Stony Creek Bridge (11C-0245) Replacement Project

Delineation of Waters of the United States



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NSR Project No. 51243

January 2017

Stony Creek Bridge (11C-0245) Replacement Project
Delineation of Waters of the United States

Glenn County

STATE OF CALIFORNIA
Department of Transportation

January 2017

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Chapter 1. Executive Summary

On behalf of Willdan Engineering and Glenn County, North State Resources, Inc. (NSR) conducted a delineation of waters of the United States occurring in the Stony Creek Bridge (11C-0245) 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 November 9, 2016. A total of 2.194 acres of potential waters of the United States were mapped within the study area and include riparian wetland (0.254 acre), ephemeral stream (0.001 acre, 48 linear feet), intermittent stream (0.016 acre, linear 116 feet), and perennial stream (1.923 acre, linear 897 feet).

The purpose of this delineation of waters of the United States is to document and describe 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 initial review and approval by Caltrans District 3 Office of Local Assistance and subsequent verification by the Corps, Sacramento District. NSR 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, Willdan Engineering requests that the Corps contact Mr. Gary Gordon by telephone at (530) 244-8500 or by email at ggordon@willdan.com to schedule a date and time to access the study area.

Chapter 2. Project Location

The study area is located on County Road 200A at the Stony Creek crossing and encompasses approximately 8.21 acres. It is located approximately 13 miles west of Orland, Glenn County, California; approximately 1.5 miles southwest of Black Butte Lake. It is shown on the *Julian Rocks, California* 7.5-minute U.S. Geological Survey (USGS) quadrangle in Township 22N, Range 5W, Section 27. The approximate center of the study area is located at UTM 10 S 550254 E, 4398138 N (NAD83 datum). The study area location is shown on Figure 1.

To access the study area from Interstate 5, exit at the Highway 32 exit in Orland. Travel 5 miles west on Newville Road (County Road 200). Turn left on County Road 206. Travel southwest approximately 3 miles on County Road 206 to County Road 200A and turn left. Travel southwest approximately 4.5 miles to the Stony Creek bridge.



Study Area (8.21 acres)

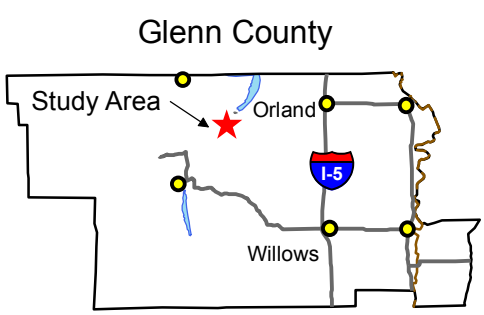
Public Land Survey:
Section 27
T22N, R5W (MDBM)

7.5' USGS Quad:
Julian Rocks

N

0 1,000 2,000
Feet

1:24,000



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North State Resources, Inc.

Stony Creek Bridge (11C-0245) Replacement Project

Figure 1
Project Location and Vicinity

Chapter 3. Environmental Setting

3.1 Current/Recent Land Use

The study area is located in the Stony Creek floodplain and adjacent upland terraces. Black Butte Lake, located northeast of the bridge, is used for boating, fishing, and camping. The land surrounding the study area is used for cattle and horse grazing.

3.2 Site Topography and Elevation

The study area is generally level and the elevation is approximately 500 feet.

3.3 Climate

Historical data used to describe the climate is collected at Orland, California approximately 13 miles east of the study area (Western Regional Climate Center 2016).

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

Precipitation: Precipitation in the study area primarily occurs as rain, with occasional snowfall. The average annual rainfall is approximately 20 inches and the average annual snowfall is 1 inch.

Air Temperature: Air temperatures in the study area range between an average January high of 54 degrees Fahrenheit (ºF) and an average July high of 97ºF. The annual average high is approximately 75ºF.

Growing Season: The growing season (i.e., 50% probability of air temperature 28 ºF or higher) in the study area is approximately 340 days and occurs between February and December.

3.4 Hydrology/Hydrologic Features

The hydrologic features in the study area include Stony Creek and small intermittent and ephemeral tributary streams that flow into Stony Creek. The study area is situated on Stony Creek between Stony Gorge Reservoir and Black Butte Lake. Stony Creek receives regulated flows from the Stony Gorge Reservoir. Stony Creek is a meandering stream with a wide, nearly level floodplain that flows from southwest to the northeast. Tributaries flow into the stream from the northwest and southeast slopes. Stony Creek flows to the Sacramento River, a traditional navigable water, approximately 31.5 river miles (23.6 aerial miles) east of the study area.

3.5 Soil Map Units

Five soil map units occur in the study area. They are described in the *Soil Survey of the Glenn County Area, California* (Natural Resources Conservation Service 2016). Soil map units occurring within the study area are summarized in Table 1 and shown in Figure 2.

Table 1. Soil Map Units the Study Area

Map Unit Name Taxonomy	Map Unit Reference Code	Drainage Class	Depth to Restrictive Layer	Hydric Soils
Arbuckle gravelly loam, 0 to 2 percent slopes Typic haploxeralfs	AoA	Well-drained	More than 80 inches	No, hydric inclusions (depressions)
Pleasanton gravelly loam, 2 to 10 percent slopes Mollic haploxeralfs	PmB	Well-drained	More than 80 inches	Not hydric
Riverwash	Rh	Excessively drained	N/A	Yes, drainageways
Sehorn-Millsholm association, 30 to 65 percent slopes Entic Chromoxerents	SdE	Well-drained	20-40 inches to lithic bedrock	Not hydric
Water	W	N/A	N/A	Hydric

3.6 Vegetation Communities

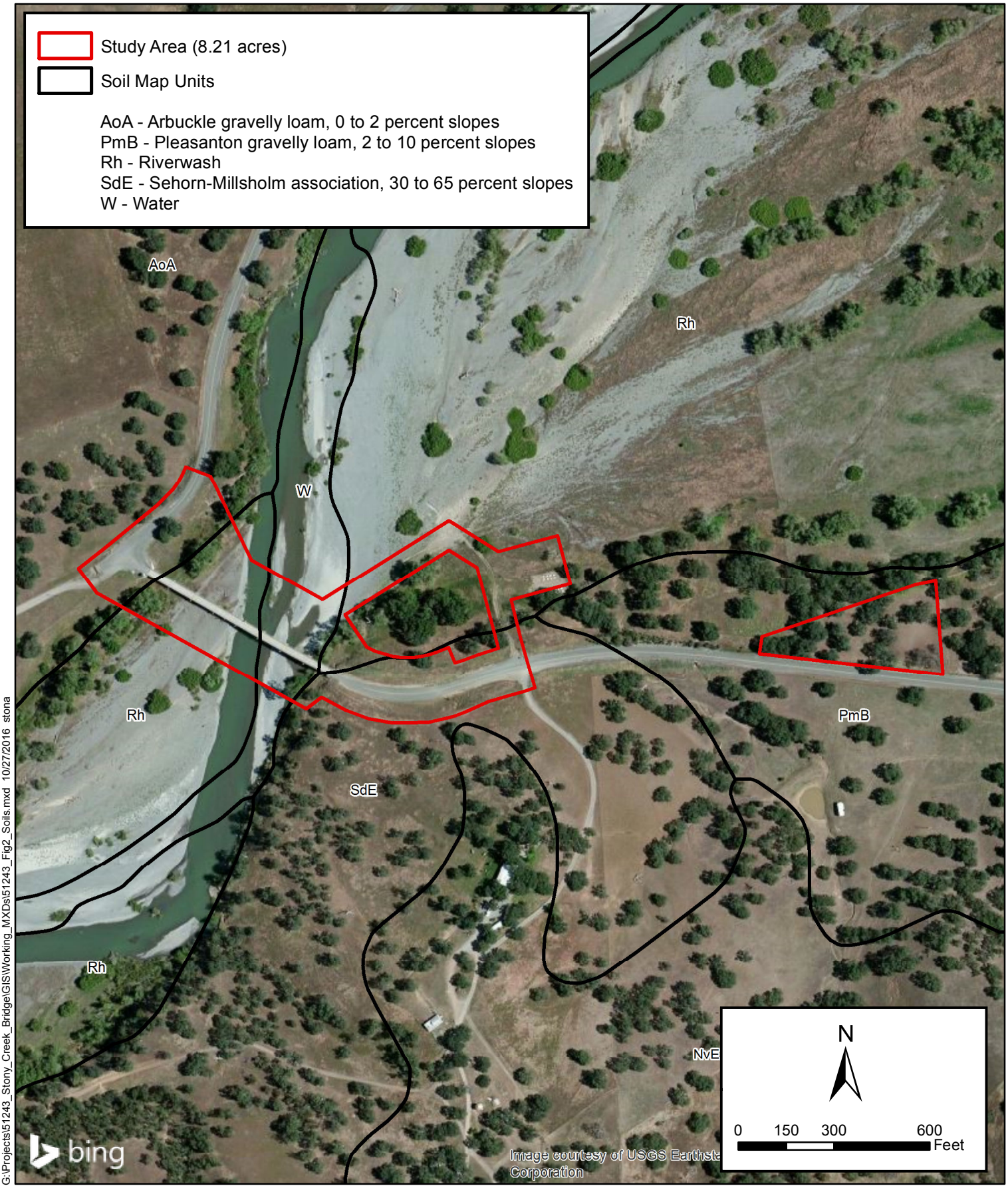
Four vegetation communities occur in the study area: annual grassland, blue oak woodland, riverine, and valley foothill riparian, based on descriptions provided in *A Guide to Wildlife Habitats of California* (Mayer and Laudenslayer 1988).

Annual Grassland

Annual grassland is located in the northeast portion of the study area and characterized as a dense herbaceous layer. Dominant plant species include harewall barley (*Hordeum murinum* ssp. *leporinum*), ripgut brome (*Bromus diandrus*), rattail fescue (*Festuca myuros*), hedge-parsley (*Torilis arvense*), bur-clover (*Medicago polymorpha*), winter vetch (*Vicia villosa*), and rose clover (*Trifolium hirtum*).

Blue Oak Woodland

Blue oak woodland occurs on the slopes above the Stony Creek floodplain and at the eastern portion of the study area. It is characterized by an open canopy of blue oaks (*Quercus douglasii*), with a dense herbaceous understory. Dominant plants in the understory include ripgut brome, rattail fescue, hedge-parsley, winter vetch, and California melic (*Melica californica*).



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North State Resources, Inc.

Stony Creek Bridge (11C-0245) Replacement Project

Figure 2
Soils

Riverine

The riverine feature within the study area consists of Stony Creek. In the study area and vicinity Stony Creek is characterized as a perennial, low-gradient stream with an extensive floodplain due to the stream's low gradient and the presence of alluvial deposits. Dominant substrates include cobble, gravel, and sand.

Valley Foothill Riparian

Valley foothill riparian occurs as moderately wide bands of vegetation along the banks of Stony Creek. This habitat is characterized by a moderate to dense overstory of riparian species with a dense herbaceous layer dominated by upland species. Dominant trees and shrubs include Fremont cottonwood (*Populus fremontii*), mulefat (*Baccharis salicifolia*), arundo (*Arundo donax*), and narrowleaf willow (*Salix exigua*). Herbs and forbs occurring in the understory include ripgut brome, rattail fescue, annual ragweed (*Ambrosia artemisiifolia*), yellow sweetclover (*Melilotus indicus*), and deergrass (*Muhlenbergia rigens*).

Chapter 4. Methods

NSR 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. The OHWM was determined using the approach outlined in *A Field Guide to the Identification of the OHWM in the Arid West Region of the Western United States* (U.S. Army Corps of Engineers 2008).

Soil pits were dug in each representative wetland feature to a depth sufficient to document the presence or confirm the absence of hydric soil or hydrology indicators. Soils were examined to assess field indicators of hydric soils. Positive indicators of hydric soils were observed in the field in accordance with the criteria outlined in *Field Indicators of Hydric Soils in the United States* (Vasilas et al. 2010). Soil colors were determined using a Munsell® soil color chart. The hydric status of each soil map unit occurring in the study area was reviewed using the *Web Soil Survey* (Natural Resources Conservation Service 2016). At least one set of data points was selected to best represent the wetland feature type and the adjacent uplands. Data points were also placed in suspect areas to confirm wetland or upland status.

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, 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 2016) was reviewed to determine if any wetlands or deepwater habitats as described by Cowardin et al. (1979) have been 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 The Corps Aquatic Resources Excel spreadsheet, which includes specific information about the wetland and other waters features delineated, including their Cowardin type, was completed and submitted as a separate deliverable with this report.

Eleven data points were used to characterize and document each wetland or other water feature type, and the adjacent upland. Field observations were conducted on November 9, 2016.

The boundaries of delineated features and the associated data points were mapped using a Trimble Mapping Grade Global Positioning System (GPS) capable of sub-foot 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.

Chapter 5. Results and Discussion

Potential waters of the United States occur in the study area as wetlands and other waters. Wetlands include riparian wetland, and other waters include ephemeral stream, intermittent stream, and perennial stream.

The boundaries and area of potential waters of the United States occurring in the study area are illustrated in Figure 3. A total of 2.194 acres of waters of the United States was delineated. A summary of the delineated features is presented in Table 3. Routine wetland determination data forms are presented in Appendix A. Ordinary high water mark data forms are presented in Appendix B. Representative photographs of the delineated features and data point locations are presented in Appendix C.

Table 2. Waters of the United States Summary

Waters of the United States	Total Acreage	Total Linear Feet	Cowardin Type[1]
Wetlands			
Riparian Wetland	0.254	N/A	PF01
Other Waters			
Ephemeral Stream	0.001	48	R4SB4
Intermittent Stream	0.016	116	R4SB3
Perennial Stream	1.923	897	R3UB1
Total Waters of the United States	**2.194**	**1061**	

5.1 Characterization of Delineated Features

Riparian Wetland

Riparian wetlands (RW) occur immediately adjacent to and within the OHWM of Stony Creek. These features are dominated by mulefat, arundo, and narrowleaf willow. White alder (*Alnus rhombifolia*) also occurs in the riparian wetlands located on the east side of the stream. Facultative-upland and upland herbaceous species are common in the understory. Wetland hydrology is provided by frequent flooding and long-duration inundation indicated by water marks, sediment deposits, and drift deposits. The soils are problematic because these features occur on sand/cobble bars within and adjacent to Stony Creek. The coarse substrates allow oxygenated water to permeate, which inhibits development of hydric soil indicators.

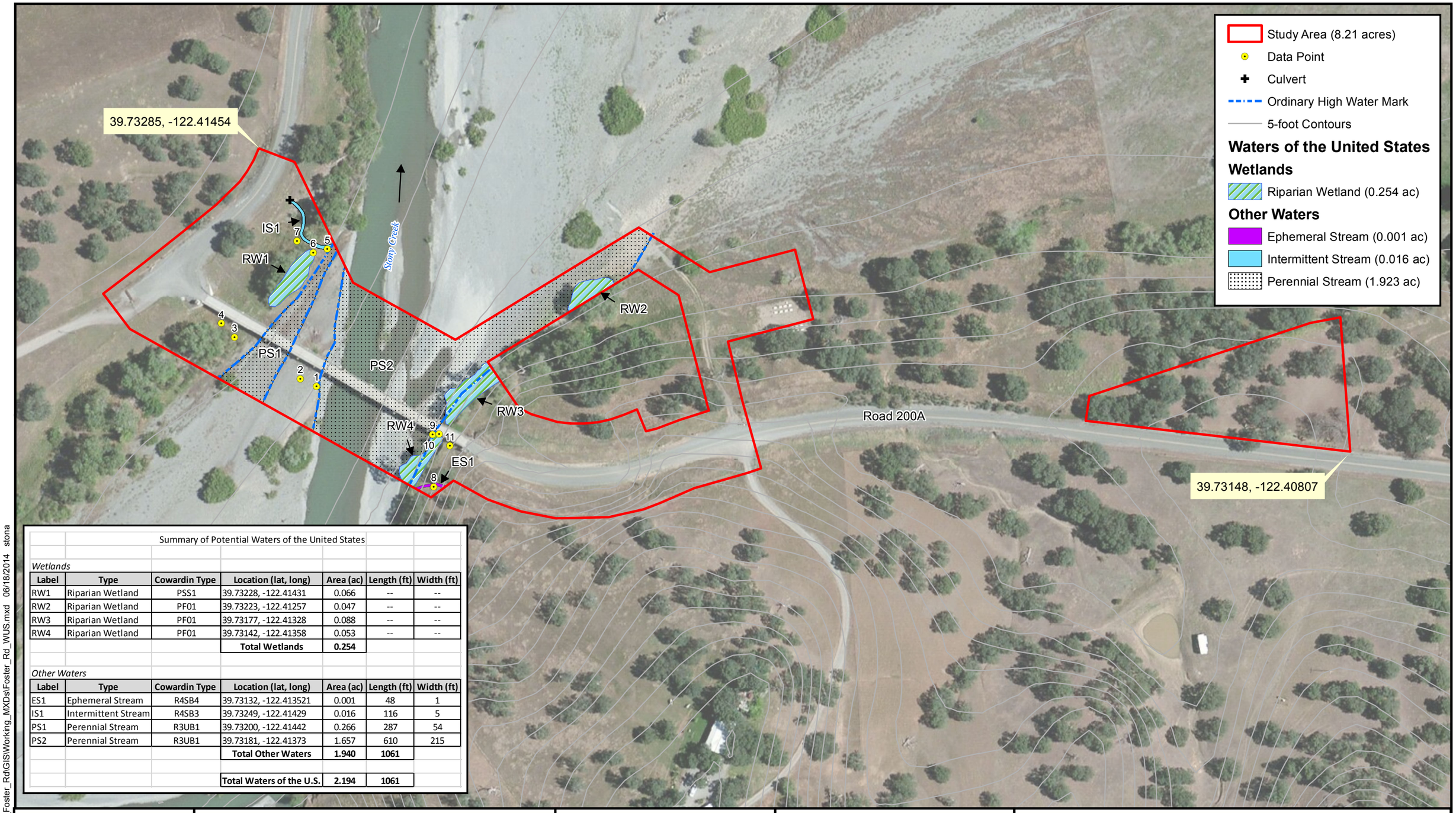
Ephemeral Stream

An ephemeral stream (ES1) occurs in the southeastern portion of the study area. The ephemeral stream exhibits poorly defined, but visible, indicators of scour and deposition, minor drift lines, and sediment deposits. The poorly defined hydrology indicators, close proximity to the headwaters, and the small size of the ephemeral stream indicate short duration flow lacking a groundwater component. The stream's hydrology is provided by sheet flow and a swale feature located outside of the study area that scours as the gradient increases near Stony Creek.

Intermittent Stream

One intermittent stream occurs in the northwest portion of the study area. The stream flows seasonally, but also exhibits a groundwater component in addition to the collection of precipitation and sheet flow from adjacent slopes, which extends the seasonal duration of flow. The intermittent stream is characterized as bed and bank features that exhibit evidence of scour and deposition. Hydrology for the intermittent stream is provided by the swale west of the study area and sheet flow from the road.

[1] Cowardin et al. 1979



Summary of Potential Waters of the United States

Wetlands

Label	Type	Cowardin Type	Location (lat, long)	Area (ac)	Length (ft)	Width (ft)
RW1	Riparian Wetland	PSS1	39.73228, -122.41431	0.066	--	--
RW2	Riparian Wetland	PF01	39.73223, -122.41257	0.047	--	--
RW3	Riparian Wetland	PF01	39.73177, -122.41328	0.088	--	--
RW4	Riparian Wetland	PF01	39.73142, -122.41358	0.053	--	--
			Total Wetlands	**0.254**		

Other Waters

Label	Type	Cowardin Type	Location (lat, long)	Area (ac)	Length (ft)	Width (ft)
ES1	Ephemeral Stream	R4SB4	39.73132, -122.413521	0.001	48	1
IS1	Intermittent Stream	R4SB3	39.73249, -122.41429	0.016	116	5
PS1	Perennial Stream	R3UB1	39.73200, -122.41442	0.266	287	54
PS2	Perennial Stream	R3UB1	39.73181, -122.41373	1.657	610	215
			Total Other Waters	**1.940**	**1061**	
			Total Waters of the U.S.	**2.194**	**1061**	

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This delineation of waters of the United States is subject to verification by the U.S. Army Corps of Engineers (Corps). NSR advises all parties that the delineation is preliminary until the Corps provides a written verification.

Delineator: Sarah Tona
Delineation Date: 11/9/2016
Aerial Photography Source: NAIP 2014

Coordinate System: NAD 1983 UTM Zone 10N
Projection: Tansverse Mercator
Datum: North American 1983

N
0 75 150 300
Feet
1 in = 150 feet

Stony Creek Bridge (11C-0245) Replacement Project

Figure 3
Potential Waters of the United States
November 9, 2016

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Perennial Stream

Stony Creek is a perennial stream that bisects the study area (PS1 and PS2). This stream is characterized as a perennial bed and bank feature. Within the study area, the stream has a low flow channel and a high flow channel separated by an upland bank. Cobble, gravel, and sand dominate the stream substrate. Riparian wetlands occur within the OHWM and adjacent to Stony Creek. Indicators of wetland hydrology observed include inundation, watermarks, drift lines, sediment deposits, and drainage patterns.

Chapter 6. Conclusion

Waters of the United States delineated within the study area occupy a total of 2.194 acres and include riparian wetland, ephemeral stream, intermittent stream, and perennial stream.

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

Chapter 7. References

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APPENDIX A

Routine Wetland Determination Data Forms

North State Resources, Inc.

Data Point 1
Feature Type PS

Wetland Determination Data Form–Arid West Region

Project/Site: Stony Creek Bridge City/County: Glenn County Date: 11/9/16
Applicant/Owner: Glenn County / Willdan Engineering State: CA
Investigator(s): Sarah Tona Section, Township, Range S27, T22N R5W
Landform (hillslope, terrace, etc.) Drainage Local relief (concave, convex, none) Concave Slope % <1
Subregion (LRR): C Lat: 4398151.89 Long: 550179.26 Datum: NAD83
Soil Map Unit Name: Riverwash NWI Classification: R3USA

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 X Scour X Ordinary High Water Mark Mapped X Stream Width 320'
Feature Designation: Perennial X Intermittent ____ Ephemeral ____ Blue-line on USGS Quad X Substrate Sand, Gravel, Cobble,
Natural Drainage X Artificial Drainage ____ Navigable Water ____

Remarks DP documents the OHWM of Stony Creek, a perennial stream.

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 ____ **% 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 ≤ 3.0[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.*

Hydrophytic Vegetation? ~~Y~~/N

Remarks No vegetation, the feature has a scoured channel.

Data Point 1

Soils

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

[1]Types: C = Concentration D = Depletion RM = Reduced Matrix [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 Vetric (F18)
- ____ Red Parent Materials (TF21)
- ____ Vegetated Sand/Gravel Bars
- ____ Other (Explain in Remarks)

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

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

Remarks No pit dug, feature has a scoured channel.

Hydrology

Wetland Indicators

Primary Indicators (Any one indicator is sufficient.)

- X Surface Water (A1)
- X High Water Table (A2)
- X 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 (C3)
- ____ Presence of Reduced Iron (C4)
- ____ Recent Iron Reduction in Plowed Soils (C6)
- ____ Thin Muck Surface (C7)
- ____ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- X Water Marks (B1) (Riverine)
- X Sediment Deposits (B2) (Riverine)
- X 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 X No ____ Depth (Inches) 1-3' Wetland Hydrology? (Y) / N

Water Table Present? Yes X No ____ Depth (inches) Surface

Saturation Present? Yes X No ____ Depth (inches) Surface (includes capillary fringe)

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

Remarks Water marks, sediment deposits, and drift deposits document the OHWM.

North State Resources, Inc.

Data Point 2
Feature Type upland

Wetland Determination Data Form–Arid West Region

Project/Site: Stony Creek Bridge City/County: Glenn County Date: 11/9/16
Applicant/Owner: Glenn County / Wilfdan Engineering State: CA
Investigator(s): Sarah Tona Section, Township, Range S27, T22N, R3W
Landform (hillslope, terrace, etc.) Drainage Local relief (concave, convex, none) Concave Slope % <1
Subregion (LRR): C Lat: 4398155 Long: 550190 Datum: NAD83
Soil Map Unit Name: Riverwash NWI Classification:
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 DP

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: 10x10')	**% Cover**	**Species?**	**Status**
1. Heterotheca oregona	5	Y	FACU
2. Bromus tectorum	2	Y	UPL
3. Hypochaeris radicata	1	N	FACU
4. Festuca myuros	1	N	FACU
5			
6.			
7.			
8.			
50%= 4.5 20%= 1.8 Total Cover:	9		
Woody/Vine Stratum (Plot:____)	**% Cover**	**Species?**	**Status**
1.			
2.			
50%=____ 20%=____ Total Cover:			

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

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 (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
N 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.*

Hydrophytic Vegetation? Y (N)

Remarks

Data Point 2

Soils

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

[1]Types: C = Concentration D = Depletion RM = Reduced Matrix [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 Vetric (F18)
- ____ Red Parent Materials (TF21)
- ____ Vegetated Sand/Gravel Bars
- ____ Other (Explain in Remarks)

[3]Indicators 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, the area is a gravel/cobble bar.

Hydrology

Wetland Indicators

Primary Indicators (Any one indicator is sufficient.)

- ____ 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 (C3)
- ____ Presence of Reduced Iron (C4)
- ____ Recent Iron Reduction in Plowed Soils (C6)
- ____ Thin Muck Surface (C7)
- ____ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ____ Water Marks (B1) (Riverine)
- ____ Sediment Deposits (B2) (Riverine)
- X 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 X Depth (inches) ____ Wetland Hydrology? Y (N)

Water Table Present? Yes ____ No X Depth (inches) ____

Saturation Present? Yes ____ No X Depth (inches) ____ *(includes capillary fringe)*

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

Remarks Small drift deposits are indicative of flooding, but are likely from rare high flood events and not frequent.

North State Resources, Inc.

Data Point 3
Feature Type upland

Wetland Determination Data Form–Arid West Region

Project/Site: Stony Creek Bridge City/County: Glenn County Date: 11/9/16
Applicant/Owner: Glenn County / Willdan Engineering State: CA
Investigator(s): Sarah Tona Section, Township, Range S27, T22N, R5W
Landform (hillslope, terrace, etc.) Drainage Local relief (concave, convex, none) Concave Slope % <1
Subregion (LRR): C Lat: 4398176.57 Long: 550157.22 Datum: NAD 83
Soil Map Unit Name: Riverwash NWI Classification: None

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 Suspect area adjacent to Stony Creek. Indicators are not sufficient to support the wetland status.

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: 20x19')	% Cover	Species?	Status
1. Baccharis Salicifolia	20	Y	FAC
2.			
3.			
4.			
50%=— 20%=—	Total Cover: 20		

Herb Stratum (Plot Size: 10'x10')	% Cover	Species?	Status
1. Bromus diandrus	70	Y	UPL
2. Trifolium dubium	20	N	UPL
3. Anthriscus caucalis	10	N	UPL
4. Muhlenbergia rigens	10	N	FAC
5.			
6.			
7.			
8.			
50%=55 20%=22	Total Cover: 110		

Woody/Vine Stratum (Plot:____)	% Cover	Species?	Status
1.			
2.			
50%=____ 20%=____	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 (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
N 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.*

Hydrophytic Vegetation? Y (N)

Remarks

Data Point 3

Soils

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
0-20	2.5YR 4/1	100	-	-	-	-	Sandy loam	

[1]Types: C = Concentration D = Depletion RM = Reduced Matrix [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 Vetric (F18)
- ____ Red Parent Materials (TF21)
- ____ Vegetated Sand/Gravel Bars
- ____ Other (Explain in Remarks)

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

Restrictive Layer (if present): Type: none Depth (Inches) _____ Hydric Soil? Y / N

Remarks No redox features are present.

Hydrology

Wetland Indicators

Primary Indicators (Any one indicator is sufficient.)

- ____ 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 (C3)
- ____ Presence of Reduced Iron (C4)
- ____ Recent Iron Reduction in Plowed Soils (C6)
- ____ Thin Muck Surface (C7)
- ____ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ____ Water Marks (B1) (Riverine)
- ____ Sediment Deposits (B2) (Riverine)
- X 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 X Depth (inches) — Wetland Hydrology? Y / (N)

Water Table Present? Yes ____ No X Depth (inches) —

Saturation Present? Yes ____ No X Depth (inches) — *(includes capillary fringe)*

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

Remarks Drift deposits are likely from major precipitation events. Recent drift deposits do not occur, and no other hydrology indicators are present.

North State Resources, Inc.

Data Point 4
Feature Type Upland

Wetland Determination Data Form–Arid West Region

Project/Site: Stony Creek Bridge City/County: Glenn County Date: 11/9/16
Applicant/Owner: Glenn County / willdan Engineering State: CA
Investigator(s): Sarah Tona Section, Township, Range S27, T22N, R5W
Landform (hillslope, terrace, etc.) drainage Local relief (concave, convex, none) Convex Slope % 3
Subregion (LRR): C Lat: 4398183.40 Long: 550150.48 Datum: NAD83
Soil Map Unit Name: Riverwash NWI Classification: None

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 Suspect area with riparian shrubs but upland grasses. The area may flood periodically, but not frequently.

Vegetation (Use Scientific Names)

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot Size: ____)			
1.			
2.			
3.			
4.			
50%=____ 20%=____ Total Cover:			
Sapling/Shrub Stratum (Plot:____)	% Cover	Species?	Status
1. Arundo donax	20	Y	FACW
2. Baccharis salicifolia	30	Y	FAC
3.			
4.			
50%=25 20%=10 Total Cover:	50		
Herb Stratum (Plot Size:____)	% Cover	Species?	Status
1. Bromus diandrus	70	Y	UPL
2.			
3.			
4.			
5.			
6.			
7.			
8.			
50%=35 20%=14 Total Cover:	70		
Woody/Vine Stratum (Plot:____)	% Cover	Species?	Status
1.			
2.			
50%=____ 20%=____ Total Cover:			

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

Dominance Test Worksheet
Number of dominant species that are OBL, FACW, or FAC: 2 (A)
Total number of dominant species across all strata: 3 (B)
Percent of dominant species that are OBL, FACW, or FAC: 66.6 (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
Y 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.*

Hydrophytic Vegetation? (Y) / N

Remarks

Data Point 4

Soils

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
0-20	2.5 YR 4/1	100	—	—	—	—	Sandy loam	

[1]Types: C = Concentration D = Depletion RM = Reduced Matrix [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 Vetric (F18)
- ____ Red Parent Materials (TF21)
- ____ Vegetated Sand/Gravel Bars
- Other (Explain in Remarks)

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

Restrictive Layer (if present): Type: none Depth (Inches) _____ Hydric Soil? Y (N)

Remarks No redox features.

Hydrology

Wetland Indicators

Primary Indicators (Any one indicator is sufficient.)

- ____ 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 (C3)
- ____ Presence of Reduced Iron (C4)
- ____ Recent Iron Reduction in Plowed Soils (C6)
- ____ Thin Muck Surface (C7)
- ____ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ____ Water Marks (B1) (Riverine)
- ____ Sediment Deposits (B2) (Riverine)
- X 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 X Depth (inches) — Wetland Hydrology? Y (N)

Water Table Present? Yes ____ No X Depth (inches) —

Saturation Present? Yes ____ No X Depth (inches) — *(includes capillary fringe)*

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

Remarks Drift deposits are above the OHWM and likely historic from a major rain event.

North State Resources, Inc.

Data Point 5
Feature Type I.S.

Wetland Determination Data Form–Arid West Region

Project/Site: Stony Creek Bridge City/County: Glenn County Date: 11/9/16
Applicant/Owner: Glenn County / Willdan Engineering State: CA
Investigator(s): Sarah Tona Section, Township, Range S27, T22N, R5W
Landform (hillslope, terrace, etc.) Drainage Local relief (concave, convex, none) Concave Slope % 2
Subregion (LRR): C Lat: 4398221.91 Long: 550203.97 Datum: NAD83
Soil Map Unit Name: Riverwash NWI Classification: None
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 X Scour X Ordinary High Water Mark Mapped X Stream Width 3-4'
Feature Designation: Perennial ____ Intermittent X Ephemeral ____ Blue-line on USGS Quad ____ Substrate ____
Natural Drainage X Artificial Drainage ____ Navigable Water ____

Remarks The stream is sourced by a culvert and is influenced by road run-off.

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 ____ % 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 ≤ 3.0[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.*

Hydrophytic Vegetation? ~~Y~~ / N

Remarks Primarily scoured channel. Scattered herb sprouts are present in the channel, including Bromus diandrus, Brassica sp., and Ambrosia sp.

Data Point 5

Soils

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

[1]Types: C = Concentration D = Depletion RM = Reduced Matrix [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 Vetric (F18)
- ____ Red Parent Materials (TF21)
- ____ Vegetated Sand/Gravel Bars
- ____ Other (Explain in Remarks)

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

Restrictive Layer (if present): Type: none Depth (Inches) _____ Hydric Soil? ~~Y~~/N

Remarks

No pit scoured channel.

Hydrology

Wetland Indicators

Primary Indicators (Any one indicator is sufficient.)

- ____ 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 (C3)
- ____ Presence of Reduced Iron (C4)
- ____ Recent Iron Reduction in Plowed Soils (C6)
- ____ Thin Muck Surface (C7)
- ____ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- X Water Marks (B1) (Riverine)
- X Sediment Deposits (B2) (Riverine)
- X 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 X Depth (inches) — Wetland Hydrology? (Y) / N

Water Table Present? Yes ____ No X Depth (inches) —

Saturation Present? Yes ____ No X Depth (inches) — *(includes capillary fringe)*

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

Remarks

North State Resources, Inc.

Data Point 6
Feature Type RW

Wetland Determination Data Form–Arid West Region

Project/Site: Stony Creek Bridge City/County: Glenn County Date: 11/9/16
Applicant/Owner: Glenn County / Willdan Engineering State: CA
Investigator(s): Sarah Tona Section, Township, Range S27, T22N, R5W
Landform (hillslope, terrace, etc.) Drainage Local relief (concave, convex, none) Concave Slope % <1
Subregion (LRR): C Lat: 4398219.94 Long: 550196.77 Datum: NAD83
Soil Map Unit Name: River Wash NWI Classification: None
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 DP documents a riparian wetland adjacent to Stony Creek.

Vegetation (Use Scientific Names)

Tree Stratum (Plot Size: 20'x20')	Absolute % Cover	Dominant Species?	Indicator Status
1. Populus fremontii	30	Y	FAC
2.			
3.			
4.			
50%= ____ 20%= ____ Total Cover:	30		

Sapling/Shrub Stratum (Plot: 20'x20')	% Cover	Species?	Status
1. Baccharis salicifolia	50	Y	FAC
2. Salix exigua	10	Y	FACW
3.			
4.			
50%= 30 20%= 12 Total Cover:	60		

Herb Stratum (Plot Size: 10'x10')	% Cover	Species?	Status
1. Trifolium dubium	20	Y	FACU
2. Bromus diandrus	70	Y	UPL
3. Ambrosia artemisifolia	5	N	UPL
4.			
5.			
6.			
7.			
8.			
50%= 37.5 20%= 15 Total Cover:	75		

Woody/Vine Stratum (Plot: ____)	% Cover	Species?	Status
1.			
2.			
50%= ____ 20%= ____ Total Cover:			

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

Dominance Test Worksheet
Number of dominant species that are OBL, FACW, or FAC: 5 (A)
Total number of dominant species across all strata: 3 (B)
Percent of dominant species that are OBL, FACW, or FAC: 60% (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
Y 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.*

Hydrophytic Vegetation? (Y) / N

Remarks

Data Point 6

Soils

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
0-22	2.5YR 4/1	100	—	—	—	—	Sandy loam	

[1]Types: C = Concentration D = Depletion RM = Reduced Matrix [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 Vetric (F18)
- ___ Red Parent Materials (TF21)
- X Vegetated Sand/Gravel Bars
- ___ Other (Explain in Remarks)

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

Restrictive Layer (if present): Type: None Depth (Inches) _____ Hydric Soil? (Y) / N

Remarks Soils are problematic because the feature is a vegetated sand and gravel bar. No hydric soil indicators are present because of annual deposition of new material.

Hydrology

Wetland Indicators

Primary Indicators (Any one indicator is sufficient.)

- ___ 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)
- X Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Plowed Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- X Water Marks (B1) (Riverine)
- X Sediment Deposits (B2) (Riverine)
- X 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 X Depth (inches) — Wetland Hydrology? (Y) / N

Water Table Present? Yes ___ No X Depth (inches) —

Saturation Present? Yes ___ No X Depth (inches) — *(includes capillary fringe)*

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

Remarks Water-Stained leaves, water marks, sediment deposits and drift deposits indicate frequent flooding.

North State Resources, Inc.

Data Point 7
Feature Type Upland

Wetland Determination Data Form–Arid West Region

Project/Site: Stony Creek Bridge City/County: Glenn County Date: 11/9/16
Applicant/Owner: Glenn County/Willdan Engineering State: CA
Investigator(s): Sarah Tona Section, Township, Range S27, T22N, R5W
Landform (hillslope, terrace, etc.) slope Local relief (concave, convex, none) Convex Slope % 2
Subregion (LRR): C Lat: 4398225.97 Long: 550188.41 Datum: NAD83
Soil Map Unit Name: Arbuckle gravelly loam, 0 to 2% slopes NWI Classification: None
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 DP documents the upland pair point to DP 5(RW).

Vegetation (Use Scientific Names)

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot Size: ____)			
1.			
2.			
3.			
4.			
50%=____ 20%=____ Total Cover:			
Sapling/Shrub Stratum (Plot: 10'x10')	% Cover	Species?	Status
1. Baccharis Salicifolia	5	Y	FACW
2.			
3.			
4.			
50%=____ 20%=____ Total Cover:	5		
Herb Stratum (Plot Size: 10'x10')	% Cover	Species?	Status
1. Bromus diandrus	80	Y	UPL
2. Ambrosia artemisifolia	7	N	UPL
3. Torilis arvensis	5	N	UPL
4.			
5.			
6.			
7.			
8.			
50%= 46 20%= 18.4 Total Cover:	92		
Woody/Vine Stratum (Plot: ____)	% Cover	Species?	Status
1.			
2.			
50%=____ 20%=____ 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 (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
N 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.*

Hydrophytic Vegetation? Y (N)

Remarks

Data Point 7

Soils

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
0-20	2.5YR 4/1	100	—	—	—	—	Sandy loam	

[1]Types: C = Concentration D = Depletion RM = Reduced Matrix [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 Vetric (F18)
- ____ Red Parent Materials (TF21)
- ____ Vegetated Sand/Gravel Bars
- ____ Other (Explain in Remarks)

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

Restrictive Layer (if present): Type: None Depth (Inches) _____ Hydric Soil? Y (N)

Remarks No redox indicators.

Hydrology

Wetland Indicators

Primary Indicators (Any one indicator is sufficient.)

- ____ 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 (C3)
- ____ Presence of Reduced Iron (C4)
- ____ Recent Iron Reduction in Plowed Soils (C6)
- ____ Thin Muck Surface (C7)
- ____ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ____ Water Marks (B1) (Riverine)
- ____ Sediment Deposits (B2) (Riverine)
- X 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 X Depth (inches) — Wetland Hydrology? Y (N)

Water Table Present? Yes ____ No X Depth (inches) —

Saturation Present? Yes ____ No X Depth (inches) — *(includes capillary fringe)*

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

Remarks Drift lines on the terrace from major rain events, not an indicator of frequent flooding.

North State Resources, Inc.

Data Point 8
Feature Type I.S.

Wetland Determination Data Form–Arid West Region

Project/Site: Stony Creek Bridge City/County: Glenn County Date: 11/9/16
Applicant/Owner: Glenn County / Willdan Engineering State: CA
Investigator(s): Sarah Tona Section, Township, Range S27, T22N, R5W
Landform (hillslope, terrace, etc.) Drainage Local relief (concave, convex, none) Concave Slope % 45
Subregion (LRR): C Lat: 4398120.84 Long: 550268.45 Datum: NAD83
Soil Map Unit Name: Sehorn-Millsholm association, 30 to 65% Slopes NWI Classification: None

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 X Scour X Ordinary High Water Mark Mapped X Stream Width 1 foot
Feature Designation: Perennial ____ Intermittent ____ Ephemeral X Blue-line on USGS Quad ____ Substrate Sand
Natural Drainage X Artificial Drainage ____ Navigable Water ____

Remarks Ephemeral stream that begins to show signs of scour at the top of the hill.

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 ____ % 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 ≤ 3.0[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.*

Hydrophytic Vegetation? ~~Y/N~~

Remarks Scoured channel with limited vegetation.

Data Point 8

Soils

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

[1]Types: C = Concentration D = Depletion RM = Reduced Matrix [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 Vetric (F18)
- ____ Red Parent Materials (TF21)
- ____ Vegetated Sand/Gravel Bars
- ____ Other (Explain in Remarks)

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

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

Remarks No pit- Scoured channel.

Hydrology

Wetland Indicators

Primary Indicators (Any one indicator is sufficient.)

- ____ 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 (C3)
- ____ Presence of Reduced Iron (C4)
- ____ Recent Iron Reduction in Plowed Soils (C6)
- ____ Thin Muck Surface (C7)
- ____ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- X Water Marks (B1) (Riverine)
- X Sediment Deposits (B2) (Riverine)
- X 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 X Depth (inches) —

Water Table Present? Yes ____ No X Depth (inches) —

Saturation Present? Yes ____ No X Depth (inches) — *(includes capillary fringe)*

Wetland Hydrology? (Y) / N

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

Remarks

North State Resources, Inc.

Data Point 9
Feature Type PS

Wetland Determination Data Form–Arid West Region

Project/Site: Stony Creek Bridge City/County: Glenn County Date: 11/9/16
Applicant/Owner: Glenn County / Willdan Engineering State: CA
Investigator(s): Sarah Tona Section, Township, Range S27, T22N, R5W
Landform (hillslope, terrace, etc.) drainage Local relief (concave, convex, none) Concave Slope % 1
Subregion (LRR): C Lat: 4398138.64 Long: 550263.43 Datum: NAD83
Soil Map Unit Name: Water NWI Classification: R3USA
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 X Scour X Ordinary High Water Mark Mapped X Stream Width 320 ft
Feature Designation: Perennial X Intermittent ____ Ephemeral ____ Blue-line on USGS Quad X Substrate Sand, gravel, cobbles
Natural Drainage X Artificial Drainage ____ Navigable Water ____

Remarks DP documents the ohwm of Stony Creek, a perennial stream.

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 ____ % 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 ≤ 3.0[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.*

Hydrophytic Vegetation? ~~Y/N~~

Remarks No vegetation, the feature has a scoured channel.

Data Point 9

Soils

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

[1]Types: C = Concentration D = Depletion RM = Reduced Matrix [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 Vetric (F18)
- ____ Red Parent Materials (TF21)
- ____ Vegetated Sand/Gravel Bars
- ____ Other (Explain in Remarks)

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

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

Remarks No pit dug, the feature has a scoured channel.

Hydrology

Wetland Indicators

Primary Indicators (Any one indicator is sufficient.)

- X Surface Water (A1)
- X High Water Table (A2)
- X 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 (C3)
- ____ Presence of Reduced Iron (C4)
- ____ Recent Iron Reduction in Plowed Soils (C6)
- ____ Thin Muck Surface (C7)
- ____ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- X Water Marks (B1) (Riverine)
- X Sediment Deposits (B2) (Riverine)
- X 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 X No ____ Depth (inches) 1-3' Wetland Hydrology? Y / N

Water Table Present? Yes X No ____ Depth (inches) Surface

Saturation Present? Yes X No ____ Depth (inches) Surface (includes capillary fringe)

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

Remarks Water marks, sediment deposits, and drift deposits document the OHWM.

North State Resources, Inc.

Data Point 10
Feature Type RW

Wetland Determination Data Form–Arid West Region

Project/Site: Stony Creek Bridge City/County: Glenn County Date: 11/9/16
Applicant/Owner: Glenn County / Willdan Engineering State: CA
Investigator(s): Sarah Tona Section, Township, Range S27, T22N, R5W
Landform (hillslope, terrace, etc.) drainage Local relief (concave, convex, none) Convex Slope % 2
Subregion (LRR): C Lat: 439812 9.64 Long: 550261.21 Datum: NAD83
Soil Map Unit Name: Sehorn-Millsholm association, 30 to 65% NWI Classification: None

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 DP documents the Riparian wetland adjacent to Stony Creek.

Vegetation (Use Scientific Names)

Tree Stratum (Plot Size: 100' x 10')	Absolute % Cover	Dominant Species?	Indicator Status
1. Populus fremontii	15	Y	FAC
2. Salix gooddingii	5	Y	FACW
3.			
4.			
50%= 10 20%= 4 Total Cover:	20		
Sapling/Shrub Stratum (Plot: 10' x 10')	**% Cover**	**Species?**	**Status**
1. Baccharis salicifolia	45	Y	FAC
2. Vitis californica	20	Y	FACU
3.			
4.			
50%= 32.5 20%= 13 Total Cover:	65		
Herb Stratum (Plot Size: 5' x 10')	**% Cover**	**Species?**	**Status**
1. Cynodon dactylon	10	Y	FACU
2.			
3.			
4			
5.			
6.			
7.			
8.			
50%= 5 20%= 2 Total Cover:	10		
Woody/Vine Stratum (Plot: ____)	**% Cover**	**Species?**	**Status**
1.			
2.			
50%= ____ 20%= ____ Total Cover:			

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

Dominance Test Worksheet
Number of dominant species that are OBL, FACW, or FAC: 3 (A)
Total number of dominant species across all strata: 5 (B)
Percent of dominant species that are OBL, FACW, or FAC: 60 (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
Y 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.*

Hydrophytic Vegetation? (Y) / N

Remarks

Data Point 16

Soils

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
0-20	2.5YR 3/1	98	7.5YR 4/6	2	C	PL	Sandy loam	

[1]Types: C = Concentration D = Depletion RM = Reduced Matrix [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 Vetric (F18)
- ____ Red Parent Materials (TF21)
- X Vegetated Sand/Gravel Bars
- ____ Other (Explain in Remarks)

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

Restrictive Layer (if present): Type: None Depth (Inches) ____ Hydric Soil? (Y) / N

Remarks Soils are problematic because the wetland is a vegetated Sand/Gravel bar within the OHWM of a perennial stream. Annual deposition of new material likely prevents soil indicators from forming.

Hydrology

Wetland Indicators

Primary Indicators (Any one indicator is sufficient.)

- ____ 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 (C3)
- ____ Presence of Reduced Iron (C4)
- ____ Recent Iron Reduction in Plowed Soils (C6)
- ____ Thin Muck Surface (C7)
- ____ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- X Water Marks (B1) (Riverine)
- X Sediment Deposits (B2) (Riverine)
- X 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 X Depth (inches) ____ Wetland Hydrology? (Y) / N

Water Table Present? Yes ____ No X Depth (inches) ____

Saturation Present? Yes ____ No X Depth (inches) ____ *(includes capillary fringe)*

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

Remarks

North State Resources, Inc.

Data Point 11
Feature Type Upland

Wetland Determination Data Form–Arid West Region

Project/Site: Stony Creek Bridge City/County: Glenn County Date: 11/9/16
Applicant/Owner: Glenn County / Willdan Engineering State: CA
Investigator(s): Sarah Tona Section, Township, Range S27, T22N, R5W
Landform (hillslope, terrace, etc.) hillslope Local relief (concave, convex, none) Upland Slope % 3
Subregion (LRR): C Lat: 4398121.44 Long: 550272.04 Datum: NAD83
Soil Map Unit Name: Sehorn-Millsholm association, 30 to 65% NWI Classification: None
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 DP documents the upland pair point to DP 9.

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: 10x10)	% Cover	Species?	Status
1. Centaurea Solstitialis	10	N	UPL
2. Bromus diandrus	20	Y	UPL
3. Bromus Madritensis	40	Y	UPL
4. Avena sp.	10	N	UPL
5. Festuca myuros	10	N	UPL
6.			
7.			
8.			
50%= 45 20%= 18 Total Cover:	90		

Woody/Vine Stratum (Plot: 2x29)	% Cover	Species?	Status
1. Vitis californica	20	Y	FACU
2.			
50%=____ 20%=____ Total Cover:			

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

Dominance Test Worksheet
Number of dominant species that are OBL, FACW, or FAC: 0 (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	____	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
N 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.*

Hydrophytic Vegetation? Y (N)

Remarks

Data Point 11

Soils

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
0-20	7.5YR 4/3	100	—					

[1]Types: C = Concentration D = Depletion RM = Reduced Matrix [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 Vetric (F18)
- ____ Red Parent Materials (TF21)
- ____ Vegetated Sand/Gravel Bars
- ____ Other (Explain in Remarks)

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

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

Remarks No redox features.

Hydrology

Wetland Indicators

Primary Indicators (Any one indicator is sufficient.)

- ____ 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 (C3)
- ____ Presence of Reduced Iron (C4)
- ____ Recent Iron Reduction in Plowed 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 X Depth (inches) _____ Wetland Hydrology? Y / (N)

Water Table Present? Yes ____ No X Depth (inches) _____

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

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

Remarks No wetland hydrology indicators.

APPENDIX B

Ordinary High Water Mark Data Forms

Project: Stony Creek Bridge
Project Number: 51243
Stream: Stony Creek
Investigator(s): Sarah Tong

Date: 11/9/16
Town: West of Orland
Photo begin file#

Time: 0930
State: CA
Photo end file#

Y [X] / N [ ] Do normal circumstances exist on the site?

Y [ ] / N [X] Is the site significantly disturbed?

Location Details: on County Road 200A where it crosses Stony Creek
Projection: Transverse Mercator Datum: NAD83
Coordinates: UTM 10S 550254 E, 4398138 N

Notes: Cattle use the stream for drinking water. Some hoof prints are on the bank, but not enough to influence the delineation or OHWM.

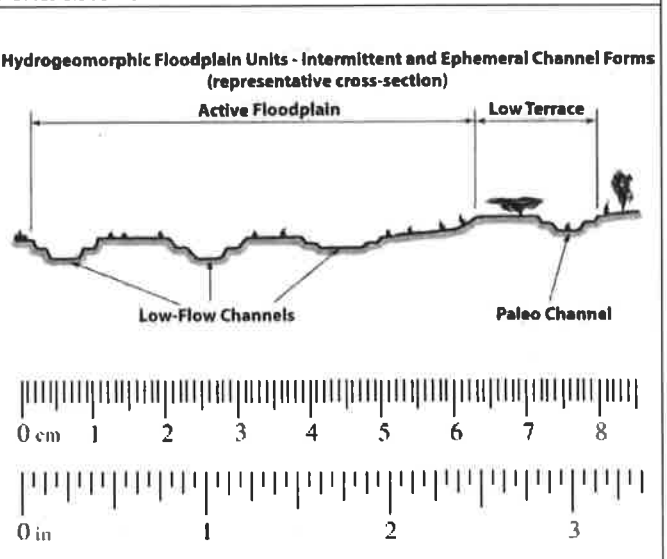
Brief site description:
Flashy perennial stream with a wide gravel bar and more than one channel.

Checklist of resources (if available):

- [X] Aerial photography
  Dates: 2014
- [X] Topographic maps
  Scale: 5' contours
- [ ] Geologic maps
- [ ] Vegetation maps
- [X] Soils maps
- [ ] Rainfall/precipitation maps
- [ ] Existing delineation(s) for site
- [X] Global positioning system (GPS)
- [ ] Other studies
- [ ] Stream gage data
  Gage number:
  Period of record:
- [ ] Clinometer / level
- [ ] History of recent effective discharges
- [ ] Results of flood frequency analysis
- [ ] Most recent shift-adjusted rating
- [ ] Gage heights for 2-, 5-, 10-, and 25-year events and the most recent event exceeding a 5-year event

The dominant Wentworth size class that imparts a characteristic texture to each zone of a channel cross-section is recorded in the average sediment texture field under the characteristics section for the zone of interest.

Millimeters (mm)	Inches (in)	Wentworth size class	
10.08	256	Boulder	
		Cobble	Gravel
2.56	64		
0.157	4	Pebble	
		Granule	
0.079	2.00	Very coarse sand	
0.039	1.00	Coarse sand	
0.020	0.50	Medium sand	Sand
1/2 0.0098	0.25	Fine sand	
1/4 0.005	0.125	Very fine sand	
1/8 0.0025	0.0625	Coarse silt	
1/16 0.0012	0.031	Medium silt	
1/32 0.00061	0.0156	Fine silt	Silt
1/64 0.00031	0.0078	Very fine silt	
1/128 0.00015	0.0039	Clay	Mud



☒ Walk the channel and floodplain within the study area to get an impression of the vegetation and geomorphology present at the site. Record any potential anthropogenic influences on the channel system in "Notes" above.

☒ Locate the low-flow channel (lowest part of the channel). Record observations.

Characteristics of the low-flow channel:

Average sediment texture: Pebble

Total veg cover: 0 % Tree: 0 % Shrub: 0 % Herb: 0 %

Community successional stage:

☐ NA ☐ Mid (herbaceous, shrubs, saplings)
☐ Early (herbaceous & seedlings) ☐ Late (herbaceous, shrubs, mature trees)

Dominant species present: None, has 1-3' of water flowing at time of visit.

Other: ☐ ☐ ☐ ☐

☒ Walk away from the low-flow channel along cross-section. Record characteristics of the low-flow/active floodplain boundary.

Characteristics used to delineate the low-flow/active floodplain boundary:

☒ Change in total veg cover ☐ Tree ☒ Shrub ☐ Herb
☐ Change in overall vegetation maturity
☐ Change in dominant species present
☐ Other ☒ Presence of bed and bank
☒ Drift and/or debris
☒ Other: Sediment deposits
☐ Other:

Scattered young Baccharis salicifolia, and mature Tamarix.

☒ Continue walking the channel cross-section. Record observations below.

Characteristics of the ~~low~~ high-flow channel:

Average sediment texture: Granule

Total veg cover: ____ % Tree: ____ % Shrub: 6 % Herb: 5 %

Community successional stage:

☐ NA ☐ Mid (herbaceous, shrubs, saplings)
☒ Early (herbaceous & seedlings) ☐ Late (herbaceous, shrubs, mature trees)

Dominant species present: Aster shrub
Bromus tectorum
Hypochaeris glabra
Festuca myuros

Other: ☐ ☐ ☐ ☐

[X] Continue walking the channel cross-section. Record indicators of the active floodplain/low terrace boundary.

Characteristics used to delineate the active floodplain/ low terrace boundary:

- [X] Change in average sediment texture
- [X] Change in total veg cover [ ] Tree [X] Shrub [X] Herb
- [X] Change in overall vegetation maturity
- [X] Change in dominant species present
- [X] Other [X] Presence of bed and bank
  - [X] Drift and/or debris
  - [ ] Other: _____
  - [ ] Other: _____

[X] Walk the active floodplain/low terrace boundary both upstream and downstream of the cross-section to verify that the indicators used to identify the transition are consistently associated the transition in both directions.

Consistency of indicators used to delineate the active floodplain/low terrace boundary:

- Y [X] N [ ] Change in average sediment texture
- Y [X] N [ ] Change in total veg cover [ ] Tree [X] Shrub [X] Herb
- Y [X] N [ ] Change in overall vegetation maturity
- Y [X] N [ ] Change in dominant species present
- Y [X] N [ ] Other: Y [X] N [ ] Presence of bed and bank
  - Y [X] N [ ] Drift and/or debris
  - Y [ ] N [ ] Other: _____
  - Y [ ] N [ ] Other: _____

[X] If the characteristics used to delineate the active floodplain/low terrace boundary were NOT consistently associated with the transition in both the upstream and downstream directions, repeat all steps above. They are consistent

[X] Continue walking the channel cross-section. Record characteristics of the low terrace.

Characteristics of the low terrace:

Average sediment texture: Coarse Sand

1

Total veg cover: 70 % Tree: 0 % Shrub: 40 % Herb: 60 %

Community successional stage:

- [ ] NA
- [X] Mid (herbaceous, shrubs, saplings)
- [ ] Early (herbaceous & seedlings)
- [ ] Late (herbaceous, shrubs, mature trees)

Dominant species present: Bacharis salicifolia, Muhlenbergia rigens, Centaurea solstitialis, Arundo donax, Ambrosia artemisifolia

Other:

- [ ] _____
- [ ] _____
- [ ] _____
- [ ] _____

[X] If characteristics used to delineate the active floodplain/low terrace boundary were deemed reliable, acquire boundary.

Active floodplain/low terrace boundary acquired via:

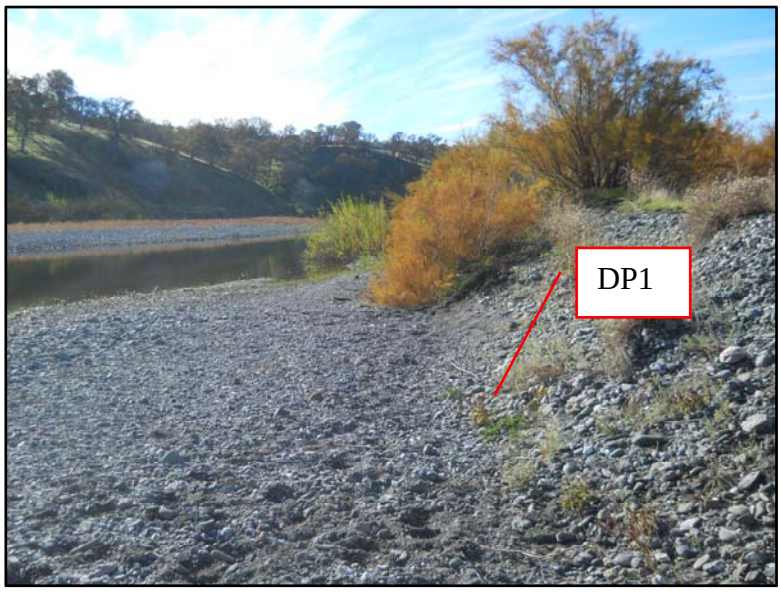
- [ ] Mapping on aerial photograph
- [X] GPS
- [ ] Digitized on computer
- [ ] Other: _____

APPENDIX C

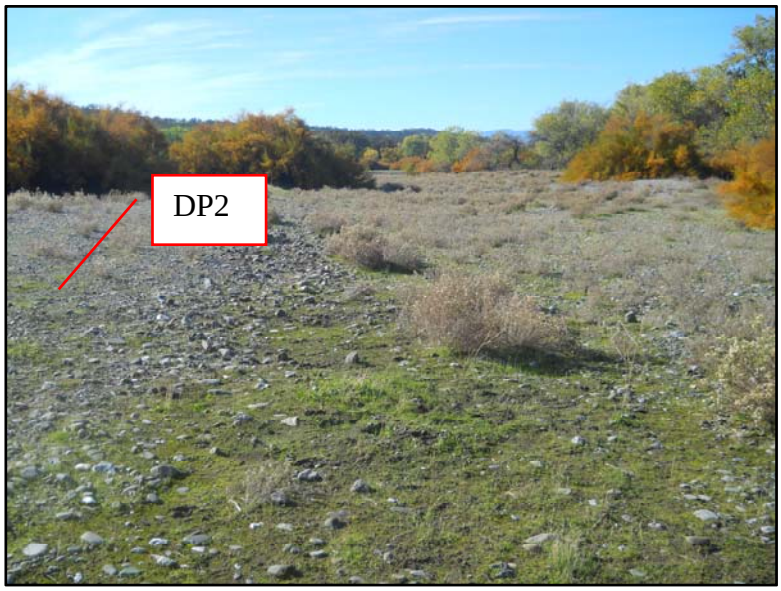
Representative Photographs

Stony Creek Bridge (11C-0245)
Replacement Project
Delineation of Waters of the United States

Photographs Taken November 9, 2016



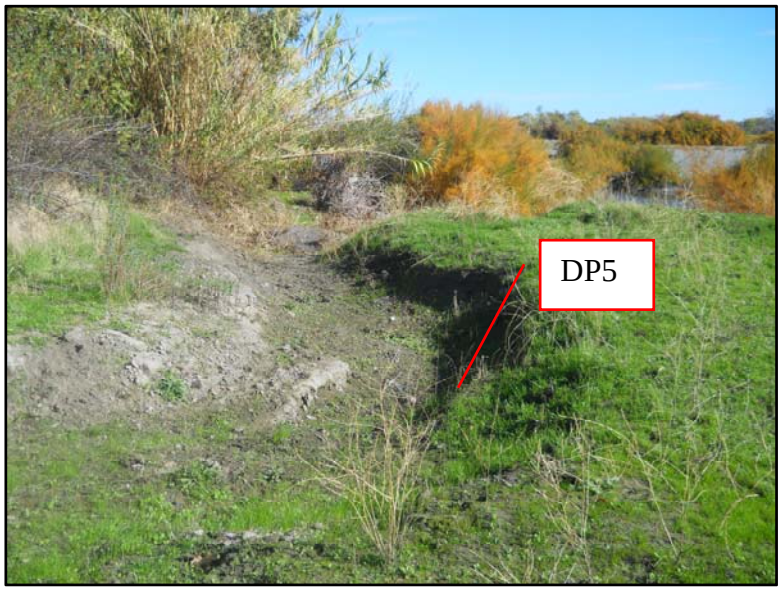
Photograph 1. Perennial Stream. Data point (DP) 1 documents the OHWM of the feature. Orientation: southwest.



Photograph **2**. Upland. DP2 documents the upland bank between the low flow channel and high flow channel of Stony Creek. Orientation: southwest.



Photograph 3. Upland. DP3 (shovel) documents a suspect area that was determined to be upland.



Photograph 4. Intermittent Stream. DP 5 documents the OHWM of this stream. Orientation: northeast.



Photograph 5. Riparian Wetland. DP6 (shovel) documents the feature. Orientation: southwest.



Photograph 6. Upland. DP7 (shovel) documents the upland pair point to DP5. Orientation: southwest.



Photograph **7**. Riparian wetland. DP10 (shovel) documents the feature.