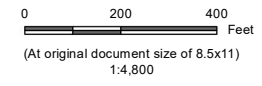
Riverine. Riverine habitat in the study area consists of Watson Creek. Watson Creek flows south through the study area and consists of run and riffle habitats dominated by cobble, gravel, and bedrock substrates. Vegetation within the stream channel is sparse, with scattered black willow (*Salix gooddingii*), Fremont cottonwood (*Populus fremontii*), and invasive tamarisk (*Tamarix parviflora*) along the banks.

Valley Foothill Riparian. Valley foothill riparian habitat occurs adjacent to Watson Creek and around the edges of the seasonal wetland. Dominant species include valley oak (*Quercus lobata*), black walnut (*Juglans hindsii*), Fremont cottonwood, and blue elderberry (*Sambucus nigra* ssp. *caerulea*).

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- Study Area (6.28 acres)
- Soil Map Units
- Gr—Gravelly alluvial lands
- Ox—Orland-Cortina complex
- Rh—Riverwash
- TpF—Terrace escarpments



Project Location T21N, R06E, S15
Glenn County, CA
Prepared by TH on 2019-07-23
TR by CF on 2019-07-25
IR Review by MEW on 2019-07-26

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County Road 305 over Watson Creek
Bridge Replacement Project
2272020025

Figure No.
2

Soil Types

Notes
1. Coordinate System: NAD 1983 2011 StatePlane California II FIPS 0402 Ft US
2. Data Sources: United States Department of Agriculture, Natural Resources Conservation Service
3. Background: Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User

Figure 2

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Seasonal Wetland. Seasonal wetland habitat occurs to the southeast of the County Road 305 and County Road 306 intersection. This is a depressional feature that appears to hold water for extended periods of time. Dominant species include common cocklebur (*Xanthium strumarium*), narrow leaf cattail (*Typha angustifolia*), California bulrush (*Schoenoplectus californicus*), and buttonbush (*Cephalanthus occidentalis*).

Barren/Ruderal. Barren/ruderal habitat occurs as dirt and paved roads and their associated road shoulders. Vegetation is usually not present, although sparse opportunistic grasses and forbs or weedy species may occur.

3.0 METHODS

Stantec conducted an on-site routine delineation of wetlands and “other waters” of the United States based on field observations of positive indicators for wetland vegetation, hydrology, and soils; and indicators of an ordinary high water mark (OHWM). This methodology is consistent with the approach outlined in the *Corps of Engineers Wetlands Delineation Manual* (Environmental Laboratory 1987) and the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region* (U.S. Army Corps of Engineers 2008). Plant taxonomy follows *The Jepson Manual: Vascular Plants of California* (Baldwin et al. 2012). Wetland indicator status for plant species was confirmed using *The National Wetland Plant List* (Lichvar et al. 2016), and the “50/20 Rule” or “Prevalence Index” was applied to determine plant dominance (U.S. Army Corps of Engineers 2008). Presence of primary and secondary wetland hydrology indicators were documented for each wetland feature.

Other waters are defined as traditional navigable waters and their tributaries (33 CFR 329). Delineation of other waters was based on presence of an OHWM as defined in Corps regulations (33 CFR 328.3 and 33 CFR 328.4) and whether the feature qualified as tributary to waters of the United States. Physical characteristics of an OHWM include, but are not limited to the following conditions: a natural line impressed on the bank, shelving, changes in the character of the soil, destruction of terrestrial vegetation, presence of litter and debris, leaf litter disturbed or washed away, scour, deposition, presence of bed and bank, and water staining. At least one data point was selected to best represent the OHWM of other waters for each other waters type.

Prior to conducting the on-site routine delineation, the U.S. Fish and Wildlife Service’s, National Wetlands Inventory (NWI) Wetlands Mapper (U.S. Fish and Wildlife Service 2019) was reviewed to determine if any wetlands or deepwater habitats as described by Cowardin et al. (1979) were previously mapped in the study area and general vicinity. Features delineated during the on-site routine delineation were classified using Cowardin (1979) based on existing NWI mapping, or assigned a Cowardin type if not previously mapped.

Three data points were used to characterize and document each wetland and other water feature type. Field observations were conducted on June 14, 2019.

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The boundaries of delineated features and the associated data points were mapped using an ArcGIS Collector with a Global Positioning System (GPS) receiver capable of sub-meter accuracy. Where the use of the GPS was not practicable, or satellites were not available, the features were delineated by hand onto ortho-rectified color aerial photographs. The GPS and hand-drawn location data were overlaid onto an aerial photograph of the study area to develop the delineation map.

4.0 RESULTS AND DISCUSSION

Potential waters of the United States occur in the study area as wetlands and other waters and include intermittent stream and seasonal wetland.

The boundaries and area of potential waters of the United States occurring in the study area are illustrated in Figure 3. A total of 0.557 acre of potential waters of the United States was delineated. A summary of the delineated features is presented in Table 2. Routine wetland determination data forms are presented in Appendix A. Representative photographs of the delineated features and data point locations are presented in Appendix B.

Table 2. Potential Waters of the United States Summary

Waters of the United States	Total Acreage	Total Linear Feet	Cowardin Type¹
<i>Wetlands</i>			
Seasonal Wetland	0.410		PUB3E
<i>Other Waters</i>			
Intermittent Stream	0.147	255	R4SB3C
Total Waters of the United States	0.557	255	

4.1 CHARACTERIZATION OF DELINEATED FEATURES

4.1.1 Intermittent Stream (Watson Creek)

Intermittent streams flow seasonally, but are fed by a groundwater component in addition to precipitation and sheet flow from adjacent slopes. One intermittent stream (Watson Creek; IS-1) occurs in the study area and is characterized as a bed and bank feature that exhibits indicators of scour, deposition, watermarks, and drift lines. The intermittent stream ranges from 20 to 30 feet wide. Cobble, gravel, sand, and bedrock dominate the stream substrate. Watson Creek flows to Grindstone Creek approximately 145 feet downstream of the study area. Grindstone

¹ Cowardin et al. 1979

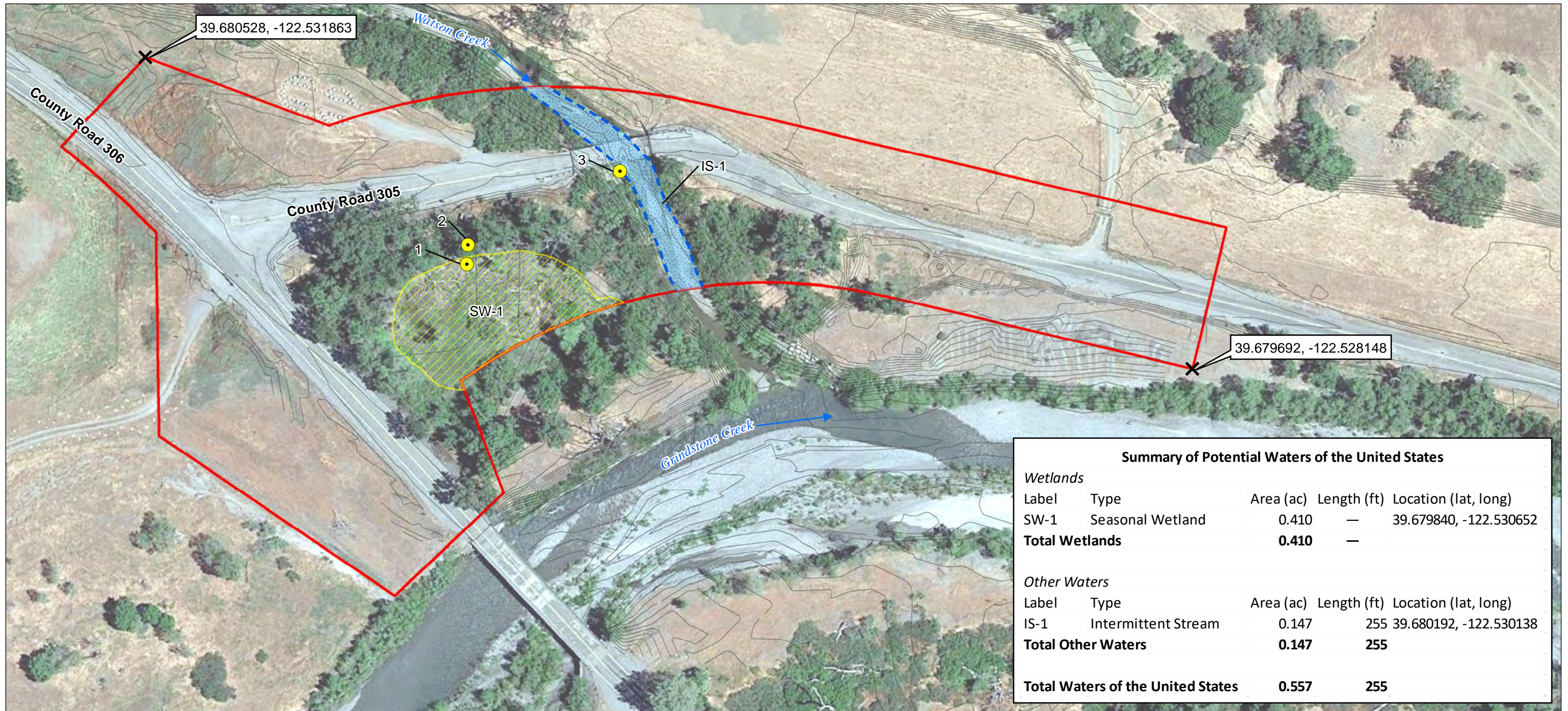
COUNTY ROAD 305 OVER WATSON CREEK BRIDGE REPLACEMENT PROJECT

County Road 305 over Watson Creek Bridge Replacement Project
December 2, 2019

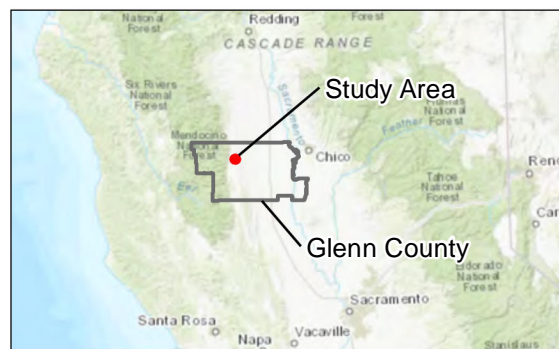
Creek flows southeast into Stony Creek approximately 0.85 mile downstream of the confluence with Watson Creek. Stony Creek flows approximately 10.5 river miles to Black Butte Reservoir and then approximately 26 river miles from Black Butte Dam to the Sacramento River, a traditional navigable water (TNW).

4.1.2 Seasonal Wetland

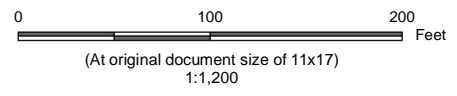
One seasonal wetland occurs in the study area and is characterized as a closed, depressional feature that is several feet lower in elevation than the surrounding land. Hydrophytic vegetation such as narrow leaf cattail (*Typha angustifolia*), cocklebur (*Xanthium strumarium*), and California bulrush (*Schoenoplectus californicus*) are dominant species throughout the seasonal wetland. The seasonal wetland appears to fill with rainwater and runoff and hold water for extended periods of time. No culverts or direct surface water connection from the seasonal wetland to Watson Creek or Grindstone Creek were observed during the field delineation.



Summary of Potential Waters of the United States					
Wetlands					
Label	Type	Area (ac)	Length (ft)	Location (lat, long)	
SW-1	Seasonal Wetland	0.410	—	39.679840, -122.530652	
Total Wetlands		0.410	—		
Other Waters					
Label	Type	Area (ac)	Length (ft)	Location (lat, long)	
IS-1	Intermittent Stream	0.147	255	39.680192, -122.530138	
Total Other Waters		0.147	255		
Total Waters of the United States		0.557	255		



- Study Area (6.28 acres)
 - X Map Reference Point
 - One-Foot Contours
 - Data Point
- Potential Waters of the United States**
- Wetlands
 - Seasonal Wetland
 - Other Waters
 - Intermittent Stream
 - Ordinary High Water Mark



Project Location
T21N, R06E, S15
Glenn County, CA

Prepared by TH on 2019-09-24
TR by CF on 2019-09-24
IR Review by MEW on 2019-09-26

Client/Project
County of Glenn Public Works Agency
County Road 305 over Watson Creek
Bridge Replacement Project

2272020025

Figure No.
3

Title
Potential Waters of the United States

Notes:

1. Delineator: Chariss Femino
2. Delineation Date: June 14, 2019
3. Coordinate System: NAD 1983 2011 StatePlane California II FIPS 0402 Ft US
4. Aerial Imagery: Georeferenced Google Imagery, May 21, 2017
5. This delineation of waters of the United States is subject to verification by the U.S. Army Corps of Engineers (Corps). Stantec advises all parties that the delineation is preliminary until the Corps provides a written verification.

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5.0 CONCLUSION

Potential waters of the United States delineated within the study area occupy a total of 0.557 acre (255 linear feet) and occur as intermittent stream and seasonal wetland.

Determinations of waters of the United States, including wetlands, are based on current conditions, (i.e., normal circumstances) and made in accordance with relevant U.S. Environmental Protection Agency and Corps guidance. Determinations are subject to verification by the Corps. Stantec advises all interested parties to treat the information contained herein as preliminary pending written verification of jurisdictional boundaries by the Corps.

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December 2, 2019

6.0 REFERENCES

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APPENDIX A
ROUTINE WETLAND DETERMINATION
DATA FORMS

Wetland Determination Data Form—Arid West Region

Data Point DPI
Feature Type wetland

Project/Site: CR 305 @ Watson Creek City/County: Glenn County Date: 6/14/19
 Applicant/Owner: Glenn County State: CA
 Investigator(s): Chariss, Fenido Section, Township, Range S15, T21N, R06E
 Landform (hillslope, terrace, etc.) depression Local relief (concave, convex, none) Concave Slope % 0
 Subregion (LRR): C Lat: 39.6799165 Long: -122.530720 Datum: NAD 83
 Soil Map Unit Name: Riverwash NWI Classification: N/A

Are climatic/hydrologic conditions on the site typical for this time of year? Y N (If no, explain in Remarks.)
 Are vegetation Y N, soil Y N, or hydrology Y N significantly disturbed? Are normal circumstances present? Y N
 Are vegetation Y N, soil Y N, or hydrology Y N naturally problematic? (If needed, explain in Remarks.)

Summary of Findings (Attach site map showing sampling point locations, transects, important features, etc.)

Hydrophytic vegetation? Y N Hydric soil? Y N Wetland hydrology? Y N Is sampled area a wetland? Y N Other waters? Y N

Evaluation of features designated "Other Waters of the United States"

Indicators: Defined bed and bank Scour Ordinary High Water Mark Mapped Stream Width
 Feature Designation: Perennial Intermittent Ephemeral Blue-line on USGS Quad Substrate
 Natural Drainage Artificial Drainage Navigable Water

Remarks

Point taken @ edge of large depression feature. No soil pit dug because of potential underground cable - hydrology and hydrophytic veg indicators are strong. Within mapped hydric soil unit.

Vegetation (Use Scientific Names)

Tree Stratum (Plot Size: _____)	Absolute % Cover	Dominant Species?	Indicator Status
1. _____	_____	_____	_____
2. _____	_____	_____	_____
3. _____	_____	_____	_____
4. _____	_____	_____	_____
50%= _____ 20%= _____ Total Cover: _____			
Sapling/Shrub Stratum (Plot: _____)	% Cover	Species?	Status
1. _____	_____	_____	_____
2. _____	_____	_____	_____
3. _____	_____	_____	_____
4. _____	_____	_____	_____
50%= _____ 20%= _____ Total Cover: _____			
Herb Stratum (Plot Size: _____)	% Cover	Species?	Status
1. <u>Xanthium strumarium</u>	<u>50</u>	<u>Y</u>	<u>FAC</u>
2. <u>Polypodium monspeliensis</u>	<u>40</u>	<u>Y</u>	<u>FACW</u>
3. <u>Typha angustifolia</u>	<u>4</u>	<u>N</u>	<u>OBL</u>
4. <u>Rumex crispus</u>	<u>1</u>	<u>N</u>	<u>FAC</u>
5. _____	_____	_____	_____
6. _____	_____	_____	_____
7. _____	_____	_____	_____
8. _____	_____	_____	_____
50%= _____ 20%= _____ Total Cover: <u>95</u>			
Woody/Vine Stratum (Plot: _____)	% Cover	Species?	Status
1. _____	_____	_____	_____
2. _____	_____	_____	_____
50%= _____ 20%= _____ Total Cover: _____			
% Bare Ground in Herb Stratum <u>5</u> % Cover of Biotic Crust <u>100</u>			

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 (AB)

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 < 3.0¹
 Morphological Adaptations¹ (provide supporting data in Remarks or on a separate sheet)
 Problematic Hydrophytic Vegetation¹ (Explain)
¹Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation? Y N

Remarks

Soils

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

Depth (inches)	Matrix		Redox Features		Type ¹	Loc ²	Texture	Remarks
	Color (moist)	%	Color (moist)	%				

¹Types: C = Concentration D = Depletion RM = Reduced Matrix ²Location: PL = Pore Lining 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"/> Sandy Redox (S5)	<input type="checkbox"/> 1 cm Muck (A9) (LRR C)
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Stripped Matrix (S6)	<input type="checkbox"/> 2 cm Muck (A10) (LRR B)
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Loamy Mucky Mineral (F1)	<input type="checkbox"/> Reduced Vetric (F18)
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Loamy Gleyed Matrix (F2)	<input type="checkbox"/> Red Parent Materials (TF21)
<input type="checkbox"/> Stratified Layers (A5) (LRR C)	<input type="checkbox"/> Depleted Matrix (F3)	<input type="checkbox"/> Vegetated Sand/Gravel Bars
<input type="checkbox"/> 1 cm Muck (A9) (LRR D)	<input type="checkbox"/> Redox Dark Surface (F6)	<input type="checkbox"/> Other (Explain in Remarks)
<input type="checkbox"/> Depleted Below Dark Surface (A11)	<input type="checkbox"/> Depleted Dark Surface (F7)	
<input type="checkbox"/> Thick Dark Surface (A12)	<input type="checkbox"/> Redox Depressions (F8)	
<input type="checkbox"/> Sandy Mucky Mineral (S1)	<input type="checkbox"/> Vernal Pools (F9)	
<input type="checkbox"/> Sandy Gleyed Matrix (S4)		

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

Restrictive Layer (if present): Type: _____ Depth (Inches) _____ Hydric Soil? Y N

Remarks *no soil pit dug - underground cable markers nearby soil is within a mapped hydric soil unit.*

Hydrology

Wetland Indicators		Secondary Indicators (2 or more required)
Primary Indicators (Any one indicator is sufficient.)		
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Salt Crust (B11)	<input type="checkbox"/> Water Marks (B1) (Riverine)
<input type="checkbox"/> High Water Table (A2)	<input checked="" type="checkbox"/> Biotic Crust (B12)	<input type="checkbox"/> Sediment Deposits (B2) (Riverine)
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Aquatic Invertebrates (B13)	<input type="checkbox"/> Drift Deposits (B3) (Riverine)
<input type="checkbox"/> Water Marks (B1) (Nonriverine)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Drainage Patterns (B10)
<input type="checkbox"/> Sediment Deposits (B2) (Nonriverine)	<input type="checkbox"/> Oxidized Rhizospheres (C3)	<input type="checkbox"/> Dry-Season Water Table (C2)
<input type="checkbox"/> Drift Deposits (B3) (Nonriverine)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Crayfish Burrows (C8)
<input type="checkbox"/> Surface Soil Cracks (B6)	<input type="checkbox"/> Recent Iron Reduction in Plowed Soils (C6)	<input checked="" type="checkbox"/> Saturation Visible on Aerial Imagery (C9)
<input checked="" type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Thin Muck Surface (C7)	<input type="checkbox"/> Shallow Aquitard (D3)
<input checked="" type="checkbox"/> Water-Stained Leaves (B9)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> FAC-Neutral Test (D5)

Field Observations

Surface Water Present? Yes _____ No X Depth (inches) _____ Wetland Hydrology? Y N
 Water Table Present? Yes _____ No _____ Depth (inches) _____
 Saturation Present? Yes _____ No _____ Depth (inches) _____ (includes capillary fringe)

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

aerial photos

Remarks

Wetland Determination Data Form—Arid West Region

Data Point DP 2
 Feature Type upland
 Date: 6/14/19

Project/Site: CR 305 @ Watson Creek City/County: Glenn County
 Applicant/Owner: Glenn County State: CA
 Investigator(s): Chariss Femino Section, Township, Range S15, T21N, R06E
 Landform (hillslope, terrace, etc.) hillslope Local relief (concave, convex, none) convex Slope % 5
 Subregion (LRR): F Lat: 39.680018 Long: -122.530717 Datum: NAD 83
 Soil Map Unit Name: Riverwash NWI Classification: N/A

Are climatic/hydrologic conditions on the site typical for this time of year? Y/N (If no, explain in Remarks.)
 Are vegetation Y/N, soil Y/N, or hydrology Y/N significantly disturbed? Are normal circumstances present? Y/N
 Are vegetation Y/N, soil Y/N, or hydrology Y/N naturally problematic? (If needed, explain in Remarks.)

Summary of Findings (Attach site map showing sampling point locations, transects, important features, etc.)
 Hydrophytic vegetation? Y/N Hydric soil? Y/N Wetland hydrology? Y/N Is sampled area a wetland? Y/N Other waters? Y/N

Evaluation of features designated "Other Waters of the United States"
 Indicators: Defined bed and bank Scour Ordinary High Water Mark Mapped Stream Width
 Feature Designation: Perennial Intermittent Ephemeral Blue-line on USGS Quad Substrate
Natural Drainage Artificial Drainage Navigable Water

Remarks upland point to DP1. Taken upslope from DP1 and outside of depression feature boundaries.

Vegetation (Use Scientific Names)			
Tree Stratum (Plot Size: _____)	Absolute % Cover	Dominant Species?	Indicator Status
1. <u>Q. lobata</u>	<u>25</u>	<u>yes</u>	<u>FACW</u>
2. _____	_____	_____	_____
3. _____	_____	_____	_____
4. _____	_____	_____	_____
50%= _____ 20%= _____ Total Cover: _____			
Sapling/Shrub Stratum (Plot: _____)	% Cover	Species?	Status
1. <u>Sambucus nigra</u>	<u>5</u>	<u>no</u>	<u>FACW</u>
2. _____	_____	_____	_____
3. _____	_____	_____	_____
4. _____	_____	_____	_____
50%= _____ 20%= _____ Total Cover: _____			
Herb Stratum (Plot Size: _____)	% Cover	Species?	Status
1. <u>Arenaria fatua</u>	<u>25</u>	<u>yes</u>	<u>UPL</u>
2. <u>Zylmus caput-medusae</u>	<u>5</u>	<u>no</u>	<u>UPL</u>
3. <u>Galium californicum</u>	<u>20</u>	<u>yes</u>	<u>UPL</u>
4. <u>Gnaphalium luteo-album</u>	<u>3</u>	<u>no</u>	<u>UPL</u>
5. _____	_____	_____	_____
6. _____	_____	_____	_____
7. _____	_____	_____	_____
8. _____	_____	_____	_____
50%= _____ 20%= _____ Total Cover: <u>53</u>			
Woody/Vine Stratum (Plot: _____)	% Cover	Species?	Status
1. _____	_____	_____	_____
2. _____	_____	_____	_____
50%= _____ 20%= _____ Total Cover: _____			
% Bare Ground in Herb Stratum <u>30</u> % Cover of Biotic Crust _____			

Dominance Test Worksheet
 Number of dominant species that are OBL, FACW, or FAC: 6 (A)
 Total number of dominant species across all strata: 3 (B)
 Percent of dominant species that are OBL, FACW, or FAC: 0 (AB)

Prevalence Index Worksheet
 Total % Cover of: _____ Multiply by _____
 OBL Species 0 x 1 = _____
 FACW Species 0 x 2 = _____
 FAC Species 0 x 3 = _____
 FACU Species 30 x 4 = 120
 UPL Species 53 x 5 = 265
 Column Totals 83 (A) 385 (B)
 Prevalence Index = B/A = 4.64

Hydrophytic Vegetation Indicators
 _____ Dominance Test is >50%
 _____ Prevalence Index is ≤ 3.0¹
 _____ Morphological Adaptations¹ (provide supporting data in Remarks or on a separate sheet)
 _____ Problematic Hydrophytic Vegetation¹ (Explain)
¹Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation? Y/N

Remarks

Soils

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

Depth (inches)	Matrix		Redox Features		Type ¹	Loc ²	Texture	Remarks
	Color (moist)	%	Color (moist)	%				

¹Types: C = Concentration D = Depletion RM = Reduced Matrix ²Location: 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 Soils³

- ___ 1 cm Muck (A9) (LRR C)
- ___ 2 cm Muck (A10) (LRR B)
- ___ Reduced Vertic (F18)
- ___ Red Parent Materials (TF21)
- ___ Vegetated Sand/Gravel Bars
- ___ Other (Explain in Remarks)

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

Restrictive Layer (if present): Type: _____ Depth (Inches) _____ Hydric Soil? Y/N

Remarks

no soil pit - underground cable nearby - no 811

Hydrology

Wetland Indicators

Primary Indicators (Any one indicator is sufficient.)		Secondary Indicators (2 or more required)
___ Surface Water (A1)	___ Salt Crust (B11)	___ Water Marks (B1) (Riverine)
___ High Water Table (A2)	___ Biotic Crust (B12)	___ Sediment Deposits (B2) (Riverine)
___ Saturation (A3)	___ Aquatic Invertebrates (B13)	___ Drift Deposits (B3) (Riverine)
___ Water Marks (B1) (Nonriverine)	___ Hydrogen Sulfide Odor (C1)	___ Drainage Patterns (B10)
___ Sediment Deposits (B2) (Nonriverine)	___ Oxidized Rhizospheres (C3)	___ Dry-Season Water Table (C2)
___ Drift Deposits (B3) (Nonriverine)	___ Presence of Reduced Iron (C4)	___ Crayfish Burrows (C8)
___ Surface Soil Cracks (B6)	___ Recent Iron Reduction in Plowed Soils (C6)	___ Saturation Visible on Aerial Imagery (C9)
___ Inundation Visible on Aerial Imagery (B7)	___ Thin Muck Surface (C7)	___ Shallow Aquitard (D3)
___ Water-Stained Leaves (B9)	___ Other (Explain in Remarks)	___ FAC-Neutral Test (D5)

Field Observations

Surface Water Present? Yes ___ No X Depth (inches) _____ Wetland Hydrology? Y/N

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

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

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

aerial photos

Remarks

Upland pt taken upslope on terrace - outside of wetland depression

Wetland Determination Data Form-Arid West Region

Data Point DP 3
 Feature Type Int. Stream

Project/Site: CR 305 @ Watson Creek City/County: Glenn County Date: 6/14/19
 Applicant/Owner: Glenn County State: CA
 Investigator(s): Chariss Ferdino Section, Township, Range S15, T21N, R06E
 Landform (hillslope, terrace, etc.) streambed Local relief (concave, convex, none) concave Slope % _____
 Subregion (LRR): C Lat: 39.680224 Long: -122.530180 Datum: NAD 83
 Soil Map Unit Name: Orland-Cortina Complex NWI Classification: R43BC

Are climatic/hydrologic conditions on the site typical for this time of year? Y/N (If no, explain in Remarks.)
 Are vegetation Y/N, soil Y/N, or hydrology Y/N significantly disturbed? Are normal circumstances present? Y/N
 Are vegetation Y/N, soil Y/N, or hydrology Y/N naturally problematic? (If needed, explain in Remarks.)

Summary of Findings (Attach site map showing sampling point locations, transects, important features, etc.)
 Hydrophytic vegetation? Y/N Hydric soil? Y/N Wetland hydrology? Y/N Is sampled area a wetland? Y/N Other waters? Y/N

Evaluation of features designated "Other Waters of the United States"
 Indicators: Defined bed and bank Scour _____ Ordinary High Water Mark Mapped Stream Width 30'
 Feature Designation: Perennial _____ Intermittent Ephemeral _____ Blue-line on USGS Quad _____ Substrate gravel
 Natural Drainage Artificial Drainage _____ Navigable Water _____

Remarks
 pt taken @ OTHM - algal overgrowth in water gravel substrate
 small fish ~ 2-3" swimming in water

Vegetation (Use Scientific Names)			
Tree Stratum (Plot Size: _____)	Absolute % Cover	Dominant Species?	Indicator Status
1. _____	_____	_____	_____
2. _____	_____	_____	_____
3. _____	_____	_____	_____
4. _____	_____	_____	_____
50%= _____ 20%= _____ Total Cover: _____			
Sapling/Shrub Stratum (Plot: _____)	% Cover	Species?	Status
1. _____	_____	_____	_____
2. _____	_____	_____	_____
3. _____	_____	_____	_____
4. _____	_____	_____	_____
50%= _____ 20%= _____ Total Cover: _____			
Herb Stratum (Plot Size: _____)	% Cover	Species?	Status
1. _____	_____	_____	_____
2. _____	_____	_____	_____
3. _____	_____	_____	_____
4. _____	_____	_____	_____
5. _____	_____	_____	_____
6. _____	_____	_____	_____
7. _____	_____	_____	_____
8. _____	_____	_____	_____
50%= _____ 20%= _____ Total Cover: _____			
Woody/Vine Stratum (Plot: _____)	% Cover	Species?	Status
1. _____	_____	_____	_____
2. _____	_____	_____	_____
50%= _____ 20%= _____ Total Cover: _____			
% Bare Ground in Herb Stratum <u>100</u> % Cover of Biotic Crust _____			

Dominance Test Worksheet	
Number of dominant species that are OBL, FACW, or FAC:	_____ (A)
Total number of dominant species across all strata:	_____ (B)
Percent of dominant species that are OBL, FACW, or FAC:	_____ (AB)
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 ≤ 3.0¹
 _____ Morphological Adaptations¹ (provide supporting data in Remarks or on a separate sheet)
 _____ Problematic Hydrophytic Vegetation¹ (Explain)
¹Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation? Y/N

Remarks
 Tamarix parviflora growing nearby on creek bank above OTHM.

Soils

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

Depth (inches)	Matrix		Redox Features		Type ¹	Loc ²	Texture	Remarks
	Color (moist)	%	Color (moist)	%				

¹Types: C = Concentration D = Depletion RM = Reduced Matrix ²Location: PL = Pore Lining M = Matrix

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

Indicators for Problematic Hydric Soils³

- | | | |
|--|---|--|
| <input type="checkbox"/> Histosol (A1) | <input type="checkbox"/> Sandy Redox (S5) | <input type="checkbox"/> 1 cm Muck (A9) (LRR C) |
| <input type="checkbox"/> Histic Epipedon (A2) | <input type="checkbox"/> Stripped Matrix (S6) | <input type="checkbox"/> 2 cm Muck (A10) (LRR B) |
| <input type="checkbox"/> Black Histic (A3) | <input type="checkbox"/> Loamy Mucky Mineral (F1) | <input type="checkbox"/> Reduced Vetric (F18) |
| <input type="checkbox"/> Hydrogen Sulfide (A4) | <input type="checkbox"/> Loamy Gleyed Matrix (F2) | <input type="checkbox"/> Red Parent Materials (TF21) |
| <input type="checkbox"/> Stratified Layers (A5) (LRR C) | <input type="checkbox"/> Depleted Matrix (F3) | <input type="checkbox"/> Vegetated Sand/Gravel Bars |
| <input type="checkbox"/> 1 cm Muck (A9) (LRR D) | <input type="checkbox"/> Redox Dark Surface (F6) | <input type="checkbox"/> Other (Explain in Remarks) |
| <input type="checkbox"/> Depleted Below Dark Surface (A11) | <input type="checkbox"/> Depleted Dark Surface (F7) | |
| <input type="checkbox"/> Thick Dark Surface (A12) | <input type="checkbox"/> Redox Depressions (F8) | |
| <input type="checkbox"/> Sandy Mucky Mineral (S1) | <input type="checkbox"/> Vernal Pools (F9) | |
| <input type="checkbox"/> Sandy Gleyed Matrix (S4) | | |

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

Restrictive Layer (if present): Type: _____ Depth (Inches) _____ Hydric Soil? Y / N

Remarks N/A - OHWM pt

Hydrology

Wetland Indicators

Primary Indicators (Any one indicator is sufficient.)

Secondary Indicators (2 or more required)

- | | | |
|---|---|---|
| <input checked="" type="checkbox"/> Surface Water (A1) | <input type="checkbox"/> Salt Crust (B11) | <input checked="" type="checkbox"/> Water Marks (B1) (Riverine) |
| <input type="checkbox"/> High Water Table (A2) | <input type="checkbox"/> Biotic Crust (B12) | <input checked="" type="checkbox"/> Sediment Deposits (B2) (Riverine) |
| <input type="checkbox"/> Saturation (A3) | <input type="checkbox"/> Aquatic Invertebrates (B13) | <input checked="" type="checkbox"/> Drift Deposits (B3) (Riverine) |
| <input type="checkbox"/> Water Marks (B1) (Nonriverine) | <input type="checkbox"/> Hydrogen Sulfide Odor (C1) | <input checked="" type="checkbox"/> Drainage Patterns (B10) |
| <input type="checkbox"/> Sediment Deposits (B2) (Nonriverine) | <input type="checkbox"/> Oxidized Rhizospheres (C3) | <input type="checkbox"/> Dry-Season Water Table (C2) |
| <input type="checkbox"/> Drift Deposits (B3) (Nonriverine) | <input type="checkbox"/> Presence of Reduced Iron (C4) | <input type="checkbox"/> Crayfish Burrows (C8) |
| <input type="checkbox"/> Surface Soil Cracks (B6) | <input type="checkbox"/> Recent Iron Reduction in Plowed Soils (C6) | <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) |
| <input checked="" type="checkbox"/> Inundation Visible on Aerial Imagery (B7) | <input type="checkbox"/> Thin Muck Surface (C7) | <input type="checkbox"/> Shallow Aquitard (D3) |
| <input type="checkbox"/> Water-Stained Leaves (B9) | <input type="checkbox"/> Other (Explain in Remarks) | <input type="checkbox"/> FAC-Neutral Test (D5) |

Field Observations

Surface Water Present? Yes No Depth (inches) 16" Wetland Hydrology? Y / N

Water Table Present? Yes No Depth (inches) _____

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

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

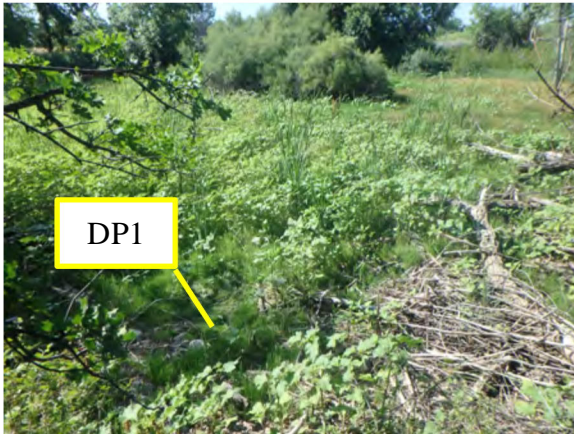
aerial photos

Remarks surface water present @ time of survey. Small fish swimming in water.

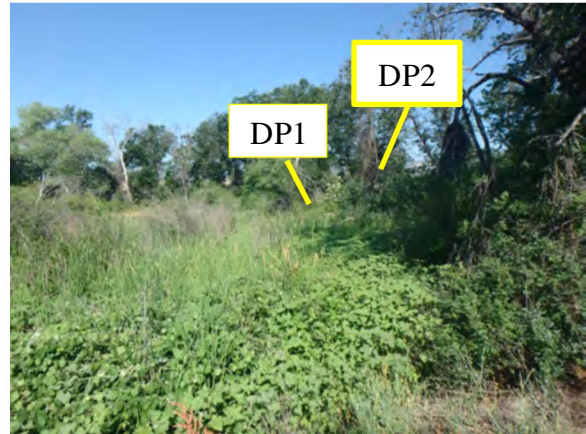
APPENDIX B
REPRESENTATIVE PHOTOGRAPHS

County Road 305 over Watson Creek Bridge Replacement Project Delineation of Waters of the United States

Photographs Taken June 14, 2019



Photograph 1. Seasonal Wetland (SW)-1. Data point (DP) 1 documents the wetland boundary. Orientation: southeast.



Photograph 2. DP2 documents the uplands adjacent to SW-1. Orientation: northwest.



Photograph 3. IS-1. DP3 documents the OHWM of the feature. Orientation: southeast.



Photograph 4. SW-1 looking south towards riparian habitat outside of BSA. No obvious surface water connection from SW-1 to Watson Creek or Grindstone Creek. Orientation: south.