

## **APPENDIX L**

### **Wetland Report and USACE Submission**



**DEPARTMENT OF TRANSPORTATION**

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October 29, 2014

Jane Hicks  
Chief, Regulatory Division  
Department of the Army  
San Francisco District  
1455 Market Street, 16<sup>th</sup> Floor  
San Francisco, California 94103-1398

Attn: Ms. Holly Costa

Dear Ms. Hicks,

The California Department of Transportation (Caltrans) is submitting completed Wetland Delineation Report for the Interstate 80 Express Lanes project (EA 04-4G0800). Caltrans will be also be submitting the complete Individual Permit Application for the I-80 Express Lanes Project in the near future.

Please feel free to contact me if you have any questions at (510) 286-7185.

Sincerely,

A handwritten signature in black ink, appearing to read "C. States".

Christopher States  
Senior Biologist  
Office of Biological Sciences and Permits

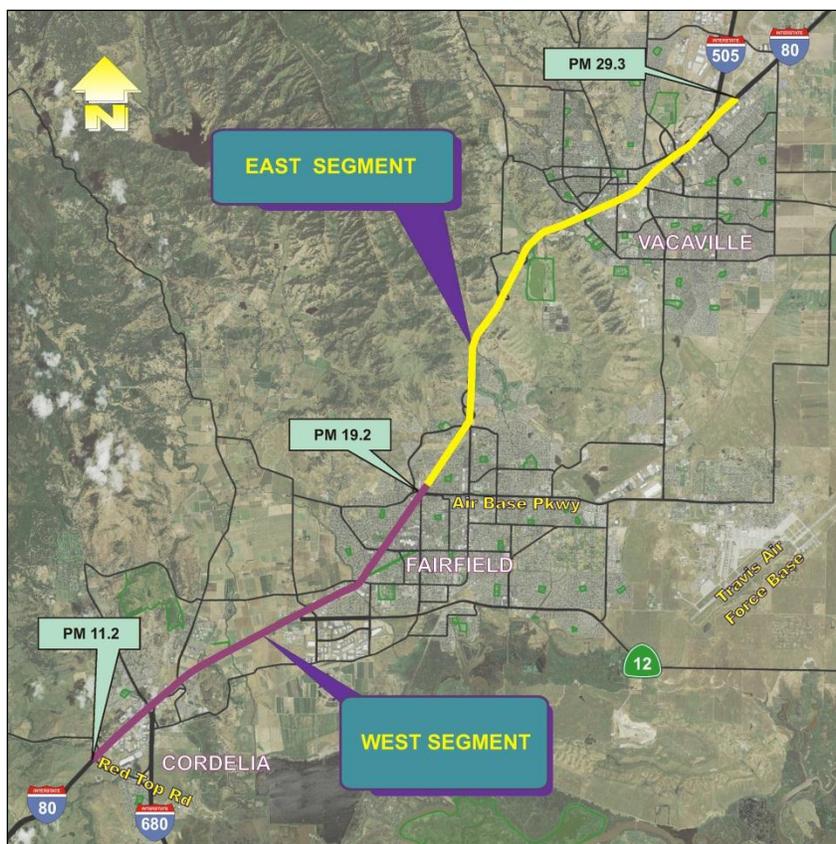
Enclosures:  
I-80 Express Lanes Wetland Delineation Report

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# WETLAND DELINEATION REPORT

## I-80 EXPRESS LANES PROJECT

from Red Top Road to I-505  
in Solano County



Prepared for:



Dated: May 2014

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**WETLAND DELINEATION REPORT**  
**FOR THE**  
**INTERSTATE 80 EXPRESS LANES PROJECT**  
**Red Top Road to I-505**

SOL-80 PM 11.2/29.3

EA 04-4G0800/ Project ID 0412000332

**May 2014**

U.S. DEPARTMENT OF TRANSPORTATION  
STATE OF CALIFORNIA  
and  
Solano County Transportation Authority

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<b>1.0</b>	<b>Summary</b> .....	<b>1</b>
<b>2.0</b>	<b>Introduction</b> .....	<b>2</b>
2.1	Project Background .....	2
<b>3.0</b>	<b>Project Setting</b> .....	<b>4</b>
3.1	Location .....	5
3.2	Hydrology & Vegetation Community .....	5
3.3	Plant Communities and Land Cover Types .....	8
3.4	Soils .....	11
<b>4.0</b>	<b>Methodology</b> .....	<b>13</b>
4.1	Regulations .....	13
4.3	Field Survey.....	16
4.4	Determination Form .....	17
<b>5.0</b>	<b>Results</b> .....	<b>18</b>
5.1	Wetlands .....	18
5.2	Other Waters .....	82
<b>6.0</b>	<b>Discussion</b> .....	<b>83</b>
6.1	Permitting .....	83
<b>7.0</b>	<b>Literature Cited</b> .....	<b>84</b>

**Appendix A** - Assessor Parcel Numbers and Location Maps

**Appendix B** - National Wetland Inventory Maps of Project Area

**Appendix C** - Natural Resources Conservation Service Web Soil Survey Maps

**Appendix D** - Plant Species Observed in Project Area

**Appendix E** - Potentially Jurisdictional Wetland and Project Feature Maps

**Appendix F** - Wetland Determination Sampling Point Data Forms

**Appendix G** - CWA Analysis Tables

**Appendix H** - Representative Site Photos

**Exhibit 1** - WETS Tables for Project Area

**Table 1** - Soil Types Occurring within the Project Area

**Table 2** - Wetland Feature Acreages and Status within the Project Area, Organized by Wetland Type

**Figure 1** - Project Area

**Acronyms and Abbreviations**

ACOE	U.S. Army Corps of Engineers
CCCI	Condor Country Consulting, Inc.
CEQA	California Environmental Quality Act
CWA	Clean Water Act
GPS	Global Positioning System
HCP	Habitat Conservation Plan
HOT	High Occupancy Toll
HOV	High Occupancy Vehicle
NEPA	National Environmental Policy Act
NPDES	National Pollutant Discharge Elimination System
NWI	National Wetland Inventory
OHWM	Ordinary High Water Mark
OW	Other Waters
PM	Perennial Marsh
PWD	Perennial Wetland Drainage
RWQCB	Regional Water Quality Control Board
RPW	Relatively Permanent Waters
SW	Seasonal Wetland
TNW	Traditional Navigable Waters
TOB	Top of Bank

## 1.0 Summary

This wetlands and waters delineation and assessment was conducted along the site of the proposed I-80 Express Lanes Project for the Solano County Transportation Authority (“Authority”). The purpose of the project is to provide an eastbound and westbound express lane on Interstate 80 (I-80) along the approximately 17-mile section, between Red Top Road and the Interstate 505 (I-505) interchange. This will be accomplished by a combination of converting existing high-occupancy vehicle (HOV) lanes to express lanes and expanding the road into the median, or outward from the existing edge-of-pavement, in order to accommodate the express lanes, and the buffer between the new lane and the mixed-use lanes. The express lanes are expected to improve the traffic flow through this heavily-used, congested area, encourage ride sharing, and allow commuters to pay for faster transit during peak highway use periods.

The project area covered in this report incorporates I-80 from Red Top Road east to the I-505 interchange. From April through September 2011, Condor Country Consulting, Inc. (CCCI) performed wetlands and waters delineation for the both the East and West Segment of the project (from Red Top Road to the I-80/505 interchange). Project area boundaries extend 30 to 650 feet from the existing edge of pavement. This report presents the findings of the CCCI 2011 wetlands and waters investigation.

The project area is located in the Suisun Bay and Valley Putah-Cache hydrologic units of the Lower Sacramento and Suisun Bay watersheds, respectively. Land cover in the project area is a mixture of annual grasslands, fallow and active agricultural fields, perennial and seasonal wetlands, riparian woodlands, and urban development (roads, parking lots, commercial, and residential buildings). Twenty-seven soil types occur in the project area, ranging from steeply sloped, well-drained loams to flat, poorly-drained, hydric clay soils. Water flows through the project area in a network of perennial and ephemeral drainages and creeks. A matrix of ditches and culverts directs surface water runoff away from and/or under the interstate.

Numerous potential wetlands and hydrologic features were identified within the project area, including 14 seasonal wetlands, 7 perennial wetland drainages, 1 perennial marsh, 12 named creeks, 3 unnamed perennial drainages, the Putah South Canal, 225 seasonal/ephemeral drainages (33 of which are considered non- jurisdictional), and 356 culverts. Where applicable, CCCI personnel delineated wetlands in accordance with guidance manuals (Environmental Laboratory 1987, ACOE 2008a), and all features (regardless of jurisdiction) were mapped to sub-meter accuracy using a GPS unit. A total of 0.72 acres of perennial marsh, 6.08 acres of perennial wetland drainages, 1.76 acres of seasonal wetland, 4.87 acres of riparian forest/scrub, and 5.80 acres of seasonal drainages were delineated within the project area.

The potential seasonal wetlands identified in the project area typically occur in roadside ditches and in low-lying areas in meadows and fields adjacent to I-80. Nineteen of these wetlands are hydrologically connected to relatively permanent waters (RPW) through drainages and culverts associated with I-80. Perennial wetland features are generally larger, linear wetlands in drainages and sloped areas adjacent to I-80. These features convey water during periods of high flow and support perennial hydrophytic vegetation, such as cattails and bulrush. A 0.72 acre perennial marsh was identified in the Eastern Segment of the project area. Portions of this feature extend past the project area boundary, so the actual area of this feature is larger than what

was delineated. The feature lies 0.5 miles west of Cherry Glenn Road, between I-80 and Nelson Road. Although drainage extends from this marsh, almost connecting to Lagoon Valley Lake, this marsh is primarily a flat depressional feature, and is not a continuation of a defined drainage.

For those wetlands determined jurisdictional by the ACOE, a 404 permit will likely be required; for those not considered jurisdictional by the ACOE, Waste Discharge Requirements (WDR) may still be required from the California Regional Water Quality Control Board (Central Valley and San Francisco Regions; RWQCB) under the Porter-Cologne Water Quality Control Act; and a Storm Water Control Plan may be required by the RWQCB. Under the Clean Water Act, a 401 certification issued by the RWQCB, will likely be required along with a 404 permit, to comply with state water quality standards.

## **2.0 Introduction**

Interstate 80 has had a significant increase in use over the past 20 years due to its use as a major commute corridor between the Central Valley and the Bay Area. The Solano Transportation Authority recognizes the need for expanding I-80 to aid in faster commute times during weekdays and weekends, and the need to accommodate future traffic demands through this corridor. The interstate passes over numerous creeks and drainages, and through urban and agricultural areas with many drainage features. Therefore, there is a need for an evaluation of possible wetlands and waters of the United States that might occur within the proposed project area.

### **2.1 Project Background**

Solano Transportation Authority's purpose within this project is to create east and westbound express lanes along I-80, between Red-Top Road and the I-505 interchange (Caltrans 2006). I-80 is an inter-regional east-west corridor that connects the San Francisco and Sacramento metropolitan areas, passing through the counties of Alameda, Contra Costa, Solano, and Yolo. The portion of I-80 through the cities of Fairfield and Vacaville is the most heavily-traveled segment of the I-80 corridor within Solano County and is utilized by commuters, public transit services, and for interstate and interregional goods movement. In addition there is significant weekend traffic through this corridor by recreation and vacation travelers between the Bay Area, the Lake Tahoe region, and other points east. Such heavy traffic through the corridor results in frequent significant congestion in the general purpose lanes, particularly acute during the peak travel hours. The level of congestion will continue to worsen as traffic demand increases in the future. The purpose of the project is to optimize and increase the capacity of the existing I-80 freeway corridor to reduce delay and meet current and future traffic demand needs.

The Solano Transportation Authority (STA) proposes to construct westbound and eastbound express lanes along approximately 17 miles of the existing I-80 corridor in Solano County. Figure 1 shows the location of the biological project area extending along I-80 from postmile 11.4 to 28.4 and passing through the cities of Fairfield and Vacaville. The project consists of two components, as described below.

The first component, the West Segment, runs along I-80 from the Red Top Road interchange (postmile 11.4) to the Air Base Parkway interchange (postmile 19.2), including the area around the I-80/I-680 interchange. In the West Segment, existing high occupancy vehicles (HOV) lanes

## I-80 Express Lanes Project – Wetlands/Waters Report

in both the eastbound and westbound directions would be restriped and repurposed as express lanes.

The second component, the East Segment, would construct new express lanes in both the eastbound and westbound directions of I-80 from the Air Base Parkway interchange to the I-80/I-505 interchange (postmile 28.4). The new express lanes would be constructed in the median of the I-80 freeway.

Project activities for both components would include:

- grading, paving, striping, and reconstruction or widening of existing roadways and creek bridges;
- reconstruction of a majority of the I-80 interchanges within the project area;
- reconstruction of existing sound walls and retaining walls;
- construction of new sound walls and retaining walls; and
- potential relocation and/or alteration of the median barrier along I-80.

The project may impact creeks crossed by I-80, including: Green Valley Creek Bridge, Dan Wilson Creek Bridge, Suisun Creek Bridge, Ledgewood Creek Bridge, Putah South Canal Drainage Culvert (DC), Laurel Creek DC, Alamo Creek Bridge, Ulatis Creek Bridge, Pine Tree Creek Bridge, and Horse Creek Bridge.

Portions of the West Segment have been previously delineated by Jones and Stokes (Jones and Stokes 2006 and 2008) and verified by the ACOE; however, the ACOE requires an update of locations and gaps within the project area not previously surveyed.

Figure 1

## 3.0 Project Setting

### 3.1 Location

The project area lies within Solano County, California, and spans approximately 17 miles of I-80, between Red Top Road in Fairfield and the I-505 interchange in Vacaville. The project is located on publicly and privately owned land. The westernmost point of the project area lies at 38.202038°N, -122.157025°W, and the easternmost point is at 38.379963°N, -121.9447791°W (WGS84 datum). The project area is divided into two segments. The West Segment covers 6.3 miles of I-80 and falls within the following sections: 11, 12, 13, and 24 of Township 4N, Range 3W; 6, 7, 18, and 19 and unnamed sections of Township 4N, Range 2W; and unnamed sections of Township 5N, Range 2W (Jones and Stokes 2008). The majority of the East Segment of the project falls within two land grants. The western half of the East Segment is located in the Tolenas Land Grant, a 23 square mile area located in northern Fairfield. The eastern half is located in the Los Puntos Land Grant, a 65.5 square mile area encompassing Vacaville and its surrounding area. In the area where these two land grants meet, roughly in the center of the East Segment, a small amount of the project area falls within Section 36, Township 6N, and Range 2W. Assessor parcel numbers (APNs) and locations within the project area are located in Appendix A.

### 3.2 Hydrology & Vegetation Community

The project area lies in the Lower Sacramento and Suisun Bay Watersheds (EPA 2011). The southwest portion of the project area lies within the Suisun Bay Hydrologic Unit (Caltrans 2011). The northeast portion lies within the Valley Putah-Cache Hydrologic Unit (AES 2010). There are twelve named creeks and three unnamed perennial drainages that flow through the project area. The named creeks in the project area are (from northeast to southwest) Horse Creek, Pine Tree Creek, Ulatis Creek, Alamo Creek, Laguna Creek, Laurel Creek, Soda Springs Creek, Ledge wood Creek, Suisun Creek, Dan Wilson Creek, Green Valley Creek, and Jameson Canyon Creek. Three unnamed perennial drainages also pass through the project area. Water is present in these drainages much of the year, if not year-round, and riparian vegetation lines many of the drainages.

In addition to these features, the Putah South Canal crosses the project area twice, once about 0.33 miles north of the I-80 Allison Drive exit in Vacaville, and again 0.9 miles north of the I-80 Air Base Parkway exit near Fairfield. The 33 mile-long canal flows south, from Putah Creek in the north, to Terminal Dam in the Suisun Valley. The canal water is used for irrigation and drinking, and is owned and maintained by the Solano County Water Agency.

The Solano County Water Agency Habitat Conservation Plan (SCWA 2009) lists the Laguna and Laurel watersheds (east of I-80) as “priority watershed areas,” and asserts the following:

“Maintaining the integrity of watershed lands is critical for preserving the ecological integrity of streams. Removal of vegetation from watershed lands, particularly on steep hillsides, creates soil erosion and compaction leading to increased sedimentation in downstream watercourses. Therefore, protecting watershed areas associated with priority drainages should be a high conservation priority.”

### **Creek and Perennial Drainage Proximity to TNWs**

All creeks and drainages in the project area flow roughly from west to east, starting in the hills west of Vacaville/Fairfield. Within the project area, the creeks and perennial drainages flow into three traditional navigable waters (TNWs) of the United States, the Cache, Suisun, and Peytonia sloughs. The Rivers and Harbors Act (33 CFR Part 329.4) defines TNWs as:

“...those waters that are subject to the ebb and flow of the tide and/or are presently used, or have been used in the past, or may be susceptible for use to transport interstate or foreign commerce. A determination of navigability, once made, applies laterally over the entire surface of the water body, and is not extinguished by later actions or events which impede or destroy navigable capacity.”

All three of the sloughs potentially affected by the I-80 Express Lanes project are subject to the ebb and flow of the Pacific Ocean tides through their connection to Suisun Bay, so are considered TNWs. Cache Slough, east of the project area, flows into the lower Sacramento River, which then flows into the Suisun Bay. Southwest of the project area, Suisun Slough flows into Grizzly Bay, and Grizzly Bay connects with Suisun Bay. Southwest of the project area, Peytonia Slough waters flow into Suisun Slough, and eventually into the Suisun Bay.

The creeks and perennial drainages that pass through the project area have varying proximities to Cache, Suisun, Peytonia Sloughs, but eventually all relatively permanent waters (RPW) in the project area terminate in one of the three. Horse Creek flows into Pine Tree Creek in the median of I-80, north of the I-505 interchange. Pine Tree Creek then flows 0.8 miles northeast along the median, then turn east. From there, Pine Tree Creek flows another 4.5 miles east, and converges with Ulatis Creek (1.5 miles west of Ulatis/Sweany creek junction). Ulatis Creek flows 8 miles east from the project area to Sweany Creek, where it turns southeast and continues another 8.5 miles into Cache Slough (CalFish 2012). Total distance from project area to Cache Slough is approximately 14 miles.

Alamo Creek lies in the East Segment, and Laguna Creek flows into Alamo Creek approximately 650 feet southeast of the project area. From that confluence, Alamo Creek continues another 12.5 miles east, emptying into Sweany Creek, which the flows 5.5 miles southeast into Cache Slough (CalFish 2012). The total distance to Cache Slough from the project area is 18.3 miles.

Laguna Creek flows within the east segment of project area, and then flows along the southeast side of the project area for one-half mile, where it then connects into Alamo Creek, which then continues a total of 18.8 miles into Cache Slough. Unnamed Perennial Drainage 1 flows 1,500 feet northwest from Lagoon Valley Lake, under I-80, and into Laguna Creek. Laurel Creek flows southeast from the project area 6.5 miles to the Suisun Slough. Soda Springs Creek flows 0.8 miles southwest from the project area (approximately at the mid-point of the Paradise Valley Golf Course) into Laurel Creek. From that point, Laurel Creek flows another 5 miles to the Suisun Slough. Unnamed Perennial Drainage 2 flows 3.4 miles south of the project area into Peytonia Slough. Jameson Canyon Creek flows 1.75 miles southeast into Green Valley Creek which flows another 0.25 miles South into Peytonia Slough. Dan Wilson Creek flows 1.25 miles directly southwest merging with Jameson Canyon Creek and Green Valley creek before flowing into Peytonia Slough. Unnamed Perennial Drainage 3 connects directly to Peytonia Slough as a

tributary of Green Valley Creek. Suisun Creek flows directly south over 3.5 miles into Peytonia Slough. Ledgewood Creek flows through the project area, and again under Highway 12 southeast 2 miles into Peytonia Slough (CalFish 2012).

### **Climate**

The project area has a Mediterranean climate, with cool wet winters and hot dry summers. Average annual rainfall in the northern portion of the project area (Vacaville) is 24.5 inches, and 23.43 inches in the southern portion (Fairfield, CA) (NRCS 2011). Three weather stations were identified within the project area: Fairfield, Lake Solano, and Vacaville. Rainfall data for the project area can be found in NRCS WETS Tables (Exhibit 1). The Arid West Supplement requires that growing season length be estimated and used to evaluate various field indicators. Soil microbial growth occurs when the soil temperatures are at least 41°F (Environmental Laboratory 1987). The growing season is defined as the portion of the year when soil temperatures at 19.7 inches below the soil surface are higher than biologic zero (5°C). According to data from the Fairfield Station, the growing season for the project area is year-round, 365 days a year (NRCS 2011).

### **Wetlands in Vicinity of Project Area**

The National Wetland Inventory's (NWI) Wetland Mapper shows one wetland within the East Segment of the project area (USFWS 2011; see Appendix B). There is a 1.603 acre Freshwater Forested/Shrub Wetland mapped between I-80 and Lagoon Valley Lake, just west of the Pena Adobe overcrossing. This wetland was identified during the CCCI delineation (feature SW-12), and re-mapped as a 1.129 acre wetland by CCCI surveyors.

According to the NWI Wetland Mapper there are 382.63 acres of Fresh Emergent Wetlands within a one-mile boundary of the entire project area. Other wetland types within the boundary include Estuarine and Marine Wetlands (1,360.37 acres) and Freshwater Forested/Shrub Wetlands (49.03).

The NWI identifies numerous wetlands, ponds, and lakes within one mile of the project area. In the Vaca Valley (East Segment of project area), the NWI shows two freshwater emergent wetlands (both under one acre) within a mile west of the east edge of the East Segment. It also maps three approximately 0.8 acre freshwater ponds within a mile east of the East Segment of the project area in the Green Tree Golf Club Golf Course. Between Vaca Valley and Lagoon Valley, approximately one-half mile north of the Pena Adobe exit on I-80, there is an 11 acre freshwater emergent wetland southeast of I-80. This wetland is approximately 75 feet southeast of the project area. There are many mapped wetlands within a mile of the project area in Lagoon Valley. There is an 8.26 acre freshwater emergent wetland 65 feet from the southwest section of the East Segment of the project area. There are three freshwater emergent wetlands (3.64, 7.83, and 0.83 acres) within a mile southeast of the East Segment of the project area. Lagoon Valley Lake, a 91 acre lake is 630 feet southeast of the project area. Two-thousand feet northwest from the Pena Adobe overcrossing there is a 4.08 acre freshwater emergent wetland in the Lagoon Valley.

A 3.55 acre freshwater emergent wetland is located 0.09 miles from the West Segment of the project area and appears to be connected to SD-310 within the project area through underground culverts northeast of Travis Boulevard. There is another large freshwater emergent wetland

(17.89 acres) located south of Suisun Valley Road, but the aerial images from the NWI Wetland Mapper indicate that this wetland does not exist anymore and has been converted into a housing development (USFWS 2011). This freshwater wetland would have then flowed into estuarine and marine wetland located 6.2 miles south of the project area and then into Suisun Slough.

There are numerous stock ponds in the hills and surrounding areas within one mile of the project area. These ponds vary in size from 0.5 to 9.6 acres, and many are connected to drainages and creeks that flow throughout the project area. The total acreage of fresh water ponds within a one mile buffer of the project area is 51.10 acres (not including Lagoon Valley Lake which is 91.49 acres).

The NWI maps do not contain information on every wetland unit within the region because many wetlands, especially seasonal or alkali wetlands and vernal pools, are smaller than the minimum mapping unit (0.25 acres and 3 acres, respectively), or were not visible in aerial photographs or other sources that were used to generate the NWI maps (USFWS 2011).

### 3.3 Plant Communities and Land Cover Types

The project area falls within the Sacramento Valley Sub-region of the California Floristic Province (Hickman 1993). Several vegetation/land cover types are present in the project area. Wetland and riparian habitats, while less common than upland habitats, are spread throughout the project area. Shallow inland-marsh and wet-meadow-emergent wetlands occur in depressional features, e.g., ditches. Meadows and riparian woodland/scrub communities dominate the creeks and unnamed drainages. Upland habitats are more abundant throughout the project area than wetlands, and include native and non-native grasslands, ruderal areas, urban/landscaped areas, and agricultural fields. Non-native species are denoted by an asterisk.

#### Ruderal

Much of the project area consists of ruderal vegetation. Ruderal vegetation often occupies disturbed vacant parcels of land and is surrounded by developed areas. This plant community usually consists of nonnative, weedy vegetation that is sparsely distributed (Holland et al. 1995). Ruderal vegetation within the project area is located along roadsides, in vegetated borders of urban development, in road cut/fill and other disturbed areas. This vegetation type is not described in Sawyer et al. (2009). Within these ruderal areas, annual grass and forb species include, but are not limited to western ragweed (*Ambrosia psilostachya*), wild oats (*Avena fatua*\*), black mustard (*Brassica nigra*\*), ripgut brome (*Bromus diandrus*\*), soft brome (*Bromus hodeaceus*\*), Italian (plumeless) thistle (*Carduus pycnocephalus*\*), field bindweed (*Convolvulus arvensis*\*), dove weed (*Croton setigerus*), teasel (*Dipsacus fullonum*\*), California poppy (*Eschscholzia californica*), Mediterranean barley (*Hordeum marinum* ssp. *gussonianum*\*), prickly lettuce (*Lactuca serriola*\*), hare barley (*Hordeum murinum* ssp. *leporinum*\*), Italian ryegrass (*Festuca perennis*\*), bristly ox-tongue (*Picris echioides*\*), wild radish (*Raphanus raphanistrum*\*), and curly dock (*Rumex crispus*\*).

#### Non-native Grassland

Much of the land cover in the project area is non-native grasslands. Within this habitat type there are several herbaceous stands with distinct species assemblages. The following herbaceous

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\* Non-native plant species

stands, described in *A Manual of California Vegetation* (Sawyer et al. 2009), occur in the project area: wild oats grasslands, annual brome grasslands, and perennial ryegrass fields. Within the East Segment, non-native grasslands occur along hillsides, roadsides, road cuts, vacant parcels, farm field edges, and fallow fields. Species common to this habitat type include common fiddleneck (*Amsinckia menziesii* var. *intermedia*), scarlet pimpernel (*Anagallis arvensis*\*), slender wild oat\*, wild oat\*, black mustard\*, ripgut brome\*, soft brome\*, red brome (*Bromus madritensis* ssp. *rubens*\*), Italian thistle\*, chicory (*Cichorium intybus*\*), bindweed\*, teasel\*, barnyard grass (*Echinochloa crus-galli*\*), wild geranium (*Geranium dissectum*\*), Mediterranean barley\*, hare barley\*, Italian rye-grass\*, little-seed canarygrass (*Phalaris minor*\*), bristly ox-tongue\*, rabbitfoot grass (*Polypogon monspeliensis*\*), and curly dock\*.

### **Native Grassland**

Many patches of native grassland occur in the project area. These patches tend to be much smaller than their non-native counterparts, and often form dense, mono-specific stands within the non-native grasslands. This habitat type consists of several distinct herbaceous stands. The following herbaceous stands, described in *A Manual of California Vegetation* (Sawyer et al. 2009), occur in the project area: meadow barley (*Hordeum brachyantherum*) patches, ashy ryegrass (*Elymus cinereus*) meadows, and creeping ryegrass (*Elymus triticoides*) tufts. The predominant species in these stands are meadow barley, ashy ryegrass, and creeping wildrye, although other species can occur in these stands. The ashy ryegrass meadows and creeping ryegrass tufts in particular have a less diverse species assemblage than the non-native grasslands, however all three vegetation types contain species found in the non-native grasslands.

### **Riparian Forest/Scrub**

Riparian forest and scrub are found in the channels, banks, and associated upland terraces of the major streams and drainages in the project area. There are fifteen riparian corridors in the project area including ten creeks and three unnamed drainages. A total of 4.87 acres of riparian forest/scrub were mapped within the project area. This habitat type is a mixture of riparian forest and riparian scrub. The riparian forest consists of Fremont cottonwood forest, valley oak woodland, Hinds's walnut and related stands (Sawyer et al. 2009), and various assemblages of willows, Oregon ash (*Fraxinus latifolia*), and non-native riparian trees, like fig (*Ficus carica*). Riparian scrub consists of various shrubland assemblages such as coyote brush scrub and Himalayan blackberry brambles (Sawyer et al. 2009). Species common to the riparian forest and scrub communities in the East Segment include box elder (*Acer negundo*), fig, Oregon ash, toyon (*Heteromeles arbutifolia*), Northern California black walnut (*Juglans californica* var. *hindsii*), sycamore (*Platanus racemosa*), Fremont's cottonwood (*Populus fremontii*), cherry plum (*Prunus cerasifera*\*), almond (*Prunus dulcis*\*), coast live oak (*Quercus agrifolia*), blue oak (*Quercus douglasii*), valley oak (*Quercus lobata*), black locust (*Robinia pseudoacacia*\*), Himalayan blackberry (*Rubus discolor*\*), blue elderberry (*Sambucus mexicana*), poison oak (*Toxicodendron diversilobum*), and California wild grape (*Vitis californica*).

### **Agricultural Fields**

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\* Non-native plant species

Cultivated agricultural fields lie near the center of the East Segment, north of I-80. These fields are planted with annual crops, predominantly wheat. Field edges often contain non-native grassland and ruderal habitat.

### Urban/Landscaped Areas

Much of the project area consists of urban areas in Fairfield and Vacaville. These developed areas include commercial buildings, residential buildings, paved streets, and parking lots. The habitat surrounding these developments, and along much of I-80, has been landscaped with an assortment of non-native trees and shrubs. These areas are typically irrigated, and the herbaceous layer is often absent (usually due to mulching or herbicide application). Common species in landscaped areas include deodar cedar (*Cedrus deodara*\*), eucalyptus (*Eucalyptus* spp.\*), glossy privet (*Ligustrum lucidum*\*), oleander (*Nerium oleander*\*), Chinese pistache (*Pistacia chinensis*\*), callery pear (*Pyrus calleryana*\*), California coffeeberry (*Rhamnus californica*), Indian hawthorn (*Rhaphiolepis indica*\*), and rose (*Rosa* sp.\*).

### Wetlands

Three types of emergent wetlands occur in the project area: perennial marsh, perennial wetland drainages, and seasonal wetlands. Perennial marshes and wetland drainages are those which are wet throughout the entire year or a majority of the year. Semi-permanently inundated inland shallow fresh marshes are dominated by herbaceous perennials such as cattails and bulrushes (Cowardin et al. 1979). This wetland class has been divided into two subsets. “Perennial wetland drainages” serve as both wetland and drainage, and “perennial marshes” have perennial wetland features but do not convey water in a linear fashion. These areas are typically found in concave features such as drainage ditches, roadside ditches, and low-lying areas in meadows and fields. The second type of wetland is seasonally flooded wet meadows (seasonal wetlands, Cowardin et al. 1979). Seasonal wetland features are those which are only inundated during the rainy season and only hold water for a limited amount of time during that time and shortly after. In the project area, these wetlands occupy flat meadows, slight depressions, and ditches along I-80. Vegetation in these areas is primarily hydrophytic grasses, rushes, sedges, and forbs.

The following vegetation types occur in wetlands in the project area: iris-leaved rush seeps, pale spike rush marshes, hardstem bulrush marsh, and cattail marshes (Sawyer et al. 2009). Species commonly found in these vegetation types include broad-leaf water plantain (*Alisma plantago-aquatica*), riggut brome\*, soft brome\*, tall flatsedge (*Cyperus eragrostis*), teasel\*, common spikerush (*Eleocharis macrostachya*), hairy willow herb (*Epilobium ciliatum*), giant horsetail (*Equisetum telmateia* ssp. *braunii*), Oregon ash, wild geranium\*, Baltic rush (*Juncus balticus*), toad rush (*Juncus bufonius*), brownhead rush (*Juncus phaeocephalus*), iris-leaved rush (*Juncus xiphioides*), broad-leaved peppergrass (*Lepidium latifolium*\*), creeping wildrye (*Leymus triticoides*), Italian ryegrass\*, rabbitfoot grass\*, curly dock\*, hardstem bulrush (*Schoenoplectus acutus* var. *occidentalis*), narrowleaf cattail (*Typha angustifolia*), and broadleaf cattail (*Typha latifolia*).

### Adjacent Land Use

The project area sits within a mixture of urban and rural land, and is held in both private and public ownership. In the urban areas, common land uses in and adjacent to the project area

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\* Non-native plant species

include high-density housing, high-density commercial/industrial buildings, city parks, bike trails, and city streets. In the less-developed, rural portions of the project area, adjacent land uses include farming, fallow fields, a golf course, and low-density residential housing.

### 3.4 Soils

The soils in the vicinity of the project area are a mosaic of clays, loams, clay loams, and gravelly loam (Appendix C). Landforms in the project area vary from basin floors and alluvial fans, to terraces and mountains. Steep slopes occur on road-cuts created for I-80. Slopes in the project area range from 0-50%. A total of 27 soil types occur in the project area. The hydrologic properties of these soils vary, as do their topographies. Seventeen of these soils are characterized as “well drained,” five soils are “moderately well drained,” and three soils are “poorly drained” or “somewhat poorly drained” (Soil Survey Staff 2011). Of the 27 listed soils, only four are listed as hydric, with hydric soil criteria values of 2B3 and 3. The Web Soil Mart describes the 2B3 hydric soil indicator as having “[s]oils in Aquic suborders, great groups, or subgroups, Albolls suborder, Historthels great group, Histoturbels great group, Pachic subgroups, or Cumulic subgroups that... are poorly drained or very poorly drained and have... a water table at a depth of 1.0 foot or less during the growing season if saturated hydraulic conductivity (Ksat) is less than 6.0 in/hr in any layer within a depth of 20 inches.” Soils with a hydric indicator criterion of 3 are “frequently ponded for long or very long duration during the growing season” (USDA 2007a). Table 1 summarizes the soil types and soil properties occurring within the project area.

**Table 1.** Soil Types Occurring within the Project Area

Map Unit Symbol <sup>a</sup>	Map Unit Name	Percent Slope	Drainage Type	Land Form	Hydric Soil <sup>b</sup>	Hydric criteria <sup>c</sup>	Total acres
AcC	Altamont clay	2-9	Well drained	Terraces	No	N/A	17.24
AcE	Altamont clay	9-30	Well drained	Terraces	No	N/A	16.25
AoA	Antioch-San Ysidro complex	0-2	Moderately well drained	Terraces	Yes	3	35.47
AsA	Antioch-San Ysidro complex	0-2	Moderately well drained	Terraces	No	N/A	18.52
BrA	Brentwood clay loam	0-2	Well drained	Alluvial fans	No	N/A	118.53
BrC	Brentwood clay loam	2-9	Well drained	Alluvial fans	No	N/A	0.96
Ca	Capay silty clay loam	-	Moderately well drained	Rims on basin floors	No	N/A	20.10
Cc	Capay clay	-	Moderately well drained	Rims on basin floors	Yes	2B3, 3	42.91
CeA	Clear Lake clay	0-2	Poorly drained	Basin floors	Yes	2B3, 3	90.85
CeB	Clear Lake clay	2-5	Poorly drained	Basin floors	Yes	2B3	2.32
Co	Conejo gravelly loam	-	Well drained	Alluvial fans	No	N/A	0.29
CvD2	Corning gravelly loam	2-15	Well drained	Terraces	No	N/A	11.78

## I-80 Express Lanes Project - Wetlands/Waters Report

Map Unit Symbol <sup>a</sup>	Map Unit Name	Percent Slope	Drainage Type	Land Form	Hydric Soil <sup>b</sup>	Hydric criteria <sup>c</sup>	Total acres
CvE2	Corning gravelly loam	15-30	Well drained	Terraces	No	N/A	4.26
DIE	Dibble-Los Osos clay loams	9-30	Well drained	Mountains	No	N/A	49.81
DIF2	Dibble-Los Osos clay loams	30-50	Well drained	Mountains	No	N/A	37.58
HaF	Hambright loam	15-40	Well drained	Mountains	No	N/A	0.08
Ma	Made land	-	Well drained	Alluvial fans	No	N/A	0.76
MnC	Millsholm loam	2-9	Well drained	Mountains	No	N/A	13.32
MnE	Millsholm loam	9-30	Well drained	Mountains	No	N/A	6.73
RoA	Rincon clay loam	0-2	Well drained	Alluvial fans	No	N/A	33.74
RoC	Rincon clay loam	2-9	Well drained	Alluvial fans	No	N/A	58.50
SeB	San Ysidro sandy loam	2-5	Moderately well drained	Terraces	No	N/A	0.47
Sr	Sycamore silty clay loam	-	Somewhat poorly drained	Alluvial fans	No	N/A	56.92
Ss	Sycamore silty clay loam, drained	-	Somewhat poorly drained	Alluvial fans	No	N/A	18.37
Yo	Yolo loam	-	Well drained	Alluvial fans	No	N/A	1.51
Yr	Yolo loam, clay substratum	-	Well drained	Alluvial fans	No	N/A	17.78
Ys	Yolo silty clay loam	-	Well drained	Alluvial fans	No	N/A	140.73

a: Sources: Bates 1977; U.S.D.A. 1992.

b: The hydric soil criteria are defined as follows (from U.S.D.A 1992):

c: Hydric Criteria 2B3:

2. Soils in Aquic suborder, Aquic subgroups, Albolls suborder, Salorthids great group, Pell great groups of Verticols, Pachic subgroups, or Cumulic subgroups that are:

B. poorly drained or very poorly drained and have:

3. a frequently occurring water table at less than 1.5 ft from the surface for a significant period (usually more than 2 weeks) during the growing season if permeability is less than 6.0 in/hr in any layer within 20 inches.

Hydric Criteria 3: Soils that are frequently ponded for long duration or very long duration during the growing season.

Hydric Criteria 4: Soils that are frequently flooded for long duration or very long duration during the growing season.

## 4.0 Methodology

### 4.1 Regulations

CCCI conducted a wetlands and waters delineation in accordance with the 1987 Corps of Engineers Wetlands Delineation Manual (Environmental Laboratory 1987), ACOE Jurisdictional Determination Form Instructional Guidebook (ACOE 2009), and Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region Version 2.0 (September 2008). A Level 2 Onsite Inspection was conducted (as defined in the Wetland Delineation Manual), evaluating three parameters that identify and delineate the boundaries of jurisdictional wetlands including (1) the dominance of wetland vegetation, (2) the presence of hydric soils, and (3) hydrologic conditions that result in periods of inundation or saturation on the surface from flooding or ponding. The National List of Plant Species That Occur in Wetlands: California (Region 0) was used to determine the wetland indicator status of plants observed in the project site (Appendix D). The U.S. Department of Agriculture Natural Resource Conservation Service Web Soil Survey for Solano County, California, and the National List of Hydric Soils were used to identify soil types within the project area. Soil matrix colors were classified according to the Munsell Soil Color Charts (Munsell Color, 2009, Revised).

The wetlands and waters delineation work focused on identifying any existing wetland or water features that might be considered by the ACOE, CDFG, or the RWQCB to be jurisdictional wetlands within the project area. The ACOE San Francisco district office requires the use of the Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region (ACOE 2008a) for all delineations within its jurisdiction and the Mediterranean California Land Resource Region. “Waters of the U.S.” are defined in 40 CFR Section 230.3:

1. All waters which are currently used, or were used in the past, or may be susceptible to use in interstate or foreign commerce, including all waters which are subject to the ebb and flow of the tide;
2. All interstate waters including interstate wetlands;
3. All other waters such as intrastate lakes, rivers, streams (including intermittent streams), mudflats, sandflats, wetlands, sloughs, prairie potholes, wet meadows, playa lakes, or natural ponds, the use, degradation or destruction of which could affect interstate or foreign commerce including any such waters:
  - i. Which are or could be used by interstate or foreign travelers for recreational or other purposes; or
  - ii. From which fish or shellfish are or could be taken and sold in interstate or foreign commerce; or
  - iii. Which are used or could be used for industrial purposes by industries in interstate commerce;
4. All impoundments of waters otherwise defined as waters of the United States under this definition;
5. Tributaries of waters identified in paragraphs (s)(1) through (4) of this section;
6. The territorial sea;

7. Wetlands adjacent to waters (other than waters that are themselves wetlands) identified in paragraphs (s)(1) through (6) of this section; waste treatment systems, including treatment ponds or lagoons designed to meet the requirements of CWA (other than cooling ponds as defined in 40 CFR 423.11(m) which also meet the criteria of this definition) are not waters of the United States.

The ACOE and the U.S. Environmental Protection Agency (EPA) jointly define wetlands as “those areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions” (Environmental Laboratory 1987).

For purposes of classification, wetlands must have one or more of the following three attributes: 1) at least periodically, the land supports predominantly hydrophytes; 2) the substrate is predominantly undrained hydric soil; and 3) the substrate is non-soil and is saturated with water or covered by shallow water at some time during the growing season of each year. The ACOE requires all three factors to be present to be considered a wetland. The USFWS and CDFG require just one of three. However, the USFWS and CDFG rarely play a role in the actual wetland delineation and assessment process, and principally serve to uphold the federal and state endangered species acts (Caltrans 2009). CDFG also may serve as a commenting agency to ACOE, under CEQA, and has jurisdiction over streams and lakes (California Fish and Game Code Section 1600-1607). The ACOE is the sole agency charged with issuing a Section 404 permit, which allows regulated fill or other modification of wetlands or waters, and the legal requirements for those activities are enforced by the EPA.

The project also falls under the jurisdiction of the RWQCB. Section 401 of the Clean Water Act requires any applicant seeking a federal permit (such as Section 404) to conduct any activity that may result in a discharge of a pollutant into waters of the United States must also obtain certification from the state, issued locally by the RWQCB. The RWQCB also plays a role in review of water quality and wetland issues, including requiring specific impact avoidance and minimization measures. Section 401 certification is required prior to issuance of a Section 404 permit. The RWQCB regulates Solano County’s National Pollutant Discharge Elimination System (NPDES) permit, which may necessitate a Stormwater Control Plan (USGPO 2009, Caltrans 2009, and Solano County Board of Supervisors 2007). The Porter-Cologne Water Quality Control Act is the primary state law concerning water quality, and it too, is enforced by the RWQCB. This Act authorizes the RWQCB to issue WDRs defining limitations on allowable discharge to waters of the state, and this WDR can be complementary to or independent from a Clean Water Act Section 401 certification (SWRCB 2009). “Waters of the State” are defined by the Porter-Cologne Act (Water Code Section 13050e) as “any surface water or groundwater, including saline waters, within the boundaries of the state.”

## 4.2 Terminology

Language used in this report refers to specific terms and definitions from the ACOE Wetland Delineation Manual (Environmental Laboratory 1987). The following definitions are taken from the glossary of the 1987 ACOE Manual.

***Dominance.*** A descriptor of vegetation that is related to the standing crop of a species in an area, usually measured by height, areal cover, or basal area (for trees).

***Dominant species.*** A plant species that exerts a controlling influence on or defines the character of a community.

***Drift line.*** An accumulation of debris along a contour (parallel to the water flow) that represents the height of an inundation event.

***Emergent plant.*** A rooted herbaceous plant species that has parts extending above a water surface.

***Growing season.*** The portion of the year when soil temperatures at 19.7 inches below the soil surface are higher than biologic zero (5 (C)) (U.S. Department of Agriculture & Soil Conservation Service 1985). For ease of determination this period can be approximated by the number of frost-free days (U.S. Department of the Interior 1970).

***Herb.*** A non-woody individual of a macrophytic species. In this manual, seedlings of woody plants (including vines) that are less than 3.2 feet in height are considered to be herbs.

***Hydric soil.*** A soil that is saturated, flooded, or ponded long enough during the growing season to develop anaerobic conditions that favor the growth and regeneration of hydrophytic vegetation (U.S. Department of Agriculture & Soil Conservation Service 1985). Hydric soils that occur in areas having positive indicators of hydrophytic vegetation and wetland hydrology are wetland soils.

***Hydrophyte.*** Any macrophyte that grows in water or on a substrate that is at least periodically deficient in oxygen as a result of excessive water content; plants typically found in wet habitats.

***Indicator status.*** One of the categories (e.g., OBL) that describes the estimated probability of a plant species occurring in wetlands.

***Inundation.*** A condition in which water from any source temporarily or permanently covers a land surface.

***Saturated soil conditions.*** A condition in which all easily drained voids (pores) between soil particles in the root zone are temporarily or permanently filled with water to the soil surface at pressures greater than atmospheric.

***Upland.*** Any area that does not qualify as a wetland because the associated hydrologic regime is not sufficiently wet to elicit development of vegetation, soils, and/or hydrologic characteristics associated with wetlands. Such areas occurring within floodplains are more appropriately termed non-wetlands.

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

### 4.3 Field Survey

Prior to a site inspection for wetland and water features in the project area, CCCI reviewed existing information on the area, including local soil maps and surveys, United States Geological Survey (USGS) topographic maps, NWI maps, aerial photographs, and other environmental documentation for the project site.

Following standard methods described in the Arid West Manual (ACOE 2008a), CCCI's certified wetland delineators Rhiannon Klingonsmith, Mark Mendelsohn, Ted Robertson, and Felix Ratcliff surveyed for the presence of three classes of wetland indicators including vegetation, soils, and hydrology, at discrete sampling points and throughout the project area. Additionally, they surveyed for non-wetland, potentially jurisdictional "Other Waters" (e.g., streams, lakes, and channels), and riparian vegetation.

CCCI delineators visited the East Segment of the project area on April 27; May 5, 6, 9, 10, 11, 12, 13, 16, 17, 18, 19, 20, 24, 25, 26, 27 and 31; and June 3; and the West Segment on August 26, 30, 31, September 1, 2, 6, and 7 to conduct the delineation throughout the project area. They walked the entire 17 mile project length (performing multiple transects where the project area width necessitated more than one pass), identifying potential wetland indicators, estimating the number of formal sampling data points required, and mapping other hydrological features (i.e., streams, drainages, and culverts). The project area, including the road pavement, is approximately 817.74 acres. A total of 46.46 acres were delineated and verified under separate projects in 2008, and therefore those areas verified were not re-delineated for this report. Based on the project area size and the presence of different vegetation communities, the "routine large area" delineation method was required (Environmental Laboratory 1987).

Due to the large size of the project area and the limited amount of time allotted to perform field surveys, formal wetland delineation points (as specified in the 1987 ACOE Wetland Delineation Manual) were not sampled at every potential wetland encountered. Instead, a sampling point was taken for each hydrologically and topographically isolated feature. Results from that sampling point were extrapolated to include nearby features with similar soil and hydrology. In addition to the 15 formal data points, approximately 7 informal data points and numerous observations were made to delineate wetlands in the project area. Wetland boundaries were determined using vegetation, topography, and surface hydrology as primary indicators. Each topographically isolated wetland typically only had one wetland sampling point associated with it, but many informal observations.

The three classes of indicators were investigated at or immediately adjacent to each sampling point; the delineators completed the Wetland Determination Data Forms in the Arid West Manual. Global Positioning System (GPS) coordinates and photographs were taken at all sampling points, and wetland boundaries were recorded using GPS units with sub-meter accuracy, either a Magellan Professional or an Ashtech Mobile Mapper 100 (NAD 83 datum, State Plane coordinate system, California II FIPS 0402). Because most wetland features

encountered were narrow, linear, or channelized, only one 50-foot vegetation transect was conducted per sampling point. This transect was placed in line with the feature to maximize relevance to the vegetation characteristics of the feature. Plant identification aids employed during all vegetation sampling included Hickman (1993), Beidleman and Kozloff (2003), DiTomaso and Healy (2007), California Native Plant Society (2011), and CalPhotos (UC Berkeley 2011). Wetland indicator status for plant species followed Reed (1988) and USDA (2009). Plant scientific names in this report come from UCJEPS (2009) and USDA (2009). Soil and hydrology inspections followed ACOE (2008a). This report reflects the nomenclature used in the guides above; Appendix D includes both the old nomenclature and that used in the updated Jepson Manual (Baldwin et al. 2012).

Stream channels were delineated using two criteria to satisfy both ACOE and CDFG jurisdiction. The ACOE measures the lateral limits of non-wetland waters using the Ordinary High Water Mark (OHWM). Field indicators used to measure OHWM include vegetative as well as geomorphological characteristics. Vegetative indicators include herbs and pioneer tree saplings growing at the OHWM. Geomorphological indicators of the OHWM include stream benches, stains on rocks/concrete, silt deposits, and litter and drift deposits (ACOE 2008b). CDFG delineates lateral stream boundaries as equal to “Top of Bank” (TOB). TOB was measured as the larger of either the physical geomorphological top of bank of a stream, or the outside limit of riparian vegetation associated with the stream corridor. Because dense vegetation obscured satellite images of most of the streams, OHWM and TOB were delineated on foot, and were recorded using the same GPS units previously described (Appendix E).

#### **4.4 Determination Form**

Characteristics of the sampled areas and the climatic conditions in which they were surveyed were not disturbed or problematic during the field survey. Neither vegetation nor soils were significantly disturbed at the data point sites, with the exception of SW-1, which had been tilled in the year prior to delineation). Precipitation was above average at the time of the site visits. By April 27<sup>th</sup>, the beginning of the field surveys, 25.24 inches of precipitation had already fallen in Vacaville in the 2010-2011 wet season (Weather Underground 2011). This is above the annual average precipitation of 24.5 inches. By the end of the survey period (September 2011) 26.89 inches of precipitation had fallen in Vacaville.

Once data forms were completed for all sampling points, all potentially jurisdictional wetlands or waters were mapped in the field with a sub-meter accurate GPS receiver following standard protocols (Environmental Laboratory 1987). Topography and vegetation indicators (i.e., hydrophytic versus non-hydrophytic vegetation), were the primary indicators used to delineating wetland boundaries.

## 5.0 Results

Wetland determination data forms for the 22 sampling points are provided in Appendix F. The total delineated wetland and other waters acreage is 19.23 acres. This includes 6.08 acres of perennial wetland drainages, (creeks/perennial drainages (4.61 acres) are discussed in section 5.2), 0.72 acres of perennial marsh, 4.87 acres of riparian forest scrub, 1.76 acres of seasonal wetland, and 5.80 acres of seasonal drainage. Of the delineated features, a total of 13.18 acres of potentially jurisdictional wetlands and other waters are within the project area. This includes 0.72 acres of perennial marsh, 5.54 acres of perennial wetland drainage (including 4.61 acres of creeks), 1.70 acres of seasonal wetland and 5.22 acres of seasonal drainage. See Table 1 and 2 (Appendix E) for details describing each features size, type, location, and jurisdictional potential. In some locations, where project area boundaries were ambiguous, wetland features mapped extended outside of the project area limits.

### 5.1 Wetlands

Five types of wetlands and waters of the U.S. were identified in the project area during the CCCI site visits. Potential ACOE jurisdictional features include seasonal wetland, perennial wetland drainage, perennial marsh, and creeks/perennial drainages. Potential CDFG and RWQCB jurisdictional features also include seasonal drainages.

#### Perennial Wetland Drainage

Perennial wetland drainages (PWD) are perennially inundated/saturated drainage features which support perennial hydrophytic vegetation typical of marsh habitats. They function as both wetlands and drainages. Seven formal data points were taken for perennial wetland drainages in the project area.

**Vegetation:** Vegetation typical of this wetland type in the project area includes broad-leaf water plantain, narrowleaf cattail, broadleaf cattail, hardstem bulrush, giant horsetail, Iris-leaved rush, and hairy willow herb. Seven perennial wetland drainages were identified and delineated within the project area, for a total acreage of 1.47 acres (0.93 potentially jurisdictional acres). None of these occur in named drainages or creeks.

**Soils:** Soil textures in perennial wetland drainages typically had a clay component, with the exception of PWD-1, which was sandy loam (possibly road fill). Other soil textures in perennial wetland drainages were clay loam, clay, and silty clay. Soil matrix chroma was usually 1 (3 and 6 were the outliers). The most common soil indicators for wetland soils were a hydrogen sulfide odor, and a depleted matrix. One point, PWD-1, had histosol, also a wetland soil indicator.

**Hydrology:** Perennial wetland drainages in the project area were often situated in deeply concave features, with perennial water flow. Surface water was a common wetland indicator, with depths ranging from 0-9 inches. Soil saturation was also a commonly encountered wetland indicator, with saturated depths ranging from 0-12 inches. Other wetland hydrology indicators included hydrogen sulfide odor, surface soil cracks, water stained leaves, water marks, and in the case of PWD-1, aquatic vertebrates (frog tadpoles) were observed.

Perennial wetland drainages in the project area are labeled PWD 1-5, PWD-300, and PWD-305. Seven of these eight features are potentially jurisdictional wetlands, because these features may be hydrologically connected via culverts and drainage district systems into RPWs (creeks and

drainages) which eventually flow into Cache, Suisun, and Peytonia sloughs (TNWs). The exception is PWD-3, which is isolated, so is not a potentially jurisdictional wetland.

Perennial wetland drainages in the project area have the following biological, physical, and chemical wetland functions: they serve as seasonal and year-round habitat for a variety of fauna, and they provide year-round foraging, breeding, resting and hiding spaces for birds, aquatic invertebrates, and amphibians. These PWDs may provide habitat for several special-status plant species that potentially occur in the project area. Chemical and physical wetland functions include nutrient cycling, carbon source/sink, retention of water particulates, and removing pollutants from water (ACOE 2007b).

### **Perennial Marsh**

Perennial Marsh (PM) wetlands are perennially inundated/saturated wetlands which support perennial hydrophytic vegetation typical of marsh habitats. One 0.72 acre perennial marsh, PM-1, was identified and delineated in the project area. Vegetation typical of this feature includes hardstem bulrush and iris-leaved rush. Soils in this feature had a silty clay texture and a depleted matrix. Hydrology indicators were surface water (1 inch deep or greater), high water table (from 0-12 inches below the soil surface), and soil saturation (from 0-20 inches below the soil surface). The USGS National Hydrography Dataset shows a drainage feature from this marsh almost connecting to Lagoon Valley Lake (USGS 2011). It is very likely that there is a hydrologic connection via over-ground sheet flow. If these features are connected, then PM-1 is hydrologically connected to Laguna Creek, a RPW. Laguna Creek flows into Alamo Creek which then flows 18 miles into Cache Slough, a TNW.

Wetland functions provided by PM-1 include serving as seasonal and year-round habitat for a variety of fauna, and providing year-round foraging, breeding, resting and hiding spaces for birds, aquatic invertebrates, and amphibians. This perennial marsh also may provide habitat for several special-status plant species that potentially occur in the project area. Chemical and physical wetland functions include nutrient cycling, carbon source/sink, retention of water particulates, and removing pollutants from water (ACOE 2007b).

### **Seasonal Wetland**

Seasonal Wetlands (SW) are seasonally-inundated areas in ditches, swales, bases of hills, and meadows/fields that support a predominance of hydrophytic vegetation for all or part of the year. Nine data soil points were taken in seasonal wetlands in the project area. The remaining seven of the fourteen identified seasonal wetlands in the project area were delineated based on data from the nine formal points.

**Vegetation:** Vegetation in these wetlands is often dominated by annual hydrophytic grasses and forbs, often with a FAC indicator status, and usually includes other upland plant species. Plants typical of seasonal wetlands in the project area are broad-leaf water plantain, riggut brome\*, soft brome\*, tall flatsedge, teasel\*, common spikerush, hairy willow herb, giant horsetail, wild geranium\*, Baltic rush, toad rush, brownhead rush, iris-leaved rush, broad-leaved peppergrass\*, creeping wildrye, Italian ryegrass\*, rabbitfoot grass\*, curly dock\*, hardstem bulrush, narrowleaf cattail, and broadleaf cattail.

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\* Non-native plant species

**Soils:** Soils in seasonal wetlands in the project area have a variety of textures, and almost always include a clay component. Soil textures detected in project area wetlands included silty clay, sandy clay loam, silt loam, and clay. Soil chroma was typically two or less, and the most common wetland soil indicator was a depleted matrix. Other soil indicators for seasonal wetlands were a hydrogen sulfide odor, depleted below dark surface, and redox dark surface.

**Hydrology:** Seasonal wetlands along I-80 in the project area often occurred in natural roadside ditches and other ephemeral drainage features. Sometimes wetlands occurred in low points in the ditches, or at culvert outfalls where water collected. Common wetland hydrology indicators were surface water (0-3 inches or greater), and high water table (from 0-16 inches below the soil surface), saturation (from 0-20 inches below the soil surface). Other observed indicators of seasonal wetlands were a hydrogen sulfide odor, water stained leaves, water marks, drift deposits, sediment deposits, aquatic invertebrates, and surface soil cracks.

Of the fourteen delineated seasonal wetlands in the project area, eleven are hydrologically connected, or have possible connections to RPWs, and are therefore potentially ACOE jurisdictional under the Rapanos Decision (Table 2). Six seasonal wetlands (SW-1, SW-5, SW-6, SW-7, SW-12 and SW-13) have over-ground hydrologic connectivity via non-RPW roadside ditches to RPWs. These features have varying proximities from 400 to 1,400 feet from RPWs. Five seasonal wetlands (SW-2, SW-8, SW-16, SW-300, and SW-301) have potential underground connectivity, via culverts, with unknown out-falls to RPWs. Three seasonal wetlands (SW-3, SW-4, and SW-302) are isolated and do not have a surface or sub-surface connection with RPWs. SW-12 has some inclusions of perennial wetland drainage along the northern edge of its perimeter. While we did not observe any hydrologic connectivity between SW-12 and a RPW or TNW, this wetland is included in the NWI dataset, and mostly occurs outside the project area where culverts and drainages were not mapped. Therefore, this feature is likely connected to other wetland features in its vicinity, possibly even Lagoon Valley Lake, 650 feet to the east, which is connected to TNW Cache Slough via RPW Laguna Creek. Appendix G shows seasonal wetlands and their proximities to RPWs/TNWs.

Wetland functions of seasonal wetlands in the project area include serving as seasonal habitat for a variety of fauna, and providing seasonal foraging, breeding, resting and hiding spaces for birds, aquatic invertebrates, and amphibians. Seasonal wetlands may provide habitat for several special-status plant species that potentially occur in the project area. Chemical and physical wetland functions include nutrient cycling, carbon source/sink, retaining water particulates, and removing pollutants from water (ACOE 2007b).

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\* Non-native plant species

I-80 Express Lanes Project – Wetlands/Waters Report

**Table 2 – Wetland Features Acreages and Status within the Project Area, Organized by Wetland Type**

Feature Number <sup>a</sup>	Feature Type	Acreage	Appendix E Sheet Number	Data Form	ACOE Jurisdiction	State Jurisdiction	Clean Water Act Jurisdiction Description	Connectivity to RPW
PM-1	Perennial Marsh	0.72	27	PM-1	Potentially Jurisdictional	Potentially Jurisdictional	Isolated wetland feature, no direct or indirect connection to a TNW	Drainage from this marsh almost connects to Lagoon Valley Lake, which is connected to Laguna Creek, a RPW. It flows 4000 ft NE and comes 950 ft from entering Lagoon Valley Lake.

**Total Perennial Marsh:** 0.72 acres

**Total Potentially Jurisdictional Perennial Marsh:** 0.72 acres

Feature Number <sup>a</sup>	Feature Type	Acreage	Appendix E Sheet Number	Data Form	ACOE Jurisdiction	State Jurisdiction	Clean Water Act Jurisdiction Description	Connectivity to RPW
PWD-1	Perennial Wetland Drainage	0.16	34, 35	PWD-1	Potentially Jurisdictional	Potentially Jurisdictional	Connected to RPW (Ulatis Creek) that flows into a TNW (Suisun Slough).	Goes into culvert at N side of drainage, runs E along road. Unknown where it flows from there.
PWD-2	Perennial Wetland Drainage	0.19	22	PWD-2	Potentially Jurisdictional	Potentially Jurisdictional	Connected to Soda Springs Creek, a RPW, that connects to Laurel Creek, and Suisun Slough, a TNW.	Flows into culvert at E end of feature. Culvert appears to empty across I-80 (S side), flows toward Soda Springs Creek 2000 ft E of feature (drops 40 ft.).

I-80 Express Lanes Project - Wetlands/Waters Report

<b>Feature Number<sup>a</sup></b>	<b>Feature Type</b>	<b>Acreage</b>	<b>Appendix E Sheet Number</b>	<b>Data Form</b>	<b>ACOE Jurisdiction</b>	<b>State Jurisdiction</b>	<b>Clean Water Act Jurisdiction Description</b>	<b>Connectivity to RPW</b>
PWD-3	Perennial Wetland Drainage	0.54	21, 22	PWD-3	Isolated	Potentially Jurisdictional	Connected to Soda Springs Creek, a RPW, that connects to Laurel Creek, and Suisun Slough, a TNW.	Appears isolated. Flow is potentially E under the highway through underground culverts for 3000 ft before entering Laurel Creek, an RPW.
PWD-4	Perennial Wetland Drainage	0.09	19	PWD-4	Potentially Jurisdictional	Potentially Jurisdictional	Connected to a RPW, that connects to Laurel Creek, and Suisun Slough, a TNW.	Water follows the drainage ditch out of this wetland. It flows into a culvert. 250 ft SE of this culvert, a large unnamed drainage flows into Suisun Slough. It is very likely that these drainages meet, in which case this wetland is connected to an RPW and a TNW.
PWD-5	Perennial Wetland Drainage	0.10	23	No Formal Data Point Taken	Potentially Jurisdictional	Potentially Jurisdictional	Potentially combines with PWD-3 and is potentially connected to Soda Springs Creek, a RPW, that connects to Laurel Creek, and Suisun Slough, a TNW.	Flows into culvert at E end of feature, traveling under the highway to a roadside drainage ditch and eventually into Soda Springs Creek.

I-80 Express Lanes Project - Wetlands/Waters Report

Feature Number <sup>a</sup>	Feature Type	Acreage	Appendix E Sheet Number	Data Form	ACOE Jurisdiction	State Jurisdiction	Clean Water Act Jurisdiction Description	Connectivity to RPW
PWD-300	Perennial Wetland Drainage	0.39	19	PWD-300	Potentially Jurisdictional	Potentially Jurisdictional	Connected to a RPW, that connects to Laurel Creek, and Suisun Slough, a TNW.	Water follows the drainage ditch out of this wetland into PWD-4. It flows into a culvert. 250 ft SE of this culvert, a large unnamed drainage flows to Suisun Slough.
PWD-305	Perennial Wetland Drainage	0.01	16	PWD-305	Potentially Jurisdictional	Potentially Jurisdictional	Potentially connected to a non-RPW, that then connects to Ledgewood Creek, a RPW, and into Peytonia Slough, a TNW.	Water in this feature flows to an unknown feature N of the project area which connects to a wetland.

**Total Perennial Wetland Drainage:** 1.47 acres

*(Not including 4.61 acres of delineated creek features = 6.08 acres total)*

**Total Potentially Jurisdictional Perennial Wetland Drainages:** 0.93 acres (or 5.54 acres, including creeks)

SW-1	Seasonal Wetland	0.38	25	SW-1	Potentially Jurisdictional	Potentially Jurisdictional	Non-RPW drainage to Soda Springs Creek, an RPW that flows into Suisun Slough, a TNW.	Water from this feature flows 840 ft south (west along I-80) to Soda Springs Creek, a RPW.
SW-2	Seasonal Wetland	0.07	24	SW-2	Potentially Jurisdictional	Potentially Jurisdictional	Connected to a non-RPW and then under I-80 in a culvert to a RPW (Soda Springs Creek into Laurel Creek) then into Suisun Creek, a TNW	Water from this feature flows under Lyon Road and then under I-80 through a culvert that flows E 1,500 ft into Laurel Creek.

I-80 Express Lanes Project – Wetlands/Waters Report

<b>Feature Number<sup>a</sup></b>	<b>Feature Type</b>	<b>Acreage</b>	<b>Appendix E Sheet Number</b>	<b>Data Form</b>	<b>ACOE Jurisdiction</b>	<b>State Jurisdiction</b>	<b>Clean Water Act Jurisdiction Description</b>	<b>Connectivity to RPW</b>
SW-3	Seasonal Wetland	0.02	23, 28	SW-3	Isolated	Potentially Jurisdictional	Isolated, occurs in a non-RPW roadside ditch, not connected to RPW/TNW.	Flows 450 ft east from roadside drainage potentially into golf course and into RPW, Laurel Creek.
SW-4	Seasonal Wetland	0.02	23	No Formal Data Point Taken-- Represented by SW-3	Isolated	Potentially Jurisdictional	Isolated, occurs in a non- RPW roadside ditch, not connected to RPW/TNW.	Flows 450 ft east from roadside drainage potentially into golf course and into RPW, Laurel Creek.
SW-5	Seasonal Wetland	0.19	21	SW-5	Potentially Jurisdictional	Potentially Jurisdictional	Non-RPW into Soda Springs Creek, a RPW and into Laurel Creek, a RPW. This drainage flows into Suisun Slough, a TNW.	Flows 450 ft southwest through ditch along I-80 into unnamed perennial drainage 2, a RPW.
SW-6	Seasonal Wetland	<0.01	41, 42	SW-6	Potentially Jurisdictional	Potentially Jurisdictional	Connected to Pine Tree Creek, RPW, and Cache Slough, TNW.	Flows east 190 ft through a non-RPW roadside ditch into SW-7.
SW-7	Seasonal Wetland	0.01	42	SW-7	Potentially Jurisdictional	Potentially Jurisdictional	Connected to Pine Tree Creek, RPW, and Cache Slough, TNW.	Flows 1,400 ft through a drainage ditch into Pine Tree Creek as the creek turns southeast away from I-80. Thus it is connected to a RPW that eventually flows into a TNW (Cache Creek Slough).

I-80 Express Lanes Project - Wetlands/Waters Report

<b>Feature Number<sup>a</sup></b>	<b>Feature Type</b>	<b>Acreage</b>	<b>Appendix E Sheet Number</b>	<b>Data Form</b>	<b>ACOE Jurisdiction</b>	<b>State Jurisdiction</b>	<b>Clean Water Act Jurisdiction Description</b>	<b>Connectivity to RPW</b>
SW-8	Seasonal Wetland	0.05	40	SW-8	Potentially Jurisdictional	Potentially Jurisdictional	Non- RPW roadside ditch, may connect to RPW/TNW through culvert. Some water added to this wetland via landscaping sprinkler leak.	Flows into a culvert connecting to SW-10 and SW-11, then flows 200 ft under highway and roads into Pine Tree Creek.
SW-12	Seasonal Wetland	0.24	30	SW-12	Potentially Jurisdictional	Potentially Jurisdictional	Non-RPW roadside swale which connects to Unnamed Perennial Drainage 1, which flows into Lagoon Valley Lake. Lagoon Valley Lake is connected to Laguna Creek, a RPW, and Cache Slough, a TNW.	Flows 400 ft into an unnamed drainage before entering Lagoon Valley Lake.
SW-13	Seasonal Wetland	0.02	28	SW-13	Potentially Jurisdictional	Potentially Jurisdictional	Non-RPW to drainage coming from PM-1. Then to Lagoon Valley Lake. Lagoon Valley Lake is connected to Laguna Creek, a RPW, and Cache Slough, a TNW.	Flows 400 ft to drainage coming from PM-1. Then it flows 1250 ft to 950 ft from Lagoon Valley Lake. Lagoon Valley Lake is connected to Laguna Creek, a RPW, and Cache Slough, a TNW.
SW-16	Seasonal Wetland	0.01	23	No Formal Data Point Taken.	Potentially Jurisdictional	Potentially Jurisdictional	Potentially connected to RPW/TNW via non-RPW culvert.	Connected to PWD-5.

I-80 Express Lanes Project - Wetlands/Waters Report

Feature Number <sup>a</sup>	Feature Type	Acreage	Appendix E Sheet Number	Data Form	ACOE Jurisdiction	State Jurisdiction	Clean Water Act Jurisdiction Description	Connectivity to RPW
SW-300	Seasonal Wetland	0.04	19	No Formal Data Point Taken-- Represented by SW-301	Potentially Jurisdictional	Potentially Jurisdictional	Connected to a RPW, that connects to Laurel Creek, and Suisun Slough, a TNW.	Water follows the drainage ditch out of this wetland into PWD-4. Then into a culvert, & 250 ft SE of this culvert, a large unnamed drainage passes by on its way to Suisun Slough.
SW-301	Seasonal Wetland	0.61	19	SW-301	Potentially Jurisdictional	Potentially Jurisdictional	Connected to a RPW, flows into Laurel Creek, then Suisun Slough, a TNW.	Water follows the drainage ditch out of this wetland into PWD-4, and into a culvert. Then 250 ft to the SE into a large unnamed drainage, and into Suisun Slough.
SW-302	Seasonal Wetland	0.01	29	No Formal Data Point Taken	Isolated	Potentially Jurisdictional	Isolated, occurs in a non-RPW roadside ditch, not connected to RPW/TNW.	Low point of roadside drainage ditch. Does not flow anywhere.

**Total Seasonal Wetland:** 1.76 acres

**Total Potentially Jurisdictional Seasonal Wetlands:** 1.70 acre

I-80 Express Lanes Project - Wetlands/Waters Report

Feature Number <sup>a</sup>	Feature Type	Acreeage	Drainage Length (feet)	Drainage Average Width (feet)	Appendix E Sheet Number	Data Form	ACOE Jurisdiction	State Jurisdiction	Clean Water Act Jurisdiction Description	Connectivity to RPW
SD-1	Seasonal Drainage	0.02	315.5	3.0	40,41	n/a	Potentially Jurisdictional	Potentially Jurisdictional	Non-RPW that flows directly into Pine Tree Creek, a RPW, then into Cache Slough, a TNW	Flows 350 ft before entering into Pine Tree Creek.
SD-2	Seasonal Drainage	0.03	584.3	2.0	40,41	n/a	Potentially Jurisdictional	Potentially Jurisdictional	Non-RPW that flows directly into Pine Tree Creek, a RPW, then into Cache Slough, a TNW	Flows 585 ft before entering into Pine Tree Creek.
SD-3	Seasonal Drainage	0.03	250.3	5.0	40,41	n/a	Potentially Jurisdictional	Potentially Jurisdictional	Non-RPW that flows directly into Pine Tree Creek, a RPW, then into Cache Slough, a TNW	Flows 250 ft before entering into Pine Tree Creek.
SD-4	Seasonal Drainage	<0.01	76.9	2.0	41	n/a	Potentially Jurisdictional	Potentially Jurisdictional	Roadside drainage ditch with flow into culvert, potential indirect connection to a TNW is possible but unknown.	Flows into culverts with an unknown out flow.
SD-5	Seasonal Drainage	0.06	907.1	3.0	41	n/a	Potentially Jurisdictional	Potentially Jurisdictional	Non-RPW that flows directly into Horse Creek, a RPW, then into Cache Slough, a TNW	Flows 907 ft directly into Horse Creek.
SD-6	Seasonal Drainage	0.01	138.0	4.0	40	n/a	Potentially Jurisdictional	Potentially Jurisdictional	Non-RPW that flows directly into Pine Tree Creek, a RPW, then into Cache Slough, a TNW	Flows 138 ft before entering into Pine Tree Creek.

I-80 Express Lanes Project - Wetlands/Waters Report

Feature Number <sup>a</sup>	Feature Type	Acreeage	Drainage Length (feet)	Drainage Average Width (feet)	Appendix E Sheet Number	Data Form	ACOE Jurisdiction	State Jurisdiction	Clean Water Act Jurisdiction Description	Connectivity to RPW
SD-9	Seasonal Drainage	0.04	587.0	3.0	39, 40	n/a	Potentially Jurisdictional	Potentially Jurisdictional	Non-RPW that flows directly into Pine Tree Creek, a RPW, then into Cache Slough, a TNW	Flows 587 ft into a series of culverts through seasonal wetland before entering into Pine Tree Creek.
SD-10	Seasonal Drainage	0.06	583.9	4.0	38	n/a	Potentially Jurisdictional	Potentially Jurisdictional	Roadside drainage ditch with flow into culvert, potential indirect connection to a TNW is possible, but unknown.	Flows into culverts with an unknown out flow.
SD-11	Seasonal Drainage	0.02	207.9	4.0	38	n/a	Potentially Jurisdictional	Potentially Jurisdictional	Roadside drainage ditch with flow into culvert, potential indirect connection to a TNW is possible but unknown.	Flows into culverts with an unknown out flow.
SD-12	Seasonal Drainage	0.01	77.0	5.0	38	n/a	Potentially Jurisdictional	Potentially Jurisdictional	Roadside drainage ditch with flow into culvert, potential indirect connection to a TNW is possible but unknown.	Flows into culverts with an unknown out flow.
SD-13	Seasonal Drainage	0.01	135.7	3.0	38	n/a	Potentially Jurisdictional	Potentially Jurisdictional	Roadside drainage ditch with flow into culvert, potential indirect connection to a TNW is possible but unknown.	Flows into culverts with an unknown out flow.

I-80 Express Lanes Project - Wetlands/Waters Report

Feature Number <sup>a</sup>	Feature Type	Acreage	Drainage Length (feet)	Drainage Average Width (feet)	Appendix E Sheet Number	Data Form	ACOE Jurisdiction	State Jurisdiction	Clean Water Act Jurisdiction Description	Connectivity to RPW
SD-14	Seasonal Drainage	0.01	113.4	4.0	37	n/a	Potentially Jurisdictional	Potentially Jurisdictional	Non-RPW flows directly into Ulatis Creek, a RPW, then into Cache Slough, a TNW	Flows 114 ft before flowing indirectly into Ulatis Creek.
SD-15	Seasonal Drainage	0.03	308.5	4.0	37	n/a	Potentially Jurisdictional	Potentially Jurisdictional	Non-RPW that flows directly into Ulatis Creek, a RPW, then into Cache Slough, a TNW	Flows 308 ft through roadside drainage before flowing indirectly into Ulatis Creek.
SD-16	Seasonal Drainage	0.01	97.7	3.0	37	n/a	Potentially Jurisdictional	Potentially Jurisdictional	Non-RPW that flows directly into Ulatis Creek, a RPW, then into Cache Slough, a TNW	Flows 98 ft through roadside drainage before flowing indirectly into Ulatis Creek.
SD-17	Seasonal Drainage	0.05	437.2	5.0	39, 40	n/a	Potentially Jurisdictional	Potentially Jurisdictional	Non-RPW that flows directly into Pine Tree Creek, a RPW, then into Cache Slough, a TNW	Flows into a culvert connecting to SW-8, SW-10 and SW-11, then flows 200 ft under highway and roads into Pine Tree Creek.
SD-18	Seasonal Drainage	0.03	128.0	10.0	40	n/a	Potentially Jurisdictional	Potentially Jurisdictional	Roadside drainage ditch with flow into culvert, potential indirect connection to a TNW is possible but unknown.	Flows into culverts with an unknown out flow.

I-80 Express Lanes Project - Wetlands/Waters Report

Feature Number <sup>a</sup>	Feature Type	Acreeage	Drainage Length (feet)	Drainage Average Width (feet)	Appendix E Sheet Number	Data Form	ACOE Jurisdiction	State Jurisdiction	Clean Water Act Jurisdiction Description	Connectivity to RPW
SD-20	Seasonal Drainage	0.01	161.1	4.0	40	n/a	Potentially Jurisdictional	Potentially Jurisdictional	Non-RPW that flows directly into Pine Tree Creek, a RPW, then into Cache Slough, a TNW	Flows 161ft into culverts directly into Pine Tree Creek
SD-21	Seasonal Drainage	0.08	1229.3	3.0	35, 36	n/a	Potentially Jurisdictional	Potentially Jurisdictional	Non-RPW that flows directly into Ulatis Creek, a RPW, then into Cache Slough, a TNW	Flows above and below ground directly into Ulatis Creek
SD-22	Seasonal Drainage	0.01	146.6	2.0	36	n/a	Potentially Jurisdictional	Potentially Jurisdictional	Non-RPW that flows directly into Ulatis Creek, a RPW, then into Cache Slough, a TNW	Flows above and below ground directly into Ulatis Creek
SD-23	Seasonal Drainage	0.01	221.1	2.5	35	n/a	Potentially Jurisdictional	Potentially Jurisdictional	Roadside drainage ditch with flow into culvert, potential indirect connection to a TNW is possible but unknown.	Flows into culverts with an unknown out flow.
SD-24	Seasonal Drainage	0.03	916.0	1.5	34	n/a	Potentially Jurisdictional	Potentially Jurisdictional	Roadside drainage ditch with flow into culvert, potential indirect connection to a TNW is possible but unknown.	Flows into culverts with an unknown out flow.
SD-25	Seasonal Drainage	0.07	791.9	4.0	33, 34	n/a	Potentially Jurisdictional	Potentially Jurisdictional	Roadside drainage ditch with flow into culvert, potential indirect connection to a TNW is possible but unknown.	Flows into culverts with an unknown out flow.

I-80 Express Lanes Project - Wetlands/Waters Report

<b>Feature Number<sup>a</sup></b>	<b>Feature Type</b>	<b>Acreage</b>	<b>Drainage Length (feet)</b>	<b>Drainage Average Width (feet)</b>	<b>Appendix E Sheet Number</b>	<b>Data Form</b>	<b>ACOE Jurisdiction</b>	<b>State Jurisdiction</b>	<b>Clean Water Act Jurisdiction Description</b>	<b>Connectivity to RPW</b>
SD-26	Seasonal Drainage	0.03	410.1	3.0	33	n/a	Potentially Jurisdictional	Potentially Jurisdictional	Roadside drainage ditch with flow into culvert, potential indirect connection to a TNW is possible but unknown.	Flows into culverts with an unknown out flow.
SD-27	Seasonal Drainage	0.02	267.3	3.0	33	n/a	Potentially Jurisdictional	Potentially Jurisdictional	Roadside drainage ditch with flow into culvert, potential indirect connection to a TNW is possible but unknown.	Flows into culverts with an unknown out flow.
SD-28	Seasonal Drainage	0.02	218.1	3.5	33	n/a	Potentially Jurisdictional	Potentially Jurisdictional	Roadside drainage ditch with flow into culvert, potential indirect connection to a TNW is possible but unknown.	Flows into culverts with an unknown out flow.
SD-29	Seasonal Drainage	<0.01	91.4	2.0	33	n/a	Potentially Jurisdictional	Potentially Jurisdictional	Roadside drainage ditch with flow into culvert, potential indirect connection to a TNW is possible but unknown.	Flows into culverts with an unknown out flow.
SD-30	Seasonal Drainage	0.01	108.3	4.0	33	n/a	Potentially Jurisdictional	Potentially Jurisdictional	Roadside drainage ditch with flow into culvert, potential indirect connection to a TNW is possible but unknown.	Flows into culverts with an unknown out flow.

I-80 Express Lanes Project - Wetlands/Waters Report

Feature Number <sup>a</sup>	Feature Type	Acres	Drainage Length (feet)	Drainage Average Width (feet)	Appendix E Sheet Number	Data Form	ACOE Jurisdiction	State Jurisdiction	Clean Water Act Jurisdiction Description	Connectivity to RPW
SD-31	Seasonal Drainage	<0.01	15.7	3.0	34	n/a	Potentially Jurisdictional	Potentially Jurisdictional	Connected to PWD-1, is indirectly connected to a RPW (Ulatis Creek) that flows into a TNW (Suisun Slough).	Flows 16 ft before entering into PWD-1.
SD-32	Seasonal Drainage	0.04	350.6	5.0	35	n/a	Potentially Jurisdictional	Potentially Jurisdictional	Non-RPW flows indirectly into Ulatis Creek, a RPW, then into Cache Slough, a TNW.	Flows above and below ground directly into Ulatis Creek
SD-33	Seasonal Drainage	0.04	409.6	4.0	32	n/a	Potentially Jurisdictional	Potentially Jurisdictional	Non-RPW that flows directly into Laguna Creek, a RPW, then into Cache Slough, a TNW.	Flows east 410 ft directly into Laguna Creek.
SD-34	Seasonal Drainage	0.02	361.8	3.0	32	n/a	Potentially Jurisdictional	Potentially Jurisdictional	Non-RPW that flows directly into Laguna Creek, a RPW, then into Cache Slough, a TNW.	Flows east 362 ft directly into Laguna Creek.
SD-35	Seasonal Drainage	0.02	218.0	3.0	31,32	n/a	Potentially Jurisdictional	Potentially Jurisdictional	Non-RPW that flows directly into Laguna Creek, a RPW, then into Cache Slough, a TNW.	Flows east 281 ft directly into Laguna Creek.
SD-38	Seasonal Drainage	0.01	246.8	2.0	32	n/a	Potentially Jurisdictional	Potentially Jurisdictional	Non-RPW that flows indirectly into Laguna Creek, a RPW, then into Cache Slough, a TNW.	Flows through a series of drainages before entering directly into Laguna Creek.

I-80 Express Lanes Project - Wetlands/Waters Report

Feature Number <sup>a</sup>	Feature Type	Acreage	Drainage Length (feet)	Drainage Average Width (feet)	Appendix E Sheet Number	Data Form	ACOE Jurisdiction	State Jurisdiction	Clean Water Act Jurisdiction Description	Connectivity to RPW
SD-39	Seasonal Drainage	<0.01	20.7	3.0	32	n/a	Potentially Jurisdictional	Potentially Jurisdictional	Non-RPW that indirectly connects into Laguna Creek, a RPW, then into Cache Slough, a TNW.	Flows indirectly into Laguna Creek, a RPW.
SD-40	Seasonal Drainage	0.02	245.7	3.0	32	n/a	Potentially Jurisdictional	Potentially Jurisdictional	Non-RPW that indirectly connects into Laguna Creek, RPW, then into Cache Slough, a TNW.	Flows indirectly into Laguna Creek, a RPW.
SD-41	Seasonal Drainage	0.01	239.5	2.5	32	n/a	Potentially Jurisdictional	Potentially Jurisdictional	Non-RPW that indirectly connects into Laguna Creek, a RPW, then into Cache Slough, a TNW.	Flows indirectly into Laguna Creek, a RPW.
SD-42	Seasonal Drainage	0.02	292.6	2.5	32	n/a	Potentially Jurisdictional	Potentially Jurisdictional	Non-RPW that flows indirectly into Laguna Creek, a RPW, then into Cache Slough, a TNW.	Flows through a series of drainages before entering directly into Laguna Creek.
SD-43	Seasonal Drainage	0.01	139.5	2.5	32	n/a	Potentially Jurisdictional	Potentially Jurisdictional	Non-RPW that flows indirectly into Laguna Creek, a RPW, then into Cache Slough, a TNW.	Flows through a series of drainages before entering directly into Laguna Creek.

I-80 Express Lanes Project - Wetlands/Waters Report

Feature Number <sup>a</sup>	Feature Type	Acreage	Drainage Length (feet)	Drainage Average Width (feet)	Appendix E Sheet Number	Data Form	ACOE Jurisdiction	State Jurisdiction	Clean Water Act Jurisdiction Description	Connectivity to RPW
SD-44	Seasonal Drainage	0.01	180.6	2.5	32	n/a	Potentially Jurisdictional	Potentially Jurisdictional	Non-RPW that flows indirectly into Laguna Creek, a RPW, then into Cache Slough, a TNW.	Flows through a series of drainages before entering directly into Laguna Creek.
SD-45	Seasonal Drainage	0.03	382.4	3.0	33	n/a	Potentially Jurisdictional	Potentially Jurisdictional	Non-RPW that flows directly into Alamo Creek, a RPW, then into Cache Slough, a TNW.	Flows 383 ft directly into Alamo Creek
SD-46	Seasonal Drainage	<0.01	42.5	2.5	32	n/a	Non-jurisdictional	Non-jurisdictional	Roadside drainage ditch, non-jurisdictional, no potential direct or indirect connection to a TNW.	No connectivity.
SD-47	Seasonal Drainage	<0.01	70.7	2.5	32	n/a	Potentially Jurisdictional	Potentially Jurisdictional	Non-RPW that flows indirectly into Laguna Creek, a RPW, then into Cache Slough, a TNW.	Flows through a series of drainages before entering directly into Laguna Creek.
SD-48	Seasonal Drainage	0.01	71.8	4.0	31	n/a	Potentially Jurisdictional	Potentially Jurisdictional	Non-RPW that flows directly into Unnamed Perennial Drainage 1, which flows into Laguna Creek, a RPW, then into Cache Slough, a TNW.	Flows directly into Unnamed Perennial Drainage 1.

I-80 Express Lanes Project - Wetlands/Waters Report

Feature Number <sup>a</sup>	Feature Type	Acreage	Drainage Length (feet)	Drainage Average Width (feet)	Appendix E Sheet Number	Data Form	ACOE Jurisdiction	State Jurisdiction	Clean Water Act Jurisdiction Description	Connectivity to RPW
SD-49	Seasonal Drainage	0.01	117.0	3.0	30	n/a	Potentially Jurisdictional	Potentially Jurisdictional	Non-RPW connects indirectly to Unnamed Perennial Drainage outside of the project area, which flows into Lagoon Valley Lake, then to Laguna Creek, an RPW, and Cache Slough, a TNW.	Directly connected to an unnamed RPW that flows directly onto Laguna Creek, a RPW.
SD-50	Seasonal Drainage	0.13	1383.2	4.0	29, 30	n/a	Potentially Jurisdictional	Potentially Jurisdictional	Non-RPW connects indirectly to Unnamed Perennial Drainage outside of the project area, which flows into Lagoon Valley Lake, then to Laguna Creek, an RPW, and Cache Slough, a TNW.	Directly connected to an unnamed RPW that flows directly onto Laguna Creek, a RPW.
SD-51	Seasonal Drainage	<0.01	50.9	2.0	29	n/a	Potentially Jurisdictional	Potentially Jurisdictional	Non-RPW connects indirectly to Unnamed Perennial Drainage outside of the project area, which flows into Lagoon Valley Lake, then to Laguna Creek, an RPW, and Cache Slough, a TNW.	Directly connected to an unnamed RPW that flows directly onto Laguna Creek, a RPW.

I-80 Express Lanes Project - Wetlands/Waters Report

Feature Number <sup>a</sup>	Feature Type	Acreage	Drainage Length (feet)	Drainage Average Width (feet)	Appendix E Sheet Number	Data Form	ACOE Jurisdiction	State Jurisdiction	Clean Water Act Jurisdiction Description	Connectivity to RPW
SD-52	Seasonal Drainage	<0.01	59.5	2.0	29	n/a	Potentially Jurisdictional	Potentially Jurisdictional	Non-RPW connects indirectly to Unnamed Perennial Drainage outside of the project area, which flows into Lagoon Valley Lake then to Laguna Creek, a RPW, and Cache Slough, a TNW.	Directly connected to an unnamed RPW that flows directly onto Laguna Creek, a RPW.
SD-53	Seasonal Drainage	0.09	1278.4	3.0	28, 29	n/a	Potentially Jurisdictional	Potentially Jurisdictional	Non-RPW connects indirectly to Unnamed Perennial Drainage outside of the project area, which flows into Lagoon Valley Lake then to Laguna Creek, an RPW, and Cache Slough, a TNW.	Directly connected to an unnamed RPW that flows directly onto Laguna Creek, a RPW.
SD-54	Seasonal Drainage	0.01	56.1	4.0	29	n/a	Potentially Jurisdictional	Potentially Jurisdictional	Non-RPW connects indirectly to Unnamed Perennial Drainage outside of the project area, which flows into Lagoon Valley Lake, then to Laguna Creek, a RPW, and Cache Slough, a TNW.	Directly connected to an unnamed RPW that flows directly onto Laguna Creek, a RPW.

I-80 Express Lanes Project - Wetlands/Waters Report

Feature Number <sup>a</sup>	Feature Type	Acreage	Drainage Length (feet)	Drainage Average Width (feet)	Appendix E Sheet Number	Data Form	ACOE Jurisdiction	State Jurisdiction	Clean Water Act Jurisdiction Description	Connectivity to RPW
SD-55	Seasonal Drainage	0.01	50.7	6.0	29	n/a	Potentially Jurisdictional	Potentially Jurisdictional	Non-RPW connects indirectly to Unnamed Perennial Drainage outside of the project area, which flows into Lagoon Valley Lake. Lagoon Valley Lake is connected to Laguna Creek, a RPW, and Cache Slough, a TNW.	Directly connected to an unnamed RPW that flows directly onto Laguna Creek, a RPW.
SD-56	Seasonal Drainage	<0.01	53.4	2.0	29	n/a	Potentially Jurisdictional	Potentially Jurisdictional	Non-RPW connects indirectly to Unnamed Perennial Drainage outside of the project area, which flows into Lagoon Valley Lake. Lagoon Valley Lake is connected to Laguna Creek, a RPW, and Cache Slough, a TNW.	Directly connected to an unnamed RPW that flows directly onto Laguna Creek, an RPW.

I-80 Express Lanes Project - Wetlands/Waters Report

<b>Feature Number<sup>a</sup></b>	<b>Feature Type</b>	<b>Acreage</b>	<b>Drainage Length (feet)</b>	<b>Drainage Average Width (feet)</b>	<b>Appendix E Sheet Number</b>	<b>Data Form</b>	<b>ACOE Jurisdiction</b>	<b>State Jurisdiction</b>	<b>Clean Water Act Jurisdiction Description</b>	<b>Connectivity to RPW</b>
SD-57	Seasonal Drainage	0.03	326.1	2.0	28	n/a	Potentially Jurisdictional	Potentially Jurisdictional	Non-RPW connects indirectly to Unnamed Perennial Drainage outside of the project area, which flows into Lagoon Valley Lake. Lagoon Valley Lake is connected to Laguna Creek, a RPW, and Cache Slough, a TNW.	Directly connected to an unnamed RPW that flows directly onto Laguna Creek, a RPW.
SD-58	Seasonal Drainage	<0.01	97.3	2.0	28	n/a	Potentially Jurisdictional	Potentially Jurisdictional	Non-RPW connects indirectly to Unnamed Perennial Drainage outside of the project area, which flows into Lagoon Valley Lake. Lagoon Valley Lake is connected to Laguna Creek, a RPW, and Cache Slough, a TNW.	Directly connected to an unnamed RPW that flows directly onto Laguna Creek, a RPW.

I-80 Express Lanes Project - Wetlands/Waters Report

<b>Feature Number<sup>a</sup></b>	<b>Feature Type</b>	<b>Acreage</b>	<b>Drainage Length (feet)</b>	<b>Drainage Average Width (feet)</b>	<b>Appendix E Sheet Number</b>	<b>Data Form</b>	<b>ACOE Jurisdiction</b>	<b>State Jurisdiction</b>	<b>Clean Water Act Jurisdiction Description</b>	<b>Connectivity to RPW</b>
SD-59	Seasonal Drainage	0.02	285.1	3.0	28	n/a	Potentially Jurisdictional	Potentially Jurisdictional	Non-RPW connects indirectly to Unnamed Perennial Drainage outside of the project area, which flows into Lagoon Valley Lake. Lagoon Valley Lake is connected to Laguna Creek, a RPW, and Cache Slough, a TNW.	Directly connected to an unnamed RPW that flows directly onto Laguna Creek, a RPW.
SD-60	Seasonal Drainage	0.01	208.4	3.0	28	n/a	Potentially Jurisdictional	Potentially Jurisdictional	Non-RPW connects indirectly to Unnamed Perennial Drainage outside of the project area, which flows into Lagoon Valley Lake. Lagoon Valley Lake is connected to Laguna Creek, a RPW, and Cache Slough, a TNW.	Directly connected to an unnamed RPW that flows directly onto Laguna Creek, a RPW.

I-80 Express Lanes Project - Wetlands/Waters Report

Feature Number <sup>a</sup>	Feature Type	Acreage	Drainage Length (feet)	Drainage Average Width (feet)	Appendix E Sheet Number	Data Form	ACOE Jurisdiction	State Jurisdiction	Clean Water Act Jurisdiction Description	Connectivity to RPW
SD-61	Seasonal Drainage	0.01	118.7	5.0	27, 28	n/a	Potentially Jurisdictional	Potentially Jurisdictional	Non-RPW connects to Unnamed Perennial Drainage outside of the project area, which flows into Lagoon Valley Lake. Lagoon Valley Lake is connected to Laguna Creek, a RPW, and Cache Slough, a TNW.	Directly connected to an unnamed RPW that flows directly onto Laguna Creek, a RPW.
SD-62	Seasonal Drainage	<0.01	104.5	2.0	27	n/a	Potentially Jurisdictional	Potentially Jurisdictional	Non-RPW connects indirectly to Unnamed Perennial Drainage outside of the project area, which flows into Lagoon Valley Lake. Lagoon Valley Lake is connected to Laguna Creek, a RPW, and Cache Slough, a TNW.	Directly connected to an unnamed RPW that flows directly onto Laguna Creek, a RPW.
SD-63	Seasonal Drainage	0.02	345.7	2.0	28	n/a	Potentially Jurisdictional	Potentially Jurisdictional	Non-RPW connects indirectly to Unnamed Perennial Drainage outside the project area, which flows into Lagoon Valley Lake. The Lake is connected to Laguna Creek, a RPW, and Cache Slough, a TNW.	Directly connected to an unnamed RPW that flows directly onto Laguna Creek, a RPW.

I-80 Express Lanes Project - Wetlands/Waters Report

Feature Number <sup>a</sup>	Feature Type	Acreage	Drainage Length (feet)	Drainage Average Width (feet)	Appendix E Sheet Number	Data Form	ACOE Jurisdiction	State Jurisdiction	Clean Water Act Jurisdiction Description	Connectivity to RPW
SD-64	Seasonal Drainage	0.01	147.3	2.0	28	n/a	Potentially Jurisdictional	Potentially Jurisdictional	Non-RPW connects indirectly to Unnamed Perennial Drainage outside of the project area, which flows into Lagoon Valley Lake. Lagoon Valley Lake is connected to Laguna Creek, a RPW, and Cache Slough, a TNW.	Directly connected to an unnamed RPW that flows directly onto Laguna Creek, a RPW.
SD-65	Seasonal Drainage	<0.01	30.9	4.0	28	n/a	Potentially Jurisdictional	Potentially Jurisdictional	Non-RPW connects directly to Unnamed Perennial Drainage outside of the project area, which flows into Lagoon Valley Lake. Lagoon Valley Lake is connected to Laguna Creek, a RPW, and Cache Slough, a TNW.	Directly connected to an unnamed RPW that flows directly onto Laguna Creek, a RPW.
SD-66	Seasonal Drainage	0.03	601.0	2.0	28	n/a	Potentially Jurisdictional	Potentially Jurisdictional	Non-RPW connects indirectly to Unnamed Perennial Drainage outside the project area, which flows into Lagoon Valley Lake. The Lake is connected to Laguna Creek, a RPW, and Cache Slough, a TNW.	Directly connected to an unnamed RPW that flows directly onto Laguna Creek, a RPW.

I-80 Express Lanes Project - Wetlands/Waters Report

<b>Feature Number<sup>a</sup></b>	<b>Feature Type</b>	<b>Acreage</b>	<b>Drainage Length (feet)</b>	<b>Drainage Average Width (feet)</b>	<b>Appendix E Sheet Number</b>	<b>Data Form</b>	<b>ACOE Jurisdiction</b>	<b>State Jurisdiction</b>	<b>Clean Water Act Jurisdiction Description</b>	<b>Connectivity to RPW</b>
SD-67	Seasonal Drainage	<0.01	153.8	1.0	28	n/a	Potentially Jurisdictional	Potentially Jurisdictional	Non-RPW connects indirectly to Unnamed Perennial Drainage outside of the project area, which flows into Lagoon Valley Lake. Lagoon Valley Lake is connected to Laguna Creek, a RPW, and Cache Slough, a TNW.	Directly connected to an unnamed RPW that flows directly onto Laguna Creek, a RPW.
SD-68	Seasonal Drainage	<0.01	25.7	2.0	28	n/a	Potentially Jurisdictional	Potentially Jurisdictional	Non-RPW connects indirectly to Unnamed Perennial Drainage outside of the project area, which flows into Lagoon Valley Lake. Lagoon Valley Lake is connected to Laguna Creek, a RPW, and Cache Slough, a TNW.	Directly connected to an unnamed RPW that flows directly onto Laguna Creek, a RPW.

I-80 Express Lanes Project - Wetlands/Waters Report

<b>Feature Number<sup>a</sup></b>	<b>Feature Type</b>	<b>Acreage</b>	<b>Drainage Length (feet)</b>	<b>Drainage Average Width (feet)</b>	<b>Appendix E Sheet Number</b>	<b>Data Form</b>	<b>ACOE Jurisdiction</b>	<b>State Jurisdiction</b>	<b>Clean Water Act Jurisdiction Description</b>	<b>Connectivity to RPW</b>
SD-69	Seasonal Drainage	0.02	366.1	2.0	28	n/a	Potentially Jurisdictional	Potentially Jurisdictional	Non-RPW connects indirectly to Unnamed Perennial Drainage outside of the project area, which flows into Lagoon Valley Lake. Lagoon Valley Lake is connected to Laguna Creek, a RPW, and Cache Slough, a TNW.	Directly connected to an unnamed RPW that flows directly onto Laguna Creek, a RPW.
SD-70	Seasonal Drainage	0.01	131.9	2.0	28	n/a	Potentially Jurisdictional	Potentially Jurisdictional	Non-RPW connects indirectly to Unnamed Perennial Drainage outside of the project area, which flows into Lagoon Valley Lake. Lagoon Valley Lake is connected to Laguna Creek, a RPW, and Cache Slough, a TNW.	Directly connected to an unnamed RPW that flows directly onto Laguna Creek, a RPW.

I-80 Express Lanes Project - Wetlands/Waters Report

Feature Number <sup>a</sup>	Feature Type	Acreage	Drainage Length (feet)	Drainage Average Width (feet)	Appendix E Sheet Number	Data Form	ACOE Jurisdiction	State Jurisdiction	Clean Water Act Jurisdiction Description	Connectivity to RPW
SD-71	Seasonal Drainage	<0.01	108.7	2.0	28	n/a	Potentially Jurisdictional	Potentially Jurisdictional	Non-RPW connects indirectly to Unnamed Perennial Drainage outside of the project area, which flows into Lagoon Valley Lake. Lagoon Valley Lake is connected to Laguna Creek, a RPW, and Cache Slough, a TNW.	Directly connected to an unnamed RPW that flows directly onto Laguna Creek, a RPW.
SD-72	Seasonal Drainage	<0.01	70.6	1.0	27, 28	n/a	Potentially Jurisdictional	Potentially Jurisdictional	Non-RPW connects indirectly to Unnamed Perennial Drainage outside of the project area, which flows into Lagoon Valley Lake. Lagoon Valley Lake is connected to Laguna Creek, a RPW, and Cache Slough, a TNW.	Directly connected to an unnamed RPW that flows directly onto Laguna Creek, a RPW.

I-80 Express Lanes Project - Wetlands/Waters Report

<b>Feature Number<sup>a</sup></b>	<b>Feature Type</b>	<b>Acreage</b>	<b>Drainage Length (feet)</b>	<b>Drainage Average Width (feet)</b>	<b>Appendix E Sheet Number</b>	<b>Data Form</b>	<b>ACOE Jurisdiction</b>	<b>State Jurisdiction</b>	<b>Clean Water Act Jurisdiction Description</b>	<b>Connectivity to RPW</b>
SD-73	Seasonal Drainage	0.01	232.6	1.0	27	n/a	Potentially Jurisdictional	Potentially Jurisdictional	Non-RPW connects indirectly to Unnamed Perennial Drainage outside of the project area, which flows into Lagoon Valley Lake. Lagoon Valley Lake is connected to Laguna Creek, a RPW, and Cache Slough, a TNW.	Directly connected to an unnamed RPW that flows directly onto Laguna Creek, a RPW.
SD-74	Seasonal Drainage	0.01	299.5	2.0	27	n/a	Potentially Jurisdictional	Potentially Jurisdictional	Non-RPW connects indirectly to Unnamed Perennial Drainage outside of the project area, which flows into Lagoon Valley Lake. Lagoon Valley Lake is connected to Laguna Creek, a RPW, and Cache Slough, a TNW.	Directly connected to an unnamed RPW that flows directly onto Laguna Creek, a RPW.

I-80 Express Lanes Project - Wetlands/Waters Report

Feature Number <sup>a</sup>	Feature Type	Acreage	Drainage Length (feet)	Drainage Average Width (feet)	Appendix E Sheet Number	Data Form	ACOE Jurisdiction	State Jurisdiction	Clean Water Act Jurisdiction Description	Connectivity to RPW
SD-75	Seasonal Drainage	<0.01	67.1	2.0	27	n/a	Potentially Jurisdictional	Potentially Jurisdictional	Non-RPW connects indirectly to Unnamed Perennial Drainage outside of the project area, which flows into Lagoon Valley Lake. Lagoon Valley Lake is connected to Laguna Creek, a RPW, and Cache Slough, a TNW.	Directly connected to an unnamed RPW that flows directly onto Laguna Creek, a RPW.
SD-76	Seasonal Drainage	0.03	539.4	2.0	26, 27	n/a	Potentially Jurisdictional	Potentially Jurisdictional	Non-RPW flows indirectly into Laurel Creek, a RPW, then into Suisun Slough, a TNW.	Flows west through another drainage before directly entering Laurel Creek.
SD-79	Seasonal Drainage	0.03	469.0	2.5	26, 27	n/a	Potentially Jurisdictional	Potentially Jurisdictional	Non-RPW that flows indirectly into Laurel Creek, a RPW, then into Suisun Slough, a TNW	Flows indirectly into Laurel Creek, a RPW.
SD-80	Seasonal Drainage	0.02	403.4	2.0	26	n/a	Potentially Jurisdictional	Potentially Jurisdictional	Non-RPW that flows indirectly into Laurel Creek, a RPW, then into Suisun Slough, a TNW	Flows indirectly into Laurel Creek, a RPW.
SD-81	Seasonal Drainage	0.01	106.8	3.5	26	n/a	Potentially Jurisdictional	Potentially Jurisdictional	Non-RPW that flows indirectly into Laurel Creek, a RPW, then into Suisun Slough, a TNW.	Flows indirectly into Laurel Creek, a RPW.

I-80 Express Lanes Project - Wetlands/Waters Report

Feature Number <sup>a</sup>	Feature Type	Acreeage	Drainage Length (feet)	Drainage Average Width (feet)	Appendix E Sheet Number	Data Form	ACOE Jurisdiction	State Jurisdiction	Clean Water Act Jurisdiction Description	Connectivity to RPW
SD-82	Seasonal Drainage	0.01	167.9	3.0	26	n/a	Potentially Jurisdictional	Potentially Jurisdictional	Non-RPW that flows indirectly into Laurel Creek, a RPW, then into Suisun Slough, a TNW.	Flows indirectly into Laurel Creek, a RPW.
SD-83	Seasonal Drainage	0.01	175.1	3.0	26	n/a	Potentially Jurisdictional	Potentially Jurisdictional	Non-RPW that flows indirectly into Laurel Creek, a RPW, then into Suisun Slough, a TNW.	Flows indirectly into Laurel Creek, a RPW.
SD-84	Seasonal Drainage	0.01	99.1	3.0	26	n/a	Potentially Jurisdictional	Potentially Jurisdictional	Non-RPW that flows indirectly into Laurel Creek, a RPW, then into Suisun Slough, a TNW.	Flows indirectly into Laurel Creek, a RPW.
SD-85	Seasonal Drainage	0.02	337.4	2.0	25, 26	n/a	Potentially Jurisdictional	Potentially Jurisdictional	Non-RPW that flows directly into Laurel Creek, a RPW, then into Suisun Slough, a TNW.	Flows directly into Laurel Creek.
SD-88	Seasonal Drainage	0.01	234.0	1.0	23	n/a	Non-jurisdictional	Non-jurisdictional	Roadside drainage ditch, non-jurisdictional, no potential direct or indirect connection to TNW.	No connectivity.
SD-89	Seasonal Drainage	<0.01	86.5	2.0	23	n/a	Non-jurisdictional	Non-jurisdictional	Roadside drainage ditch, non-jurisdictional, no potential direct or indirect connection to TNW.	No connectivity.

I-80 Express Lanes Project - Wetlands/Waters Report

Feature Number <sup>a</sup>	Feature Type	Acreage	Drainage Length (feet)	Drainage Average Width (feet)	Appendix E Sheet Number	Data Form	ACOE Jurisdiction	State Jurisdiction	Clean Water Act Jurisdiction Description	Connectivity to RPW
SD-90	Seasonal Drainage	0.03	484.1	3.0	23, 24	n/a	Non-jurisdictional	Non-jurisdictional	Roadside drainage ditch, non-jurisdictional, no potential direct or indirect connection to a TNW	No connectivity.
SD-91	Seasonal Drainage	<0.01	46.7	1.5	24	n/a	Non-jurisdictional	Non-jurisdictional	Roadside drainage ditch, non-jurisdictional, no potential direct or indirect connection to a TNW	No connectivity.
SD-92	Seasonal Drainage	0.02	460.9	1.5	24	n/a	Potentially Jurisdictional	Potentially Jurisdictional	Roadside drainage ditch with flow into culvert; potential indirect connection to a TNW is possible, but unknown.	Flows into culverts with an unknown out flow.
SD-93	Seasonal Drainage	<0.01	98.4	1.5	22	n/a	Potentially Jurisdictional	Potentially Jurisdictional	Non-RPW that flows indirectly into Soda Springs Creek, a RPW, then into Suisun Slough, a TNW.	Connects indirectly to an unnamed drainage outside the project area, which flows in to Soda Springs Creek.

I-80 Express Lanes Project - Wetlands/Waters Report

Feature Number <sup>a</sup>	Feature Type	Acreage	Drainage Length (feet)	Drainage Average Width (feet)	Appendix E Sheet Number	Data Form	ACOE Jurisdiction	State Jurisdiction	Clean Water Act Jurisdiction Description	Connectivity to RPW
SD-94	Seasonal Drainage	<0.01	65.2	3.0	22	n/a	Potentially Jurisdictional	Potentially Jurisdictional	Non-RPW that flows indirectly into Soda Springs Creek, a RPW; then into Suisun Slough, a TNW.	Connects indirectly to an unnamed drainage outside of project area that flows into Soda Springs Creek.
SD-95	Seasonal Drainage	0.02	354.1	2.5	22, 23	n/a	Potentially Jurisdictional	Potentially Jurisdictional	Non-RPW that flows indirectly into Soda Springs Creek, a RPW; then into Suisun Slough, a TNW.	Connects indirectly to an unnamed drainage outside of project area that flows into Soda Springs Creek.
SD-96	Seasonal Drainage	0.01	138.4	2.0	22	n/a	Potentially Jurisdictional	Potentially Jurisdictional	Non-RPW directly connected to PWD-3; which is potentially linked to Soda Springs Creek, a RPW that connects to Laurel Creek, and Suisun Slough, a TNW.	Appears isolated. Flow is potentially east under the highway through underground culverts for 3000 ft before entering Laurel Creek, a RPW.

I-80 Express Lanes Project - Wetlands/Waters Report

<b>Feature Number<sup>a</sup></b>	<b>Feature Type</b>	<b>Acres</b>	<b>Drainage Length (feet)</b>	<b>Drainage Average Width (feet)</b>	<b>Appendix E Sheet Number</b>	<b>Data Form</b>	<b>ACOE Jurisdiction</b>	<b>State Jurisdiction</b>	<b>Clean Water Act Jurisdiction Description</b>	<b>Connectivity to RPW</b>
SD-97	Seasonal Drainage	0.02	422.3	2.0	21	n/a	Potentially Jurisdictional	Potentially Jurisdictional	Non-RPW directly connected to PWD-3 that is potentially linked to Soda Springs Creek, a RPW; that connects to Laurel Creek, and Suisun Slough, a TNW.	Appears isolated. Flow is potentially east under the highway through underground culverts for 3000 ft before entering Laurel Creek, a RPW.
SD-98	Seasonal Drainage	0.01	451.0	1.0	21	n/a	Potentially Jurisdictional	Potentially Jurisdictional	Roadside drainage ditch with flow into culvert, potential indirect connection to a TNW is possible but unknown.	Flows into culverts with an unknown out flow.
SD-99	Seasonal Drainage	0.02	404.1	2.0	21	n/a	Non-jurisdictional	Non-jurisdictional	Roadside drainage ditch, non-jurisdictional, no potential direct or indirect connection to a TNW.	No connectivity.

I-80 Express Lanes Project - Wetlands/Waters Report

Feature Number <sup>a</sup>	Feature Type	Acreage	Drainage Length (feet)	Drainage Average Width (feet)	Appendix E Sheet Number	Data Form	ACOE Jurisdiction	State Jurisdiction	Clean Water Act Jurisdiction Description	Connectivity to RPW
SD-100	Seasonal Drainage	<0.01	18.3	10.0	19	n/a	Potentially Jurisdictional	Potentially Jurisdictional	Non-RPW connected to PWD-300 and PWD-4, which are indirectly connected to a RPW, which connects to Laurel Creek, and Suisun Slough, a TNW.	Water follows the drainage ditch out of this wetland. It flows into a culvert. 250 ft southeast of this culvert a large unnamed drainage passes by on its way to Suisun Slough.
SD-102	Seasonal Drainage	0.01	50.0	12.0	19	n/a	Potentially Jurisdictional	Potentially Jurisdictional	Non-RPW connected to PWD-300 and PWD-4, which are indirectly connected to a RPW, which connects to Laurel Creek, and Suisun Slough, a TNW.	Water follows the drainage ditch out of this wetland. It flows into a culvert. 250 ft southeast of this culvert a large unnamed drainage passes by on its way to Suisun Slough.
SD-103	Seasonal Drainage	0.02	342.5	4.0	19	n/a	Potentially Jurisdictional	Potentially Jurisdictional	Non-RPW that flows indirectly into Soda Springs Creek, a RPW, then into Suisun Slough, a TNW	Connects indirectly to an unnamed drainage outside of project area that flows into Soda Springs Creek

I-80 Express Lanes Project - Wetlands/Waters Report

Feature Number <sup>a</sup>	Feature Type	Acreeage	Drainage Length (feet)	Drainage Average Width (feet)	Appendix E Sheet Number	Data Form	ACOE Jurisdiction	State Jurisdiction	Clean Water Act Jurisdiction Description	Connectivity to RPW
SD-104	Seasonal Drainage	0.01	126.6	2.0	22	n/a	Potentially Jurisdictional	Potentially Jurisdictional	Non-RPW that flows indirectly into Soda Springs Creek, a RPW, then into Suisun Slough, a TNW	Connects indirectly to an unnamed drainage outside of project area that flows into Soda Springs Creek
SD-105	Seasonal Drainage	<0.01	366.5	2.5	25	n/a	Potentially Jurisdictional	Potentially Jurisdictional	Roadside drainage ditch with flow into culvert, potential indirect connection to a TNW is possible but unknown.	Flows into culverts with an unknown out flow.
SD-107	Seasonal Drainage	0.01	208.7	3.0	26	n/a	Potentially Jurisdictional	Potentially Jurisdictional	Non-RPW that flows directly into Laurel Creek, a RPW, then into Suisun, a TNW	Flows east 208 ft directly into Laurel Creek.
SD-108	Seasonal Drainage	<0.01	7.7	3.0	26	n/a	Potentially Jurisdictional	Potentially Jurisdictional	Non-RPW that flows directly into Laurel Creek, a RPW, then into Suisun, a TNW.	Flows into SD-107 which flows directly into Laurel Creek.
SD-109	Seasonal Drainage	0.08	879.7	4.0	26	n/a	Potentially Jurisdictional	Potentially Jurisdictional	Non-RPW that flows directly into Laurel Creek, a RPW, then into Suisun, a TNW.	Flows west 880 ft directly into Laurel Creek.

I-80 Express Lanes Project - Wetlands/Waters Report

Feature Number <sup>a</sup>	Feature Type	Acres	Drainage Length (feet)	Drainage Average Width (feet)	Appendix E Sheet Number	Data Form	ACOE Jurisdiction	State Jurisdiction	Clean Water Act Jurisdiction Description	Connectivity to RPW
SD-111	Seasonal Drainage	0.01	155.7	2.5	25	n/a	Potentially Jurisdictional	Potentially Jurisdictional	Roadside drainage ditch with flow into culvert, potential direct or indirect connection to a TNW is possible but unknown.	Flows into culverts with an unknown out flow.
SD-113	Seasonal Drainage	0.02	378.9	2.0	25	n/a	Non-jurisdictional	Non-jurisdictional	Roadside drainage ditch, non-jurisdictional, no potential direct or indirect connection to a TNW.	No connectivity.
SD-114	Seasonal Drainage	0.01	219.6	1.5	25	n/a	Potentially Jurisdictional	Potentially Jurisdictional	Non-RPW that flows indirectly into Soda Springs Creek, a RPW, then into Suisun Slough, a TNW.	Potentially flows through SD-115 and SD-116 before entering directly into Soda Springs Creek.
SD-115	Seasonal Drainage	0.01	151.6	3.0	24, 25	n/a	Potentially Jurisdictional	Potentially Jurisdictional	Non-RPW that flows indirectly into Soda Springs Creek, a RPW, then into Suisun Slough, a TNW.	Potentially flows through SD-116 before entering directly into Soda Springs Creek.
SD-116	Seasonal Drainage	0.03	451.3	3.0	24, 25	n/a	Potentially Jurisdictional	Potentially Jurisdictional	Non-RPW that flows indirectly into Soda Springs Creek, a RPW, then into Suisun Slough, a TNW.	Flows directly into Soda Springs Creek.

I-80 Express Lanes Project - Wetlands/Waters Report

Feature Number <sup>a</sup>	Feature Type	Acreage	Drainage Length (feet)	Drainage Average Width (feet)	Appendix E Sheet Number	Data Form	ACOE Jurisdiction	State Jurisdiction	Clean Water Act Jurisdiction Description	Connectivity to RPW
SD-117	Seasonal Drainage	0.01	133.4	5.0	24	n/a	Potentially Jurisdictional	Potentially Jurisdictional	Roadside drainage ditch with flow into culvert, potential indirect connection to a TNW is possible but unknown.	Flows into culverts with an unknown out flow.
SD-119	Seasonal Drainage	0.01	201.4	2.0	23	n/a	Potentially Jurisdictional	Potentially Jurisdictional	Roadside drainage ditch with flow into culvert, potential indirect connection to a TNW is possible but unknown.	Flows into culverts with an unknown out flow.
SD-120	Seasonal Drainage	<0.01	111.8	1.0	22	n/a	Non-jurisdictional	Non-jurisdictional	Roadside drainage ditch, non-jurisdictional, no potential direct or indirect connection to a TNW.	No connectivity.
SD-121	Seasonal Drainage	0.02	526.9	2.0	22	n/a	Non-jurisdictional	Non-jurisdictional	Roadside drainage ditch, non-jurisdictional, no potential direct or indirect connection to a TNW.	No connectivity.
SD-122	Seasonal Drainage	<0.01	1.2	6.0	21	n/a	Potentially Jurisdictional	Potentially Jurisdictional	Roadside drainage ditch with flow into culvert, potential indirect connection to a TNW is possible but unknown.	Flows into culverts with an unknown out flow.

I-80 Express Lanes Project - Wetlands/Waters Report

<b>Feature Number<sup>a</sup></b>	<b>Feature Type</b>	<b>Acreage</b>	<b>Drainage Length (feet)</b>	<b>Drainage Average Width (feet)</b>	<b>Appendix E Sheet Number</b>	<b>Data Form</b>	<b>ACOE Jurisdiction</b>	<b>State Jurisdiction</b>	<b>Clean Water Act Jurisdiction Description</b>	<b>Connectivity to RPW</b>
SD-124	Seasonal Drainage	0.01	273.0	2.0	23, 24	n/a	Potentially Jurisdictional	Potentially Jurisdictional	Roadside drainage ditch with flow into culvert, potential indirect connection to a TNW is possible but unknown.	Flows into culverts with an unknown out flow.
SD-125	Seasonal Drainage	<0.01	63.2	1.0	23	n/a	Potentially Jurisdictional	Potentially Jurisdictional	Roadside drainage ditch with flow into culvert, potential indirect connection to a TNW is possible but unknown.	Flows into culverts with an unknown out flow.
SD-126	Seasonal Drainage	0.02	312.1	3.0	23	n/a	Potentially Jurisdictional	Potentially Jurisdictional	Roadside drainage ditch with flow into culvert, potential indirect connection to a TNW is possible but unknown.	Flows into culverts with an unknown out flow.
SD-127	Seasonal Drainage	<0.01	28.7	4.0	23	n/a	Potentially Jurisdictional	Potentially Jurisdictional	Roadside drainage ditch with flow into culvert, potential indirect connection to a TNW is possible but unknown.	Flows into culverts with an unknown out flow.

I-80 Express Lanes Project - Wetlands/Waters Report

Feature Number <sup>a</sup>	Feature Type	Acres	Drainage Length (feet)	Drainage Average Width (feet)	Appendix E Sheet Number	Data Form	ACOE Jurisdiction	State Jurisdiction	Clean Water Act Jurisdiction Description	Connectivity to RPW
SD-129	Seasonal Drainage	0.11	2181.6	1.5	19, 20	n/a	Potentially Jurisdictional	Potentially Jurisdictional	Non-RPW connected to PWD-300 which is potentially connected to a RPW, which connects to Laurel Creek, and Suisun Slough, a TNW.	Water follows the drainage ditch into PWD-4. It flows into a culvert. 250 ft southeast of this culvert a large unnamed drainage passes by on its way to Suisun Slough.
SD-130	Seasonal Drainage	<0.01	134.2	1.5	20	n/a	Non-jurisdictional	Non-jurisdictional	Roadside drainage ditch, non-jurisdictional, no potential direct or indirect connection to a TNW.	No connectivity.
SD-131	Seasonal Drainage	0.01	171.1	1.5	20	n/a	Non-jurisdictional	Non-jurisdictional	Roadside drainage ditch, non-jurisdictional, no potential direct or indirect connection to a TNW.	No connectivity.
SD-132	Seasonal Drainage	0.01	318.6	1.0	20, 21	n/a	Potentially Jurisdictional	Potentially Jurisdictional	Non-RPW that flows directly into Unnamed Perennial Drainage 2, a RPW that potentially flows into Laurel Creek, a RPW, then into Suisun Slough, a TNW.	Flows directly into Unnamed Perennial Drainage 2, a RPW.

I-80 Express Lanes Project - Wetlands/Waters Report

Feature Number <sup>a</sup>	Feature Type	Acreage	Drainage Length (feet)	Drainage Average Width (feet)	Appendix E Sheet Number	Data Form	ACOE Jurisdiction	State Jurisdiction	Clean Water Act Jurisdiction Description	Connectivity to RPW
SD-133	Seasonal Drainage	0.02	517.1	2.0	21	n/a	Potentially Jurisdictional	Potentially Jurisdictional	Non-RPW that flows directly into Unnamed Perennial Drainage 2, a RPW that potentially flows into Laurel Creek, a RPW, then into Suisun Slough, a TNW.	Flows directly into Unnamed Perennial Drainage 2, a RPW.
SD-135	Seasonal Drainage	0.01	77.5	4.0	19	n/a	Potentially Jurisdictional	Potentially Jurisdictional	Non-RPW connected to PWD-4 that is potentially connected to Laurel Creek, a RPW, and then Suisun Slough, a TNW.	Water follows the drainage ditch out of the wetland. It flows into a culvert. 250 ft southeast of this culvert a large unnamed drainage passes by on its way to Suisun Slough.
SD-136	Seasonal Drainage	0.01	52.5	9.0	19	n/a	Potentially Jurisdictional	Potentially Jurisdictional	Non-RPW connected to PWD-4 that is potentially connected to Laurel Creek, a RPW, and then Suisun Slough, a TNW.	Water follows the drainage ditch out of the wetland. It flows into a culvert. 250 ft southeast of this culvert a large unnamed drainage passes by on its way to Suisun Slough.

I-80 Express Lanes Project - Wetlands/Waters Report

<b>Feature Number<sup>a</sup></b>	<b>Feature Type</b>	<b>Acres</b>	<b>Drainage Length (feet)</b>	<b>Drainage Average Width (feet)</b>	<b>Appendix E Sheet Number</b>	<b>Data Form</b>	<b>ACOE Jurisdiction</b>	<b>State Jurisdiction</b>	<b>Clean Water Act Jurisdiction Description</b>	<b>Connectivity to RPW</b>
SD-137	Seasonal Drainage	0.01	63.6	8.0	19	n/a	Potentially Jurisdictional	Potentially Jurisdictional	Non-RPW connected to PWD-4 that is potentially connected to Laurel Creek, a RPW, and then Suisun Slough, a TNW.	Water follows the drainage ditch out of the wetland. It flows into a culvert. 250 ft southeast of this culvert a large unnamed drainage passes by on its way to Suisun Slough.
SD-139	Seasonal Drainage	0.12	2634.8	2.0	18, 19	n/a	Potentially Jurisdictional	Potentially Jurisdictional	Non-RPW connected to PWD-4 that is potentially connected to Laurel Creek, a RPW, and then Suisun Slough, a TNW.	Water follows the drainage ditch out of the wetland. It flows into a culvert. 250 ft southeast of this culvert a large unnamed drainage passes by on its way to Suisun Slough.

I-80 Express Lanes Project - Wetlands/Waters Report

<b>Feature Number<sup>a</sup></b>	<b>Feature Type</b>	<b>Acres</b>	<b>Drainage Length (feet)</b>	<b>Drainage Average Width (feet)</b>	<b>Appendix E Sheet Number</b>	<b>Data Form</b>	<b>ACOE Jurisdiction</b>	<b>State Jurisdiction</b>	<b>Clean Water Act Jurisdiction Description</b>	<b>Connectivity to RPW</b>
SD-140	Seasonal Drainage	0.03	1518.2	1.0	19, 20	n/a	Potentially Jurisdictional	Potentially Jurisdictional	Non-RPW connected to PWD-4 that is potentially connected to Laurel Creek, a RPW, and then Suisun Slough, a TNW.	Water follows the drainage ditch out of the wetland. It flows into a culvert. 250 ft southeast of this culvert a large unnamed drainage passes by on its way to Suisun Slough.
SD-141	Seasonal Drainage	<0.01	75.2	2.0	20	n/a	Potentially Jurisdictional	Potentially Jurisdictional	Non-RPW indirectly connected to a seasonal wetland outside of project area, which is connected to an unnamed channel that flows into Laurel Creek, a RPW, and then into Suisun Slough, a TNW.	Flows into a wetland that is potentially indirectly connected to a RPW, Laurel Creek.
SD-142	Seasonal Drainage	0.12	2538.8	2.0	23, 24, 25	n/a	Non-jurisdictional	Non-jurisdictional	Roadside drainage ditch, non-jurisdictional, no potential direct or indirect connection to a TNW.	No connectivity.

I-80 Express Lanes Project – Wetlands/Waters Report

Feature Number <sup>a</sup>	Feature Type	Acreage	Drainage Length (feet)	Drainage Average Width (feet)	Appendix E Sheet Number	Data Form	ACOE Jurisdiction	State Jurisdiction	Clean Water Act Jurisdiction Description	Connectivity to RPW
SD-143	Seasonal Drainage	<0.01	75.4	2.0	25	n/a	Non-jurisdictional	Non-jurisdictional	Roadside drainage ditch, non-jurisdictional, no potential direct or indirect connection to a TNW	No connectivity.
SD-144	Seasonal Drainage	0.04	1231.9	1.5	25, 26	n/a	Non-jurisdictional	Non-jurisdictional	Roadside drainage ditch, non-jurisdictional, no potential direct or indirect connection to a TNW	No connectivity.
SD-145	Seasonal Drainage	<0.01	16.2	5.0	27	n/a	Potentially Jurisdictional	Potentially Jurisdictional	Non-RPW connects to Unnamed Perennial Drainage outside of the project area, which flows into Lagoon Valley Lake. Lagoon Valley Lake is connected to Laguna Creek, a RPW, and Cache Slough, a TNW.	Directly connected to an unnamed RPW that flows directly onto Laguna Creek, a RPW.
SD-146	Seasonal Drainage	0.04	1140.9	1.5	28, 29,30	n/a	Potentially Jurisdictional	Potentially Jurisdictional	Roadside drainage ditch with flow into culvert, potential indirect connection to a TNW is possible but unknown.	Flows into culverts with an unknown out flow.

I-80 Express Lanes Project - Wetlands/Waters Report

Feature Number <sup>a</sup>	Feature Type	Acres	Drainage Length (feet)	Drainage Average Width (feet)	Appendix E Sheet Number	Data Form	ACOE Jurisdiction	State Jurisdiction	Clean Water Act Jurisdiction Description	Connectivity to RPW
SD-147	Seasonal Drainage	0.04	1075.2	1.5	29	n/a	Potentially Jurisdictional	Potentially Jurisdictional	Non-RPW that flows into SW-12, a non-RPW roadside swale, connects to Unnamed Perennial Drainage 1, which flows into Lagoon Valley Lake. Lagoon Valley Lake is connected to Laguna Creek, a RPW, and Cache Slough, a TNW.	Flows directly into SW-12 which is potentially connected to a RPW (Laguna Creek).
SD-148	Seasonal Drainage	0.07	1171.4	2.5	29	n/a	Potentially Jurisdictional	Potentially Jurisdictional	Non-RPW that flows into SW-12, a non-RPW roadside swale, connects to Unnamed Perennial Drainage 1, which flows into Lagoon Valley Lake. Lagoon Valley Lake is connected to Laguna Creek, a RPW, and Cache Slough, a TNW.	Flows directly into SW-12 which is potentially connected to a RPW (Laguna Creek).
SD-149	Seasonal Drainage	0.07	1069.1	3.0	34	n/a	Potentially Jurisdictional	Potentially Jurisdictional	Roadside drainage ditch with flow into culvert, potential indirect connection to a TNW is possible but unknown.	Flows into culverts with an unknown out flow.

I-80 Express Lanes Project - Wetlands/Waters Report

Feature Number <sup>a</sup>	Feature Type	Acreage	Drainage Length (feet)	Drainage Average Width (feet)	Appendix E Sheet Number	Data Form	ACOE Jurisdiction	State Jurisdiction	Clean Water Act Jurisdiction Description	Connectivity to RPW
SD-150	Seasonal Drainage	0.04	568.8	3.0	34	n/a	Non-jurisdictional	Non-jurisdictional	Roadside drainage ditch, non-jurisdictional, no potential direct or indirect connection to a TNW.	No connectivity.
SD-151	Seasonal Drainage	0.02	404.1	2.0	35	n/a	Non-jurisdictional	Non-jurisdictional	Roadside drainage ditch, non-jurisdictional, no potential direct or indirect connection to a TNW.	No connectivity.
SD-152	Seasonal Drainage	0.01	514.0	1.0	35	SD-152	Non-jurisdictional	Non-jurisdictional	Roadside drainage ditch, non-jurisdictional, no potential direct or indirect connection to a TNW.	No connectivity.
SD-153	Seasonal Drainage	<0.01	81.6	1.5	36	n/a	Potentially Jurisdictional	Potentially Jurisdictional	Non-RPW that flows directly into Ulatis Creek, a RPW, then into Cache Slough, a TNW.	Flows above ground directly into Ulatis Creek
SD-154	Seasonal Drainage	0.01	143.0	2.0	36	n/a	Potentially Jurisdictional	Potentially Jurisdictional	Non-RPW that flows directly into Ulatis Creek, a RPW, then into Cache Slough, a TNW.	Flows above ground directly into Ulatis Creek
SD-156	Seasonal Drainage	<0.01	3.7	3.0	38	n/a	Non-jurisdictional	Non-jurisdictional	Roadside drainage ditch, non-jurisdictional, no potential direct or indirect connection to a TNW.	No connectivity.

I-80 Express Lanes Project - Wetlands/Waters Report

Feature Number <sup>a</sup>	Feature Type	Acreage	Drainage Length (feet)	Drainage Average Width (feet)	Appendix E Sheet Number	Data Form	ACOE Jurisdiction	State Jurisdiction	Clean Water Act Jurisdiction Description	Connectivity to RPW
SD-157	Seasonal Drainage	0.01	613.3	1.0	41, 42	n/a	Potentially Jurisdictional	Potentially Jurisdictional	Roadside drainage ditch with flow into culvert, potential indirect connection to a TNW is possible but unknown.	Flows into culverts with an unknown out flow.
SD-158	Seasonal Drainage	0.02	699.5	1.5	41, 42	n/a	Potentially Jurisdictional	Potentially Jurisdictional	Non-RPW connected directly to Horse Creek, a RPW, which flows into Cache Slough, a TNW.	Flows directly into Horse Creek, a RPW.
SD-159	Seasonal Drainage	0.04	697.0	2.5	41, 42	n/a	Potentially Jurisdictional	Potentially Jurisdictional	Non-RPW connected directly to Horse Creek, a RPW, which flows into Cache Slough, a TNW.	Flows directly into Horse Creek, a RPW.
SD-160	Seasonal Drainage	0.03	932.8	1.5	41,42	n/a	Potentially Jurisdictional	Potentially Jurisdictional	Non-RPW that flows directly into Pine Tree Creek, a RPW, then into Cache Slough, a TNW.	Flows 933 ft before entering into Pine Tree Creek.
SD-161	Seasonal Drainage	<0.01	77.1	1.0	39	n/a	Non-jurisdictional	Non-jurisdictional	Roadside drainage ditch, non-jurisdictional, no potential direct or indirect connection to a TNW.	No connectivity.
SD-162	Seasonal Drainage	0.04	787.2	2.0	33, 34	n/a	Potentially Jurisdictional	Potentially Jurisdictional	Roadside drainage ditch with flow into culvert, potential indirect connection to a TNW is possible but unknown.	Flows into culverts with an unknown out flow.

I-80 Express Lanes Project - Wetlands/Waters Report

Feature Number <sup>a</sup>	Feature Type	Acreage	Drainage Length (feet)	Drainage Average Width (feet)	Appendix E Sheet Number	Data Form	ACOE Jurisdiction	State Jurisdiction	Clean Water Act Jurisdiction Description	Connectivity to RPW
SD-163	Seasonal Drainage	0.02	417.8	2.0	33, 34	n/a	Potentially Jurisdictional	Potentially Jurisdictional	Roadside drainage ditch with flow into culvert, potential indirect connection to a TNW is possible but unknown.	Flows into culverts with an unknown out flow.
SD-164	Seasonal Drainage	0.01	301.0	1.5	33	n/a	Potentially Jurisdictional	Potentially Jurisdictional	Roadside drainage ditch with flow into culvert, potential indirect connection to a TNW is possible but unknown.	Flows into culverts with an unknown out flow.
SD-165	Seasonal Drainage	0.03	506.1	2.5	31, 32	n/a	Potentially Jurisdictional	Potentially Jurisdictional	Non-RPW connects directly to Laguna Creek, a RPW, that flows into Cache Slough, a TNW.	Flows directly into a RPW (Laguna Creek)
SD-166	Seasonal Drainage	0.07	1635.4	1.5	27	n/a	Non-jurisdictional	Non-jurisdictional	Roadside drainage ditch, non-jurisdictional, no potential direct or indirect connection to a TNW.	No connectivity.
SD-168	Seasonal Drainage	0.01	249.6	1.0	26, 27	n/a	Non-jurisdictional	Non-jurisdictional	Roadside drainage ditch, non-jurisdictional, no potential direct or indirect connection to a TNW.	No connectivity.

I-80 Express Lanes Project - Wetlands/Waters Report

Feature Number <sup>a</sup>	Feature Type	Acreeage	Drainage Length (feet)	Drainage Average Width (feet)	Appendix E Sheet Number	Data Form	ACOE Jurisdiction	State Jurisdiction	Clean Water Act Jurisdiction Description	Connectivity to RPW
SD-169	Seasonal Drainage	0.01	282.6	1.0	26	n/a	Non-jurisdictional	Non-jurisdictional	Roadside drainage ditch, non-jurisdictional, no potential direct or indirect connection to a TNW.	No connectivity.
SD-170	Seasonal Drainage	0.01	132.1	2.0	26	n/a	Non-jurisdictional	Non-jurisdictional	Roadside drainage ditch, non-jurisdictional, no potential direct or indirect connection to a TNW.	No connectivity.
SD-171	Seasonal Drainage	0.01	192.6	2.0	24	n/a	Non-jurisdictional	Non-jurisdictional	Roadside drainage ditch, non-jurisdictional, no potential direct or indirect connection to a TNW.	No connectivity.
SD-172	Seasonal Drainage	<0.01	83.9	2.0	19	n/a	Potentially Jurisdictional	Potentially Jurisdictional	Non-RPW connected PWD-300 and PWD-4, which are indirectly connected to a RPW, which connects to Laurel Creek, and Suisun Slough, a TNW.	Water follows the drainage ditch out of this wetland. It flows into a culvert. 250 ft southeast of this culvert a large unnamed drainage passes by on its way to Suisun Slough.

I-80 Express Lanes Project - Wetlands/Waters Report

Feature Number <sup>a</sup>	Feature Type	Acres	Drainage Length (feet)	Drainage Average Width (feet)	Appendix E Sheet Number	Data Form	ACOE Jurisdiction	State Jurisdiction	Clean Water Act Jurisdiction Description	Connectivity to RPW
SD-173	Seasonal Drainage	0.05	1033.1	2.0	19	SD-173	Potentially Jurisdictional	Potentially Jurisdictional	Non-RPW connected to PWD-4, which is indirectly connected to a RPW, Laurel Creek, and Suisun Slough, a TNW.	Water follows the drainage ditch out of this wetland. It flows into a culvert. 250 ft southeast of this culvert a large unnamed drainage passes by on its way to Suisun Slough.
SD-174	Seasonal Drainage	0.01	575.5	1.0	18, 19	n/a	Potentially Jurisdictional	Potentially Jurisdictional	Non-RPW connected to PWD-4, which is indirectly connected to a RPW, Laurel Creek, and Suisun Slough, a TNW.	Water follows the drainage ditch out of this wetland. It flows into a culvert. 250 ft southeast of this culvert a large unnamed drainage passes by on its way to Suisun Slough.
SD-175	Seasonal Drainage	0.40	1170.6	15.0	34	n/a	Potentially Jurisdictional	Potentially Jurisdictional	Roadside drainage ditch with flow into culvert, potential indirect connection to a TNW is possible but unknown.	Flows into culverts with an unknown out flow.

I-80 Express Lanes Project - Wetlands/Waters Report

Feature Number <sup>a</sup>	Feature Type	Acreage	Drainage Length (feet)	Drainage Average Width (feet)	Appendix E Sheet Number	Data Form	ACOE Jurisdiction	State Jurisdiction	Clean Water Act Jurisdiction Description	Connectivity to RPW
SD-176	Seasonal Drainage	<0.01	83.4	2.0	21	n/a	Non-jurisdictional	Non-jurisdictional	Roadside drainage ditch, non-jurisdictional, no potential direct or indirect connection to a TNW.	No connectivity.
SD-177	Seasonal Drainage	0.02	195.6	5.0	40,177	n/a	Potentially Jurisdictional	Potentially Jurisdictional	Non-RPW that flows directly into Pine Tree Creek, a RPW, then into Cache Slough, a TNW.	Flows directly into Pine Tree Creek, a RPW.
SD-178	Seasonal Drainage	0.02	433.2	2.0	32	n/a	Potentially Jurisdictional	Potentially Jurisdictional	Non-RPW connects indirectly to Laguna Creek, a RPW, that flows into Cache Slough, a TNW.	Flows through SW-47 and SW-65 before directly entering into a RPW (Laguna Creek).
SD-179	Seasonal Drainage	0.03	461.4	3.0	30	n/a	Potentially Jurisdictional	Potentially Jurisdictional	Roadside drainage ditch with flow into culvert, potential indirect connection to a TNW is possible but unknown.	Flows into culverts with an unknown out flow.
SD-180	Seasonal Drainage	<0.01	40.7	2.0	29	n/a	Potentially Jurisdictional	Potentially Jurisdictional	Roadside drainage ditch with flow into culvert, potential indirect connection to a TNW is possible but unknown.	Flows into culverts with an unknown out flow.

I-80 Express Lanes Project - Wetlands/Waters Report

Feature Number <sup>a</sup>	Feature Type	Acreage	Drainage Length (feet)	Drainage Average Width (feet)	Appendix E Sheet Number	Data Form	ACOE Jurisdiction	State Jurisdiction	Clean Water Act Jurisdiction Description	Connectivity to RPW
SD-181	Seasonal Drainage	<0.01	206.3	1.0	21	n/a	Non-jurisdictional	Non-jurisdictional	Roadside drainage ditch, non-jurisdictional, no potential direct or indirect connection to a TNW	No connectivity.
SD-182	Seasonal Drainage	0.04	485.0	4.0	37	n/a	Potentially Jurisdictional	Potentially Jurisdictional	Roadside drainage ditch with flow into culvert, potential indirect connection to a TNW is possible but unknown.	Flows into culverts with an unknown out flow.
SD-183	Seasonal Drainage	<0.01	26.9	5.0	38	n/a	Potentially Jurisdictional	Potentially Jurisdictional	Roadside drainage ditch with flow into culvert, potential indirect connection to a TNW is possible but unknown.	Flows into culverts with an unknown out flow.
SD-186	Seasonal Drainage	0.01	130.3	3.0	37	n/a	Potentially Jurisdictional	Potentially Jurisdictional	Roadside drainage ditch with flow into culvert, potential indirect connection to a TNW is possible but unknown.	Flows into culverts with an unknown out flow.
SD-300	Seasonal Drainage	0.02	134.1	6.0	17, 18	SD-300	Potentially Jurisdictional	Potentially Jurisdictional	Roadside drainage ditch with flow into culvert, potential indirect connection to a TNW is possible but unknown.	Flows into culverts with an unknown out flow.

I-80 Express Lanes Project - Wetlands/Waters Report

<b>Feature Number<sup>a</sup></b>	<b>Feature Type</b>	<b>Acres</b>	<b>Drainage Length (feet)</b>	<b>Drainage Average Width (feet)</b>	<b>Appendix E Sheet Number</b>	<b>Data Form</b>	<b>ACOE Jurisdiction</b>	<b>State Jurisdiction</b>	<b>Clean Water Act Jurisdiction Description</b>	<b>Connectivity to RPW</b>
SD-301	Seasonal Drainage	0.06	635.7	4.0	17	n/a	Potentially Jurisdictional	Potentially Jurisdictional	Roadside drainage ditch with flow into culvert, potential indirect connection to a TNW is possible but unknown.	Flows into culverts with an unknown out flow.
SD-302	Seasonal Drainage	0.10	1077.6	4.0	16, 17	n/a	Potentially Jurisdictional	Potentially Jurisdictional	Roadside drainage ditch with flow into culvert, potential indirect connection to a TNW is possible but unknown.	Flows into culverts with an unknown out flow.
SD-303	Seasonal Drainage	0.01	37.7	6.0	16	n/a	Potentially Jurisdictional	Potentially Jurisdictional	Roadside drainage ditch with flow into culvert, potential indirect connection to a TNW is possible but unknown.	Flows into culverts with an unknown out flow.
SD-304	Seasonal Drainage	0.01	267.9	2.0	16	n/a	Potentially Jurisdictional	Potentially Jurisdictional	Roadside drainage ditch with flow into culvert, potential indirect connection to a TNW is possible but unknown.	Flows into culverts with an unknown out flow.
SD-306	Seasonal Drainage	0.02	192.8	4.5	16	n/a	Potentially Jurisdictional	Potentially Jurisdictional	Roadside drainage ditch with flow into culvert, potential indirect connection to a TNW is possible but unknown.	Flows into culverts with an unknown out flow.

I-80 Express Lanes Project - Wetlands/Waters Report

Feature Number <sup>a</sup>	Feature Type	Acreage	Drainage Length (feet)	Drainage Average Width (feet)	Appendix E Sheet Number	Data Form	ACOE Jurisdiction	State Jurisdiction	Clean Water Act Jurisdiction Description	Connectivity to RPW
SD-307	Seasonal Drainage	<0.01	76.3	2.0	15	n/a	Potentially Jurisdictional	Potentially Jurisdictional	Roadside drainage ditch with flow into culvert, potential indirect connection to a TNW is possible but unknown.	Flows into culverts with an unknown out flow.
SD-308	Seasonal Drainage	0.02	466.9	2.0	15	n/a	Potentially Jurisdictional	Potentially Jurisdictional	Roadside drainage ditch with flow into culvert, potential indirect connection to a TNW is possible but unknown.	Flows into culverts with an unknown out flow.
SD-309	Seasonal Drainage	<0.01	59.3	1.0	15	n/a	Potentially Jurisdictional	Potentially Jurisdictional	Roadside drainage ditch with flow into culvert, potential indirect connection to a TNW is possible but unknown.	Flows into culverts with an unknown out flow.
SD-310	Seasonal Drainage	0.02	110.7	7.0	15	n/a	Potentially Jurisdictional	Potentially Jurisdictional	Roadside drainage ditch with flow into culvert, potential indirect connection to a TNW is possible but unknown.	Flows into culverts with an unknown out flow.
SD-311	Seasonal Drainage	0.01	157.1	2.0	15	n/a	Potentially Jurisdictional	Potentially Jurisdictional	Roadside drainage ditch with flow into culvert, potential indirect connection to a TNW is possible but unknown.	Flows into culverts with an unknown out flow.

I-80 Express Lanes Project - Wetlands/Waters Report

Feature Number <sup>a</sup>	Feature Type	Acreage	Drainage Length (feet)	Drainage Average Width (feet)	Appendix E Sheet Number	Data Form	ACOE Jurisdiction	State Jurisdiction	Clean Water Act Jurisdiction Description	Connectivity to RPW
SD-312	Seasonal Drainage	0.01	110.2	4.0	15	n/a	Potentially Jurisdictional	Potentially Jurisdictional	Roadside drainage ditch with flow into culvert, potential indirect connection to a TNW is possible but unknown.	Flows into culverts with an unknown out flow.
SD-313	Seasonal Drainage	0.09	1140.3	3.3	14	n/a	Potentially Jurisdictional	Potentially Jurisdictional	Roadside drainage ditch with flow into culvert, potential indirect connection to a TNW is possible but unknown.	Flows into culverts with an unknown out flow.
SD-314	Seasonal Drainage	0.01	257.4	2.0	14	n/a	Potentially Jurisdictional	Potentially Jurisdictional	Roadside drainage ditch with flow into culvert, potential indirect connection to a TNW is possible but unknown.	Flows into culverts with an unknown out flow.
SD-315	Seasonal Drainage	0.01	108.4	3.0	14	SD-315	Potentially Jurisdictional	Potentially Jurisdictional	Roadside drainage ditch with flow into culvert, potential indirect connection to a TNW is possible but unknown.	Flows into culverts with an unknown out flow.
SD-316	Seasonal Drainage	<0.01	6.8	5.0	13, 14	n/a	Potentially Jurisdictional	Potentially Jurisdictional	Roadside drainage ditch with flow into culvert, potential indirect connection to a TNW is possible but unknown.	Flows into culverts with an unknown out flow.

I-80 Express Lanes Project - Wetlands/Waters Report

Feature Number <sup>a</sup>	Feature Type	Acreage	Drainage Length (feet)	Drainage Average Width (feet)	Appendix E Sheet Number	Data Form	ACOE Jurisdiction	State Jurisdiction	Clean Water Act Jurisdiction Description	Connectivity to RPW
SD-318	Seasonal Drainage	<0.01	67.5	3.0	13	n/a	Non-jurisdictional	Non-jurisdictional	Roadside drainage ditch, non-jurisdictional, no potential direct or indirect connection to a TNW.	No connectivity.
SD-319	Seasonal Drainage	0.03	549.5	2.0	12	n/a	Potentially Jurisdictional	Potentially Jurisdictional	Roadside drainage ditch with flow into culvert, potential indirect connection to a TNW is possible but unknown.	Flows into culverts with an unknown out flow.
SD-320	Seasonal Drainage	0.02	372.9	2.0	12	n/a	Potentially Jurisdictional	Potentially Jurisdictional	Roadside drainage ditch with flow into culvert, potential indirect connection to a TNW is possible but unknown.	Flows into culverts with an unknown out flow.
SD-321	Seasonal Drainage	0.10	1434.7	3.0	11	n/a	Potentially Jurisdictional	Potentially Jurisdictional	Roadside drainage ditch with flow into culvert, potential indirect connection to a TNW is possible but unknown.	Flows into culverts with an unknown out flow.
SD-322	Seasonal Drainage	0.04	866.2	2.0	10, 11	n/a	Potentially Jurisdictional	Potentially Jurisdictional	Roadside drainage ditch with flow into culvert, potential indirect connection to a TNW is possible but unknown.	Flows into culverts with an unknown out flow.

I-80 Express Lanes Project - Wetlands/Waters Report

<b>Feature Number<sup>a</sup></b>	<b>Feature Type</b>	<b>Acres</b>	<b>Drainage Length (feet)</b>	<b>Drainage Average Width (feet)</b>	<b>Appendix E Sheet Number</b>	<b>Data Form</b>	<b>ACOE Jurisdiction</b>	<b>State Jurisdiction</b>	<b>Clean Water Act Jurisdiction Description</b>	<b>Connectivity to RPW</b>
SD-323	Seasonal Drainage	0.10	1485.8	3.0	10, 11	n/a	Potentially Jurisdictional	Potentially Jurisdictional	Roadside drainage ditch with flow into culvert, potential indirect connection to a TNW is possible but unknown.	Flows into culverts with an unknown out flow.
SD-324	Seasonal Drainage	0.02	190.7	4.0	10	n/a	Potentially Jurisdictional	Potentially Jurisdictional	Roadside drainage ditch with flow into culvert, potential indirect connection to a TNW is possible but unknown.	Flows into culverts with an unknown out flow.
SD-325	Seasonal Drainage	0.18	2674.2	3.0	8, 9	n/a	Potentially Jurisdictional	Potentially Jurisdictional	Non-RPW connected directly to Suisun Creek, a RPW, that flows into Peytonia Slough, a TNW.	Flows directly into SD-326 which flows directly into Suisun Creek, a RPW.
SD-326	Seasonal Drainage	0.13	1855.2	3.0	7, 8	n/a	Potentially Jurisdictional	Potentially Jurisdictional	Non-RPW connected directly to Suisun Creek, a RPW, that flows into Peytonia Slough, a TNW.	Flows directly into Suisun Creek, a RPW.
SD-327	Seasonal Drainage	0.04	611.8	3.0	7	n/a	Non-jurisdictional	Non-jurisdictional	Roadside drainage ditch, non-jurisdictional, no potential direct or indirect connection to a TNW.	No connectivity.

I-80 Express Lanes Project - Wetlands/Waters Report

Feature Number <sup>a</sup>	Feature Type	Acres	Drainage Length (feet)	Drainage Average Width (feet)	Appendix E Sheet Number	Data Form	ACOE Jurisdiction	State Jurisdiction	Clean Water Act Jurisdiction Description	Connectivity to RPW
SD-328	Seasonal Drainage	0.02	354.1	2.0	6	n/a	Potentially Jurisdictional	Potentially Jurisdictional	Non-RPW potentially connected by underground culvert to SD-428 connects directly to Dan Wilson Creek, a RPW, then to Peytonia Slough, a TNW.	Flows into a culvert that may be connected to SD-428 which is connected to a RPW, Dan Wilson Creek.
SD-329	Seasonal Drainage	0.02	491.0	2.0	5,6	n/a	Non-jurisdictional	Non-jurisdictional	Roadside drainage ditch, non-jurisdictional, no potential direct or indirect connection to a TNW.	No connectivity.
SD-330	Seasonal Drainage	<0.01	18.7	2.0	5	n/a	Potentially Jurisdictional	Potentially Jurisdictional	Roadside drainage ditch with flow into culvert, potential indirect connection to a TNW is possible but unknown.	Flows into culverts with an unknown out flow.
SD-331	Seasonal Drainage	<0.01	49.4	1.0	5	n/a	Potentially Jurisdictional	Potentially Jurisdictional	Roadside drainage ditch with flow into culvert, potential indirect connection to a TNW is possible but unknown.	Flows into culverts with an unknown out flow.
SD-332	Seasonal Drainage	0.03	645.3	2.0	1, 2	n/a	Non-jurisdictional	Non-jurisdictional	Roadside drainage ditch, non-jurisdictional, no potential direct or indirect connection to a TNW.	No connectivity.

I-80 Express Lanes Project - Wetlands/Waters Report

Feature Number <sup>a</sup>	Feature Type	Acreage	Drainage Length (feet)	Drainage Average Width (feet)	Appendix E Sheet Number	Data Form	ACOE Jurisdiction	State Jurisdiction	Clean Water Act Jurisdiction Description	Connectivity to RPW
SD-333	Seasonal Drainage	0.02	258.9	3.0	1	n/a	Potentially Jurisdictional	Potentially Jurisdictional	Roadside drainage ditch with flow into culvert, potential indirect connection to a TNW is possible but unknown.	Flows into culverts with an unknown out flow.
SD-403	Seasonal Drainage	0.03	588.5	2.0	2	n/a	Potentially Jurisdictional	Potentially Jurisdictional	Roadside drainage ditch with flow into culvert, potential indirect connection to a TNW is possible but unknown.	Flows into culverts with an unknown out flow.
SD-404	Seasonal Drainage	0.07	1485.5	2.0	2, 3	n/a	Potentially Jurisdictional	Potentially Jurisdictional	Roadside drainage ditch with flow into culvert, potential indirect connection to a TNW is possible but unknown.	Flows into culverts with an unknown out flow.
SD-405	Seasonal Drainage	<0.01	179.7	1.0	3, 4	n/a	Potentially Jurisdictional	Potentially Jurisdictional	Roadside drainage ditch with flow into culvert, potential indirect connection to a TNW is possible but unknown.	Flows into culverts with an unknown out flow.
SD-420	Seasonal Drainage	0.03	241.0	6.0	4	SD-420	Potentially Jurisdictional	Potentially Jurisdictional	Non-RPW connects directly to Green Valley Creek, a RPW that is connected to Peytonia Slough, a TNW.	Flows directly into a RPW, Green Valley Creek.

I-80 Express Lanes Project - Wetlands/Waters Report

Feature Number <sup>a</sup>	Feature Type	Acreeage	Drainage Length (feet)	Drainage Average Width (feet)	Appendix E Sheet Number	Data Form	ACOE Jurisdiction	State Jurisdiction	Clean Water Act Jurisdiction Description	Connectivity to RPW
SD-422	Seasonal Drainage	0.03	461.1	3.0	4	n/a	Potentially Jurisdictional	Potentially Jurisdictional	Non-RPW connects directly to Green Valley Creek, a RPW that is connected to Peytonia Slough, a TNW.	Flows directly into a RPW, Green Valley Creek.
SD-424	Seasonal Drainage	0.03	792.4	1.5	4	n/a	Potentially Jurisdictional	Potentially Jurisdictional	Non-RPW connects directly to Unnamed Perennial Drainage 3, which flows into to Green Valley Creek, a RPW that is connected to Peytonia Slough, a TNW.	Flows directly Unnamed Perennial Drainage 3, a RPW.
SD-425	Seasonal Drainage	0.01	91.0	3.0	5	n/a	Potentially Jurisdictional	Potentially Jurisdictional	Roadside drainage ditch with flow into culvert, potential indirect connection to a TNW is possible but unknown.	Flows into culverts with an unknown out flow.
SD-426	Seasonal Drainage	0.02	388.5	2.0	5	n/a	Potentially Jurisdictional	Potentially Jurisdictional	Roadside drainage ditch with flow into culvert, potential indirect connection to a TNW is possible but unknown.	Flows into culverts with an unknown out flow.
SD-427	Seasonal Drainage	0.02	499.5	1.5	5	n/a	Potentially Jurisdictional	Potentially Jurisdictional	Roadside drainage ditch with flow into culvert, potential indirect connection to a TNW is possible but unknown.	Flows into culverts with an unknown out flow.

I-80 Express Lanes Project - Wetlands/Waters Report

Feature Number <sup>a</sup>	Feature Type	Acreage	Drainage Length (feet)	Drainage Average Width (feet)	Appendix E Sheet Number	Data Form	ACOE Jurisdiction	State Jurisdiction	Clean Water Act Jurisdiction Description	Connectivity to RPW
SD-428	Seasonal Drainage	0.02	242.4	3.0	6	n/a	Potentially Jurisdictional	Potentially Jurisdictional	Non-RPW directly connected to Dan Wilson Creek, a RPW, then to Peytonia Slough, a TNW.	Flows into a RPW, Dan Wilson Creek.
SD-430	Seasonal Drainage	0.02	512.1	2.0	9, 10	n/a	Non-jurisdictional	Non-jurisdictional	Roadside drainage ditch, non-jurisdictional, no potential direct or indirect connection to a TNW.	No connectivity.
SD-431	Seasonal Drainage	0.01	69.7	8.0	10	SD-431	Potentially Jurisdictional	Potentially Jurisdictional	Roadside drainage ditch with flow into culvert, potential indirect connection to a TNW is possible but unknown.	Flows into culverts with an unknown out flow.
SD-432	Seasonal Drainage	0.06	1231.4	2.0	11	n/a	Non-jurisdictional	Non-jurisdictional	Roadside drainage ditch, non-jurisdictional, no potential direct or indirect connection to a TNW.	No connectivity.
SD-433	Seasonal Drainage	0.02	354.0	2.0	12	n/a	Potentially Jurisdictional	Potentially Jurisdictional	Roadside drainage ditch with flow into culvert, potential indirect connection to a TNW is possible but unknown.	Flows into culverts with an unknown out flow.

I-80 Express Lanes Project - Wetlands/Waters Report

Feature Number <sup>a</sup>	Feature Type	Acreage	Drainage Length (feet)	Drainage Average Width (feet)	Appendix E Sheet Number	Data Form	ACOE Jurisdiction	State Jurisdiction	Clean Water Act Jurisdiction Description	Connectivity to RPW
SD-434	Seasonal Drainage	0.03	661.3	2.0	12	n/a	Potentially Jurisdictional	Potentially Jurisdictional	Roadside drainage ditch with flow into culvert, potential indirect connection to a TNW is possible but unknown.	Flows into culverts with an unknown out flow.
SD-435	Seasonal Drainage	0.08	1221.1	3.0	13, 14	n/a	Potentially Jurisdictional	Potentially Jurisdictional	Roadside drainage ditch with flow into culvert, potential indirect connection to a TNW is possible but unknown.	Flows into culverts with an unknown out flow.
SD-436	Seasonal Drainage	0.07	1453.0	2.0	14	n/a	Potentially Jurisdictional	Potentially Jurisdictional	Roadside drainage ditch with flow into culvert, potential indirect connection to a TNW is possible but unknown.	Flows into culverts with an unknown out flow.
SD-437	Seasonal Drainage	<0.01	135.6	1.0	15	n/a	Non-jurisdictional	Non-jurisdictional	Roadside drainage ditch, non-jurisdictional, no potential direct or indirect connection to a TNW.	No connectivity.
SD-438	Seasonal Drainage	0.15	2107.1	3.0	15, 16	n/a	Potentially Jurisdictional	Potentially Jurisdictional	Roadside drainage ditch with flow into culvert, potential indirect connection to a TNW is possible but unknown.	Flows into culverts with an unknown out flow.

I-80 Express Lanes Project - Wetlands/Waters Report

<b>Feature Number<sup>a</sup></b>	<b>Feature Type</b>	<b>Acres</b>	<b>Drainage Length (feet)</b>	<b>Drainage Average Width (feet)</b>	<b>Appendix E Sheet Number</b>	<b>Data Form</b>	<b>ACOE Jurisdiction</b>	<b>State Jurisdiction</b>	<b>Clean Water Act Jurisdiction Description</b>	<b>Connectivity to RPW</b>
SD-439	Seasonal Drainage	0.09	1115.3	3.5	16	n/a	Potentially Jurisdictional	Potentially Jurisdictional	Roadside drainage ditch with flow into culvert, potential indirect connection to a TNW is possible but unknown.	Flows into culverts with an unknown out flow.
SD-440	Seasonal Drainage	0.03	351.4	4.0	16, 17	n/a	Potentially Jurisdictional	Potentially Jurisdictional	Roadside drainage ditch with flow into culvert, potential indirect connection to a TNW is possible but unknown.	Flows into culverts with an unknown out flow.
SD-441	Seasonal Drainage	0.09	1376.6	3.0	17, 18	n/a	Potentially Jurisdictional	Potentially Jurisdictional	Roadside drainage ditch with flow into culvert, potential indirect connection to a TNW is possible but unknown.	Flows into culverts with an unknown out flow.
SD-445	Seasonal Drainage	0.01	110.2	2.0	18	n/a	Potentially Jurisdictional	Potentially Jurisdictional	Roadside drainage ditch with flow into culvert, potential indirect connection to a TNW is possible but unknown.	Flows into culverts with an unknown out flow.
SD-446	Seasonal Drainage	0.01	107.8	6.0	17, 18	n/a	Potentially Jurisdictional	Potentially Jurisdictional	Roadside drainage ditch with flow into culvert, potential indirect connection to a TNW is possible but unknown.	Flows into culverts with an unknown out flow.

## I-80 Express Lanes Project - Wetlands/Waters Report

Feature Number <sup>a</sup>	Feature Type	Acreage	Drainage Length (feet)	Drainage Average Width (feet)	Appendix E Sheet Number	Data Form	ACOE Jurisdiction	State Jurisdiction	Clean Water Act Jurisdiction Description	Connectivity to RPW
SD-447	Seasonal Drainage	<0.01	76.8	2.0	2	n/a	Potentially Jurisdictional	Potentially Jurisdictional	Roadside drainage ditch with flow into culvert, potential indirect connection to a TNW is possible but unknown.	Flows into culverts with an unknown out flow.
SD-448	Seasonal Drainage	<0.01	4.7	1.5	5	n/a	Potentially Jurisdictional	Potentially Jurisdictional	Roadside drainage ditch with flow into culvert, potential indirect connection to a TNW is possible but unknown.	Flows into culverts with an unknown out flow.
SD-449	Seasonal Drainage	<0.01	83.9	2.0	12	n/a	Potentially Jurisdictional	Potentially Jurisdictional	Roadside drainage ditch with flow into culvert, potential indirect connection to a TNW is possible but unknown.	Flows into culverts with an unknown out flow.
SD-450	Seasonal Drainage	0.02	358.6	3.0	16	n/a	Potentially Jurisdictional	Potentially Jurisdictional	Roadside drainage ditch with flow into culvert, potential indirect connection to a TNW is possible but unknown.	Flows into culverts with an unknown out flow.

**Total Seasonal Drainages:** 5.80 acres

**Total Potentially Jurisdictional Seasonal Drainages:** 5.22 acres

<sup>a</sup> = Wetland features mapped within the project area Limits. Features mapped outside of the project area are not included in this table and are located in Appendix E attribute table at end of the Potentially Jurisdictional Wetland and Project Feature Maps.

## 5.2 Other Waters

### Creeks/Perennial Drainages

Twelve creeks and three unnamed perennial drainages pass through the project area. These RPWs convey water from the hills northeast of the project area to TNWs Cache, Suisun, and Peytonia Sloughs. The perennial drainages in the project area are: Jameson Canyon Creek, Green Valley Creek, Dan Wilson Creek, Suisun Creek, Unnamed Perennial Drainage 3, Ledgewood Creek, Putah Canal, Unnamed Perennial Drainage 2, Soda Springs Creek, Laurel Creek, Laguna Creek, Unnamed Perennial Drainage 1, Alamo Creek, Ulatis Creek, Pine Tree Creek, and Horse Creek.

Wetland functions of creeks and perennial drainages in the project area include serving as year-round habitat for a variety of fauna, providing movement corridors, seasonal foraging, breeding, resting, and hiding spaces for birds, mammals, herpetofauna, and aquatic invertebrates. Creeks, perennial drainages, and their associated riparian corridors may also provide habitat for several special-status plant species potentially occurring in the project area. Chemical and physical wetland functions of creeks and perennial drainages include nutrient cycling, organic carbon source/sink, retaining water particulates, removing pollutants from water, flood de-synchronization, organic debris trapping and storage, sediment debris trapping and storage, organic material decomposition, and nitrogen and phosphorus transformation (ACOE 2007b).

### Seasonal/Ephemeral Drainages

In total, 225 seasonal drainages were mapped in the project area. Of these, 192 drainages are hydrologically connected (or potentially hydrologically connected) to RPWs/TNWs, and are therefore potentially ACOE jurisdictional (See Table 2 and Appendix E). These drainages carry water intermittently, usually draining surface run-off after rain events from paved areas, hillsides, meadows, and farm fields, they therefore do not qualify as RPWs. Drainage centerlines were recorded in the project area on foot via a sub-meter accurate GPS unit. Direction of flow and the average width of each drainage feature were also recorded. OHWM indicators used to determine width were vegetation characteristics, water marks, sediment deposits, and scouring. Drainage widths varied from one to twelve feet, with an average of three feet. There are 5.80 acres of seasonal drainages in the project area, 5.22 acres of which are potentially jurisdictional.

Hydrologic connections and assumed hydrologic connections to RPWs take four forms. The first is above-ground direct connections. Sixty-nine features connect to RPWs via direct surface connections (through ditches, swales, and above-ground sheet flow). The second method of connection is through culverts. These connections are assumed when a drainage feature flows into a culvert with an unknown outfall. Forty seasonal drainages have this type of hydrologic connection in the project area. The third type of assumed connection is when a drainage flows out of the project area and hydrologic connectivity could not be ruled out. Eighty-two drainages are considered potentially jurisdictional under this criterion. The final type of hydrologic connection is when a drainage feature flowed into a NWI-mapped wetland with unknown hydrologic connections (See Appendix B). This only applies to SD-148 which flows into the NWI wetland mapped near Pena Adobe Road. It is presumed this wetland is hydrologically connected to an RPW/TNW since it is mapped in the NWI database. The remaining features are not considered ACOE jurisdictional. The ACOE does not typically assert jurisdiction over seasonal drainages and roadside ditches that drain only upland areas and are not hydrologically

connected to RPWs/TNWs, but CDFG and RWQCB may consider some of these features jurisdictional (Appendix H).

Wetland functions of seasonal drainages in the project area include serving as seasonal habitat for a variety of fauna, and providing seasonal foraging, breeding, resting and hiding spaces for birds and aquatic invertebrates. Seasonal drainages may also provide habitat for several special-status plant species potentially occurring in the project area. Chemical and physical wetland functions of creeks and perennial drainages include nutrient cycling, organic carbon source/sink, retaining water particulates, removing pollutants from water, storing sediment, organic material decomposition, and nitrogen and phosphorus transformation (ACOE 2007b).

### **Culverts**

356 culvert openings were identified in the project area (See Appendix E). When encountered, culvert openings were marked with a GPS, and direction of flow and diameter were recorded. Photographs were also taken of each culvert opening. Culvert sizes varied from one-foot diameter corrugated steel culverts, to six by ten foot concrete box culverts. Culvert openings were recorded to gauge hydrologic flow within the project area and to show whether delineated wetlands were hydrologically connected to RPWs. It was not usually possible to map the course of the culverts themselves, and it should be noted that the total number of culvert openings is greater than the total number of culverts as every culvert has at least two openings.

## **6.0 Discussion**

### **6.1 Permitting**

Seventeen seasonal wetlands, seven perennial wetland drainages, and one perennial marsh appear to be hydrologically connected to RPWs in the project area. The ACOE will determine whether the delineated wetlands form a significant nexus with Cache Slough, Suisun Slough, and Peytonia Slough. If the delineated wetlands are determined to be ACOE-jurisdictional, impacts to these wetlands due to project-related activities are likely to require a Section 404 permit issued by the ACOE (a Regional or Nationwide General Permit if possible; an Individual Permit only if a General is not possible). However, wetlands determined to be isolated wetlands, and not ACOE-jurisdictional, remain potentially State jurisdictional since isolated waters are considered waters of the State. WDRs, under the Porter-Cologne Act, would then likely be required from the RWQCB. It is recommended that this permitting process and any others be initiated as soon as possible since permits often take several months or longer to obtain.

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